OIL AND GAS
TRANSPORTATION FACILITIES

A REPORT OF

THE NATIONAL PETROLEUM COUNCIL

1962

NATIONAL PETROLEUM COUNCIL

REPORT OF

THE COMMITTEE ON

OIL AND GAS TRANSPORTATION FACILITIES

October 4, 1962

Monroe E. Spaght, Chairman

Earl G. Ellerbrake
Government Co-Chairman

Dene B. Hodges
Assistant To The Chairman

Vincent M. Brown, Secretary

NATIONAL PETROLEUM COUNCIL

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OF THE

NATIONAL PETROLEUM COUNCIL'S

COMMITTEE ON

OIL AND GAS TRANSPORTATION FACILITIES

MONROE E. SPAGHT

CHAIRMAN

NATIONAL PETROLEUM COUNCIL
REPORT OF THE COMMITTEE ON
OIL AND GAS TRANSPORTATION FACILITIES

This report is submitted on behalf of the Committee on Oil and Gas Transportation Facilities of the National Petroleum Council in response to a request made on December 19, 1960, by the Honorable Fred A. Seaton, then Secretary of the Interior.

The study requested by the Department of the Interior was to cover the petroleum and natural gas transportation capacities as of January 1, 1961, including natural gas transmission lines, crude oil and petroleum products pipelines, inland waterways barges, tank cars, and tank trucks. In connection with the study of pipelines, data were also requested on exact locations of individual pump stations, compressor stations, and major river crossings. As to pump and compressor stations, information was wanted as to horsepower, type of prime mover, and degree of automation. It should be noted that this is the first time that a Council report on transportation has included natural gas transmission lines.

In addition to the foregoing, the Committee was asked by the Department of the Interior to prepare a master set of maps on the U.S. Strategic Map Series, showing location of all gas and petroleum pipelines, pump stations, river crossings, interconnections, etc. These maps are on such a scale that 87 sections are required to cover the United States. Some 205 individual master maps were prepared, supported by about 950 system maps compiled by the participating companies. All maps will be turned over to the Office of Oil and Gas, Department of the Interior, for its use in defense mobilization studies. Because of the highly detailed information shown on these maps, they are not being published as a part of this report.

In the 1958 report of the National Petroleum Council, transportation of liquefied petroleum gas was treated as a separate subject. Although such treatment was not requested in the current study, information with regard to this type of product is available in this report through segregation of tank truck and tank car capacities by pressure specification, and by identification of inland waterways equipment, and product pipelines handling this type of product exclusively.

It will be evident from the foregoing that this report is the most comprehensive study of oil and gas transportation facilities yet prepared under the auspices of the National Petroleum Council.

The work of assembling the data necessary to provide the requested information was accomplished by the following five Subcommittees:

SUBCOMMITTEE	CHAIRMAN
Tank Truck Transportation	S. F. Niness, Chemical Leaman Tank Lines, Inc.
Inland Waterways Transportation	George A. Peterkin, Jr., Dixie Carriers, Inc.
Tank Car Transportation	R. L. Andreas, American Oil Company
Gas Pipeline Transportation	S. Orlofsky, Columbia Gulf Transmission Company
Petroleum Pipeline Transportation	E. W. Unruh, Sinclair Pipe Line Company

Committee rosters are included as part of the subcommittee reports.

Three of the subcommittees conducted direct surveys in order to obtain the required data. In these cases questionnaires were formulated by the subcommittees but sent out from and returned to the office of the National Petroleum Council, thus preserving the confidential nature of individual data. The information obtained from these questionnaires was analysed and processed by the Council staff to obtain the consolidated data included in this report. By the use of card punch technique these data have been accumulated in a form suited to use by governmental agencies in defense planning. It is the opinion of the Committee that the information which is published in this report is of a non-confidential nature.

The reports of the individual subcommittees are attached. However, following is a summary of some of the more important points contained in the five subcommittee studies.

TANK TRUCKS

This report gives the number, capacity, type and general location of all tank motor vehicles in the U.S. (over 2,000 gallons capacity) as of December 31, 1961. Unlike previous NPC

tank truck reports, this study presents particulars as to design, type of lining, pressure and ICC specifications of tank truck equipment, which information was gathered by direct survey of the operators of this equipment. Through its survey, in which it mailed questionnaires to nearly 10,000 private and for-hire operators, the Subcommittee obtained detailed data on 55 percent of the general purpose tank truck equipment, and 50 percent of all tank truck equipment in the U.S. over 2,000 gallons capacity. In addition, in order to provide some assessment of the flexibility of tank equipment, the Subcommittee obtained data on tank truck cleaning facilities located throughout the U.S.

The Subcommittee estimates that on December 31, 1961, there were 75,089 tank truck and trailer units in the U.S. in private and for-hire service, with an aggregate capacity of 420,042,425 gallons. Total fleet capacity of all equipment has increased 58 percent since July 1, 1957. Of this total there were 58,448 units of equipment in general purpose service. In addition, as of December 31, 1961, a total of 969 tank cleaning facilities were reported throughout the U.S., over 65 percent of which are located in PAD Districts I and II.

INLAND WATERWAYS

This report covers the propelled and non-propelled tank barges in the U.S. suitable for transporting petroleum and petroleum products in bulk on the inland waterways, the Great Lakes, and in some instances coastwise as of January 1, 1961. The U.S. Coast Guard's "List of Inspected Tank Vessels" was the primary source of information for this report. By eliminating tank ships certificated for ocean service, a list of inland waterways equipment was obtained. This equipment was then sorted out by the Subcommittee as to six areas of operation and the data transferred to punch cards for tabulation. Data provided show, by areas, the number and capacity of barges of over and under 5,000 barrels capacity, by year of construction. Separate data are provided for barges in liquefied gas service.

The report shows that as of January 1, 1961, there were in operation in the U.S. 2,561 non-propelled and self-propelled barges and small lake tankers, with an aggregate capacity of 26,958,706 barrels, capable of transporting petroleum products. This is an increase of about 18 percent as compared to January 1, 1957.

The Subcommittee is of the opinion that it would be a relatively simple matter for the U.S. Coast Guard to make an annual recapitulation of total barge-carrying capacity by geographical areas in its "List of Inspected Tank Vessels" to facilitate future compilations of petroleum tank barges. Your Committee feels that this suggestion warrants further exploration on the part of the Department of the Interior.

TANK CARS

This report covers the total number, by types, of tank cars available in the U.S. for the transportation of petroleum and petroleum products as of January 1, 1961. Segregation of this equipment by capacity would have required a special survey, and the Department of the Interior agreed that this would not be necessary for its purposes.

The report was formulated primarily from information provided by the American Railway Car Institute and the Association of American Railroads.

There were 169,191 tank cars operating from U.S. origins as of January 1, 1961, with a total carrying capacity of 1,591,370,000 gallons. The total number of cars shows an increase of 3.76 percent as compared to January 1, 1957, while total capacity has increased by 4.3 percent.

NATURAL GAS PIPELINES

As previously mentioned, this is the first time that data on the major natural gas transmission facilities in the U.S. have been included in a National Petroleum Council report. The natural gas industry applied itself wholeheartedly to the task of gathering the detailed information requested. Eighty-six companies participated in the Subcommittee's survey by providing highly detailed information and maps of their facilities. A mapping task force provided by five gas transmission companies prepared two master sets of maps on the U.S. Strategic Map Series depicting the location of lines, compressor stations, interconnections, major river crossings and gas storage fields.

The Subcommittee has taken cognizance of the rapid expansion of facilities in the gas transmission industry. For this reason it points out that the detailed maps and facility data provided to the Department of the Interior and contained

in its report are subject to early obsolescence if not maintained on a current basis. The Subcommittee feels that this information should be updated annually; however, this is a matter for decision by the Department of the Interior.

The survey revealed the existence of a reasonably adequate number of emergency interconnections between various transmission systems, and it is indicated that more such connections will undoubtedly be made. Resumption of service after a nuclear attack could be impeded by a lack of adequate emergency headquarters and employee fallout shelters.

PETROLEUM PIPELINES

Information for this report was gathered by means of 222 questionnaires, as well as from other available sources. Data were obtained on 1,775 pump stations and 1,555 river crossings. Detailed information obtained by the questionnaire route will be made available to governmental agencies only.

The Subcommittee has analyzed both crude and products pipeline facilities in each of the five PAD districts in relation to crude production, refining capacity, and normal inter-district movements. Included in the report are maps showing, schematically, capacities of crude oil pipeline connections between producing and refining areas and of products pipeline connections between refining and consuming areas. In addition to the foregoing, the Subcommittee prepared a master set of maps on the Strategic Map Series for the Department of the Interior.

The Subcommittee's report shows that since September 30, 1957, approximately 14,600 miles of crude and products pipelines have been constructed. Two-thirds of this additional mileage is represented by products lines, one-half of which is confined to the transportation of liquefied petroleum gas.

RECOMMENDATION

In the case of both natural gas transmission lines and petroleum pipelines, a very considerable amount of detailed data will be supplied to the Department of the Interior. It is possible that some of this information may require further clarification and interpretation. It is recommended that the Subcommittee on Gas Pipeline Transportation and the Subcommittee on Petroleum Pipeline Transportation be kept in existence until

March 31, 1963, with the understanding that their activities will be limited to providing such interpretation and clarification as the Department of the Interior may request.

ACKNOWLEDGEMENTS

As previously pointed out, this is a very comprehensive report on oil and gas transportation facilities. The Committee sould like to express to the chairmen and members of the subcommittees its deep appreciation for the time and effort they have devoted to compiling the data reported herein and provided the Department of the Interior. The Committee appreciates the excellent cooperation of the many individual companies that through response to the questionnaires made this accumulation of data possible. In particular, the Committee wishes to recognize the invaluable assistance of its Secretary, Vincent M. Brown, who also served as Staff Assistant on each of the subcommittees and directed the work of the Council staff.

S E C T I O N II

ORGANIZATION OF THE
NATIONAL PETROLEUM COUNCIL'S
COMMITTEE ON
OIL AND GAS TRANSPORTATION FACILITIES

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
Washington 25, D. C.

C
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P
Y

December 19, 1960

Dear Mr. Hallanan:

In February of 1958 the National Petroleum Council, at the request of the Department of the Interior, issued a report on "Petroleum Transportation" which contained data as of January 1, 1957. That report was of great value to the mobilization planning of the Federal Government.

It is now desirable that the Government again have a comprehensive study of domestic petroleum transportation facilities since there has been a lapse of almost four years in the data. It is also desirable that the scope of the 1958 report be expanded to include natural gas transmission lines and detailed information on the location, size and type of pump stations and compressor stations.

Therefore, I request that the National Petroleum Council create a committee or committees to undertake a thorough study to determine the petroleum and gas transportation capacities as of January 1, 1961, including natural gas transmission lines, crude oil and petroleum products pipelines, inland waterways barges, tank cars and tank trucks. In connection with the study of petroleum and gas pipelines, it is also requested that information be submitted to the Government on individual pump station or compressor station locations by latitude and longitude, including data on the horsepower installed, the type of prime mover, i.e., whether electric, diesel or gas engine and whether the stations are manned or completely automatic, and data on major river crossings. The Office of Oil and Gas will supply further information as desired on the scope and details of the requested study.

Since the various types of petroleum and gas transportation modes present different reporting problems, and since the information required by the Government is important to a study of mobilization needs, separate reports may be made.

A prompt report or reports, together with such comments and recommendations as the Council believes to be appropriate, will be appreciated.

Sincerely yours,

/S/ Fred A. Seaton

Secretary of the Interior

Mr. Walter S. Hallanan
Chairman, National Petroleum Council
1625 K Street, N. W.
Washington, D. C.

NATIONAL PETROLEUM COUNCIL

(Established by the Secretary of the Interior)

1625 K STREET, N. W.

WASHINGTON 6, D. C.

C O P Y

March 13, 1961

Mr. Monroe E. Spaght, President
Shell Oil Company
50 West 50th Street
New York, New York

Dear Mr. Spaght:

I am pleased to appoint you Chairman of the National Petroleum Council's Committee on Oil and Gas Transportation Facilities (1961).

The Agenda Committee, in its report of February 6, 1961 (copy attached), which was unanimously adopted by the Council at its meeting on February 7, recommended the appointment of a committee to undertake a study in response to the request received December 19, 1960 from the Hon. Fred A. Seaton, then Secretary of the Interior. It was requested that the Council undertake a thorough study to determine the petroleum and gas transportation capacities as of January 1, 1961, including natural gas transmission lines, crude oil and petroleum products pipelines, inland waterways barges, tank cars and tank trucks.

Each member of the Committee, as shown on the enclosed membership list, has been informed of his appointment as per the attached sample letter.

By letter of March 10, 1961, the Hon. Stewart L. Udall, Secretary of the Interior, as Government Co-Chairman of the Council, approved the establishment and membership of the Committee on Oil and Gas Transportation Facilities, and designated Mr. Earl G. Ellerbrake of the Office of Oil and Gas, as Government Co-Chairman of this Committee.

As Chairman of this Committee, you will set the agenda, time and place for all meetings, and preside at each Committee

meeting. The function of the Co-Chairman of the Committee is to approve the agenda and call of meetings, and to call any meeting of the Committee to a close if he feels it is being improperly used. With respect to obtaining required approvals of the Government Co-Chairman, and to facilitate the handling of other steps involved under the Council's present rules of procedure, you may wish to utilize the services of the Secretary of your Committee, Mr. Vincent M. Brown, who is also Assistant Secretary-Treasurer of the Council.

In addition to such other duties as you may give to him in connection with the organization and execution of this assignment, the Secretary of your Committee will have the responsibility of maintaining comprehensive and accurate minutes of all Committee proceedings.

I appreciate your acceptance of this important assignment as indicated in your letter to me of February 27, and I am pleased to make this formal appointment.

Sincerely yours,

/S/ Walter S. Hallanan

Walter S. Hallanan

Enclosure

NATIONAL PETROLEUM COUNCIL'S
COMMITTEE ON OIL AND GAS
TRANSPORTATION FACILITIES (1961)

CHAIRMAN:* Monroe E. Spaght
President
Shell Oil Company
50 West 50th Street
New York, New York

ASSISTANT TO THE CHAIRMAN:
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Vice President
Shell Oil Company
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New York, New York

SECRETARY:
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1625 K Street, N. W.
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* * * *

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Brockett, E. D., President
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Comerford, James
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Copeland, George R.
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Algonquin Gas Transmission Co.
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Boston 9, Massachusetts

* GOVERNMENT CO-CHAIRMAN

Earl G. Ellerbrake, Office of Oil and Gas
U. S. Department of the Interior, Washington, D. C.

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Green, Russell H., President
Signal Oil and Gas Company
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Spahr, Charles E., President
The Standard Oil Company (Ohio)
Midland Building
Cleveland 15, Ohio

Swearingen, John E., President
Standard Oil Company (Indiana)
910 South Michigan Avenue
Chicago 80, Illinois

Young, George S.
Chairman of the Board
The Columbia Gas System, Inc.
120 East 41st Street
New York 17, New York

NATIONAL PETROLEUM COUNCIL

(Established by the Secretary of the Interior)

1625 K STREET, N. W.

WASHINGTON 6, D. C.

June 14, 1961

C
O
P
Y

(Sample of letter used in appointing the 5 Subcommittee Chairmen)

Mr. S. Orlofsky, Vice President
Columbia Gulf Transmission Company
Gulf Interstate Building
1125 Brazos Street
Houston, Texas

Dear Mr. Orlofsky:

I am pleased to appoint you Chairman of the Subcommittee on Gas Pipeline Transportation of the National Petroleum Council's Committee on Oil and Gas Transportation Facilities.

The Council, at its meeting on February 7, 1961, agreed to undertake a transportation study in response to the request received December 19, 1960 from the Hon. Fred A. Seaton, then Secretary of the Interior. He requested that the Council determine the petroleum and gas transportation capacities as of January 1, 1961, including natural gas transmission lines, crude oil and petroleum products pipelines, inland waterways barges, tank cars and tank trucks. A copy of this request appears in the report of the Council's Agenda Committee dated February 6, which is enclosed.

Mr. Monroe E. Spaght, President, Shell Oil Company has been designated Chairman of the Transportation Facilities Committee, and Mr. Dene B. Hodges, also of Shell Oil, is Assistant to the Chairman. A copy of the membership list of the Main Committee, and the membership rosters of each Subcommittee are enclosed for your information.

As Chairman of the Subcommittee on Gas Pipeline Transportation, you will set the agenda, time and place for all meetings and preside at each meeting of your group. Under present

Council procedure, it is required that the Government Co-Chairman approve the agenda and call of your meetings. To assist you in obtaining these approvals, and to coordinate the availability of facilities of the Council office in connection with your assignment, you may wish to utilize the services of Mr. Vincent M. Brown, Assistant Secretary-Treasurer of the Council, who will serve as Staff Assistant to your Subcommittee.

I trust I may have your acceptance of this important assignment and would appreciate your advising me.

Sincerely yours,

/S/ Walter S. Hallanan

Walter S. Hallanan

Enclosure

S E C T I O N III

REPORT OF

THE SUBCOMMITTEE ON TANK TRUCK TRANSPORTATION

OF THE

NATIONAL PETROLEUM COUNCIL'S

COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES

S. F. NINESS

CHAIRMAN

September 15, 1962

Mr. Monroe E. Spaght, Chairman
NPC Committee on Oil and Gas
Transportation Facilities
c/o Shell Oil Company
50 West 50th Street
New York, New York

Dear Mr. Spaght:

Your Subcommittee on Tank Truck Transportation has completed its assignment, and I am pleased to transmit to you, herewith, our final report. We have presented overall totals by type of service, for all tank truck equipment in the United States having a capacity in excess of 2,000 gallons per unit.

In addition, in order to obtain accurate information on the type and specifications of tank truck and trailer equipment now being operated, the Subcommittee conducted an extensive survey of operators, and the results are contained in the report. Data on tank truck cleaning equipment was also obtained in the survey, and our findings are set out in the report.

We wish to extend our appreciation to the many tank truck operators who participated in the Subcommittee's survey and especially to Frank Perry, Atlantic Refining Company; C. Austin Sutherland, National Tank Truck Carriers, Inc. and Vincent Brown, Assistant Secretary-Treasurer, National Petroleum Council for their untiring efforts in making this assignment possible.

Sincerely yours,

/S/ S. F. Niness

S. F. Niness, Chairman
NPC Subcommittee on Tank
Truck Transportation

SUBCOMMITTEE ON TANK TRUCK TRANSPORTATION
OF THE
NATIONAL PETROLEUM COUNCIL'S
COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES (1961)

CHAIRMAN:
S. F. Niness, President
Chemical Leaman Tank Lines, Inc.
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SECRETARY:
C. Austin Sutherland
Managing Director
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STAFF ASSISTANT:
Vincent M. Brown
Assistant Secretary-Treasurer
National Petroleum Council
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* * * *

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General Traffic Manager
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Imus, Merle, Past President
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Mayhood, C. H.
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American Oil Company
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Rogers, B. E.
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REPORT OF
THE SUBCOMMITTEE ON TANK TRUCK TRANSPORTATION
OF THE
NATIONAL PETROLEUM COUNCIL'S
COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES

The Subcommittee on Tank Truck Transportation submits herewith its report on the number, capacity, type and general location of all tank motor vehicles in the U.S. as of December 31, 1961. This study has been made pursuant to the request of the Secretary of the Interior that the National Petroleum Council undertake a thorough study to determine the petroleum transportation capacities of tank truck equipment. The Subcommittee was also requested, in order to provide some assessment of the flexibility of tank equipment, to gather and report data on tank truck cleaning facilities located throughout the U.S.

The Subcommittee believes this report is an accurate and comprehensive summary of the size and capabilities of the private and for-hire tank truck equipment in the U.S. The study provides more useful information than prior NPC tank truck reports in that for the first time it presents particulars as to design, type of lining, pressure and ICC specifications of tank truck equipment gathered by direct survey of the operators of this equipment.

Since the last NPC report, published in early 1958, there have been several developments in tank truck transportation that are significant and will contribute to the more efficient and effective operation of the U.S. fleet. The obsolescence factor for tank trailers is now at a substantially lower rate because of the adoption by most of the states of more uniform provisions regulating gross weights on the highways To a large extent this uniformity has been brought about by legislation on the rebuilding of the interstate highway systems The Federal Aid Interstate Highway Program provides for a maximum gross vehicle weight of 73,280 lbs. It further provide that those states which had gross vehicle weight provisions exceeding this limitation could maintain this maximum and still

be eligible for Federal aid. Today, 60,000 lbs. gross vehicle weight is the lowest maximum permitted for conventional tractor semi-trailers. More than one-half of the states permit over 70,000 lbs. on such a vehicle. The trend is towards a maximum of 73,280 lbs. Some states have adopted the gross vehicle weight up to or approximating this figure on designated highways.

Refinements in the design of the tank truck built for dry bulk hauling, coupled with economies and convenience of deliveries, have resulted in a tremendous upsurge in the manufacture of this type of equipment. Since 1958, the Department of Commerce reports manufacturers' shipments of 4,615 semi-trailers for dry bulk use, of which the Subcommittee estimates 4,203 were in operation at the end of 1961. A large percentage of these dry bulk tanks could be converted, with minimum expense, to service in liquid bulk.

Much of the increased utilization of tank trucks has been due to the development of modern cleaning facilities since the last NPC report, and this has resulted in the fact that a large percentage of tank truck units can now haul either general petroleum products or chemicals and petrochemicals interchangeably. Accordingly, a tank truck can now haul a petroleum product in one direction, and after having the unit promptly and properly cleaned it may transport a chemical or petrochemical on the return or subsequent haul. This has added an important factor of flexibility to tank truck equipment, which would be a valuable asset in the event of another emergency.

The large increase in both numbers and capacities of the U.S. fleet of tank trucks points up the growth of tank truck transportation, especially in the field of chemicals and petrochemicals. Many petroleum companies as well as chemical companies, are today producing large volumes of petrochemicals. Many of these petrochemicals are used in the making of rocket fuels, strategic chemicals, detergents, acids, anti-freeze, pharmaceutical products, paints, lacquers and resins for the coating of wires, plasticizers and resins now used in vital defense products.

The tank truck industry, through research and experience has developed the capabilities needed in designing, building and operating highly specialized equipment adapted to the transporting of almost any product, e.g., cryogenics. As a result, it has established itself as an important factor in the movements of these essential chemicals manufactured by the petroleum industry. In any future emergency, the tank truck industry

would therefore play an indispensable role due to its ability to transport virtually any liquid or dry bulk products.

The report includes detail on both straight trucks ("unit tank trucks") and articulated vehicles (semi-trailers and trains), operated by both private and for-hire carriers. All equipment reported has a capacity of at least 2,000 gallons.

The Subcommittee submits its findings in three sections:

1. The total units and capacities of all tank truck equipment in the U.S. over 2,000 gallons capacity.

2. The results of its direct survey of private and for-hire truck operators.

3. Census of tank truck cleaning facilities.

SUMMARY OF ALL TANK TRUCK EQUIPMENT IN U.S.

In the report by the National Petroleum Council on Petroleum Transportaion dated February 21, 1958, the Tank Truck Subcommittee submitted data on tank truck equipment in the U.S. as of July 1, 1957. For the current survey, as in previous reports, the Subcommittee updated the last figures (which were for 1957) by adding in the total of new tank vehicles manufactured since the last report, as taken from the Bureau of Census, Department of Commerce, after adjusting for vehicles scrapped and retired from service. This information, together with the findings from the direct survey of private and for-hire truck operators resulted in new data on the total equipment as between private and for-hire operators by the 5 PAD Districts.

Table 1 shows the details of the U.S. fleet of tank truck equipment. The Subcommittee estimates that on December 31, 1961, there were 75,089 tank truck and trailer units in the U.S. in private and for-hire service, with an aggregate capacity of 420,042,425 gallons. Total fleet capacity of all equipment has increased 58 per cent since July 1, 1957. Fleet capacity of units hauling chemical, food and sanitary items increased 72 per cent in the same period; and the high pressure fleet carrying liquefied petroleum gases, anhydrous ammonia and other liquefied gases increased 173 per cent since July 1, 1957.

Table 2 sets forth in detail the General Purpose tank trailer and semi-trailer equipment in the U.S., by PAD Districts. Of the 45,948 general purpose units (over 2,000 gallon capacity), 20,596 or 45 per cent are operated by private carriers; and the for-hire carriers are operating 25,352 units or 55 per cent. The average capacity per unit (not including unit tank trucks) is 6,751 gallons for private carriers, and 7,116 gallons for the for-hire carriers.

It will be noted that whereas on July 1, 1957 private carriers operated 41.3 percent of the capacity of the total fleet; they were operating 43.5 per cent of the capacity of the total fleet at the end of 1961. In all PAD Districts, with the exception of District V, the percentage increase in total capacity since 1957 of general purpose trailer equipment operated by private carriers has exceeded that of the for-hire operators.

Compared with the 1957 figures, the total capacity of privately owned general purpose trailer equipment increased about 48 per cent, while the for-hire capacity for this service increased 35 per cent.

Table 3 shows the total general purpose tank trailer, semi-trailer and tank truck equipment in the United States (over 2,000 gallons capacity). There were 58,448 units of equipment in general purpose service as of December 31, 1961. This includes 45,948 semi-trailers and trains with an average carrying capacity of 6,952 gallons and 12,500 unit tank trucks with an average carrying capacity of 2,364 gallons.

SURVEY OF TANK TRUCK EQUIPMENT

In order to obtain comprehensive detail as requested by the Department of the Interior as to the type and capacity of tank truck equipment in service, the Subcommittee conducted a survey by direct mail questionnaire, which was sent to nearly 10,000 private and for-hire operators throughout the U.S. In this effort the Subcommittee was successful and is pleased with the response and cooperation of the tank truck operators who participated. Data on 55 per cent of the general purpose tank truck equipment was obtained, and 50 per cent of all tank truck equipment in the U.S. over 2,000 gallons capacity. Accordingly, the Subcommittee is able to present a detailed report on tank truck design, the various types of equipment in use (including type of lining, pressure, ICC specification, etc.), location and capacity.

Table 4 shows this data in summary form, which is in the exact form of our questionnaire. The survey covers 38,564 units of tank truck equipment, including 31,528 general purpose type tanks, 978 corrosive liquid tanks, 2,078 pressure tanks, 3,409 dry bulk tanks, and 571 other type tanks. Fifty-five per cent of the equipment reported in the survey is operated by for-hire carriers, and 45 per cent by private operators.

SURVEY OF TANK TRUCK CLEANING FACILITIES

The installation of modern tank truck cleaning facilities throughout the U.S. is an important factor in providing increased flexibility of tank equipment. In some instances the cleaning of a tank results in its immediate availability for use in a return haul of a different product. In a national emergency, the placing of a fleet in a particular service in any part of the country may be accomplished in less time if adequate cleaning facilities are available.

Table 5 shows the results of the survey conducted by the Subcommittee on tank cleaning facilities. As of December 31, 1961, a total of 969 cleaning facilities were reported throughout the U.S., over 65 per cent of which are located in PAD Districts I and II (a total of 644).

At each cleaning facility location there are one or more of the following types of cleaning systems employed--high pressure spinner system, steam jenny, steam boiler, and trichlorethylene. Of these 4 types, 49 per cent of those reported were steam jenny systems. Steam boilers accounted for 33 per cent of the total type of systems.

TABLE 1

ALL TANK TRUCK EQUIPMENT IN UNITED STATES
PRIVATE AND FOR-HIRE
COMPARISON BETWEEN NPC REPORT OF JULY 1, 1957 AND REPORT OF DECEMBER 31, 1961

	JULY 1, 1957		DECEMBER 31, 1961		TOTAL CAPACITY (GALLONS)		
	TRAILERS	UNIT TANK TRUCKS	TRAILERS	UNIT TANK TRUCKS	1957	1961	% INCREASE
General Purpose Non and Low Pressure (Under 30 psi)	37,068	4,769*	45,948	12,500*	242,719,383	348,987,050	44%*
Chemical, Food and Sanitary	2,799	1,226	5,046	1,679	13,210,800	22,700,700	72%
High Pressure (250 psi and Over) - LPG, Anhydrous Ammonia, Chemical	1,051	2,276	2,595	3,118	9,053,900	24,712,800	173%
Dry Bulk - Cement, Flour, Feed, Fertilizer, etc.	**	-	4,203	-	**	23,641,875	-
Totals	40,918	8,271	57,792	17,297	264,984,083	420,042,425	58%

* The 1957 NPC study was confined to over-the-road tank truck equipment having a capacity of 3,000 gallons or over. The 1961 NPC study however covers all tank truck equipment in excess of 2,000 gallons.
** Not reported in 1957 study.

TABLE 2

GENERAL PURPOSE TANK TRAILER AND SEMI-TRAILER EQUIPMENT IN U. S.
PRIVATE AND FOR-HIRE CARRIERS
COMPARISON BETWEEN NPC REPORT OF JULY 1, 1957 AND REPORT OF DECEMBER 31, 1961

REGION	NUMBER OF UNITS			TOTAL CAPACITY (GALLONS)			AVERAGE CAPACITY PER UNIT	
	1957	1961	% INCREASE	1957	1961	% INCREASE	1957	1961
PAD DISTRICT NO. 1								
Private Carriers	6,392	8,352	30.7	36,249,032	52,200,000	44.0	5,671	6,250
For-Hire Carriers	6,952	8,057	15.9	41,517,344	51,997,150	25.2	5,973	6,454
Total - District 1	13,344	16,409	23.0	77,766,376	104,197,150	34.0	5,828	6,350
PAD DISTRICT NO. 2								
Private Carriers	5,541	7,428	34.1	33,246,000	51,253,200	54.2	6,000	6,900
For-Hire	7,559	8,790	16.3	48,120,594	63,894,600	32.8	6,366	7,269
Total - District 2	13,100	16,218	23.8	81,366,594	115,147,800	41.5	6,211	7,100
PAD DISTRICT NO. 3								
Private Carriers	1,732	2,347	35.5	10,045,600	16,076,950	60.0	5,800	6,850
For-Hire Carriers	3,133	3,701	18.1	18,826,197	26,259,050	39.5	6,009	7,095
Total - District 3	4,865	6,048	24.3	28,871,797	42,336,000	46.6	5,935	7,000
PAD DISTRICT NO. 4								
Private Carriers	295	446	51.2	1,843,750	3,122,000	69.3	6,250	7,000
For-Hire Carriers	1,151	1,269	10.3	7,442,366	9,054,500	22.0	6,466	7,135
Total - District 4	1,446	1,715	18.6	9,286,116	12,176,500	31.1	6,422	7,100
PAD DISTRICT NO. 5								
Private Carriers	1,803	2,023	12.2	12,621,000	16,386,300	29.8	7,000	8,100
For-Hire Carriers	2,510	3,535	40.8	17,670,400	29,189,300	65.2	7,040	8,257
Total - District 5	4,313	5,558	28.9	30,291,400	45,575,600	50.5	7,023	8,200
TOTAL UNITED STATES								
Private Carriers	15,763	20,596	30.7	94,005,382	139,038,450	47.9	5,957	6,751
For-Hire Carriers	21,305	25,352	19.0	133,576,901	180,394,600	35.0	6,269	7,116
Total United States	37,068	45,948	23.9	227,582,283	319,433,050	40.4	6,140	6,952

TABLE 3

TOTAL GENERAL PURPOSE TANK TRAILER, SEMI-TRAILER, AND UNIT TANK TRUCK EQUIPMENT IN UNITED STATES (OVER 2,000 GALS. CAPACITY) PRIVATE AND FOR-HIRE CARRIERS (DOES NOT INCLUDE CORROSIVE LIQUID TANKS, PRESSURE TANKS, OTHER MISCELLANEOUS, OR DRY BULK TANKS.)
(AS OF DECEMBER 31, 1961)

TYPE OF EQUIPMENT BY PAD DISTRICT	NUMBER OF UNITS	TOTAL CAPACITY (GALLONS)	AVERAGE UNIT CAPACITY
DISTRICT NO. 1			
(a) Unit Tank Trucks	4,320	9,936,000	2,300
(b) Semi Trailers & Trains	16,409	104,197,150	6,350
(c) Total Private & For-Hire Equipment - District No. 1	20,729	114,133,150	5,506
DISTRICT NO. 2			
(a) Unit Tank Trucks	4,390	10,097,000	2,300
(b) Semi Trailers & Trains	16,218	115,147,800	7,100
(c) Total Private & For-Hire Equipment - District No. 2	20,608	125,244,800	6,077
DISTRICT NO. 3			
(a) Unit Tank Trucks	1,665	3,996,000	2,400
(b) Semi Trailers & Trains	6,048	42,336,000	7,000
(c) Total Private & For-Hire Equipment - District No. 3	7,713	46,332,000	6,007
DISTRICT NO. 4			
(a) Unit Tank Trucks	375	975,000	2,600
(b) Semi Trailers & Trains	1,715	12,176,500	7,100
(c) Total Private & For-Hire Equipment - District No. 4	2,090	13,151,500	6,292
DISTRICT NO. 5			
(a) Unit Tank Trucks	1,750	4,550,000	2,600
(b) Semi Trailers & Trains	5,558	45,575,600	8,200
(c) Total Private & For-Hire Equipment - District No. 5	7,308	50,125,600	6,859
TOTAL			
(a) Unit Tank Trucks	12,500	29,554,000	2,364
(b) Semi Trailers & Trains	45,948	319,433,050	6,952
(c) Total Private & For-Hire Equipment - United States	58,448	348,987,050	5,971

TABLE 4

TOTALS OF ACTUALLY REPORTED EQUIPMENT
(As Of December 31, 1961)
NATIONAL PETROLEUM COUNCIL'S SURVEY OF TANK TRUCK EQUIPMENT
(Being made at request of U. S. Department of Interior)
QUESTIONNAIRE FORM NO. 1

NOTE: A copy of this form should be used to report all your tank truck equipment having a 2000 gallon or more capacity. Read all footnotes carefully before filling in your data.

Water Capacity of Tank (Gallons)	GENERAL PURPOSE TYPE TANKS (Item 1)								CORROSIVE LIQUID TANKS					PRESSURE TANKS		OTHERS (Item 4)	DRY BULK TANKS (Item 5)			TOTAL
	ICC Specification Numbers MC-300, 302, 303, 304 or 305 (Item 2)						Non-ICC Types (Item 3)		ICC Specification Numbers MC-310 or MC-311 (Item 2)					MC-330 (Item 2)		(Describe on Separate Sheet)				
	Mild or High Tensile Steel		Aluminum		Stainless Steel				Mild or High Tensile Steel			Aluminum	Stainless Steel	Under 251 psi	Over 251 psi		Screw	Air Slide	Pressure	
	Non-insulated	Insulated	Non-insulated	Insulated	Non-insulated	Insulated	Non-insulated	Insulated	Unlined	Lined Rubber	Lined Other									
TRUCKS: (Item 6) (a) 2000 Gals. and Over	5,595	96	163	12	48	11	194	44	11	–	–	–	1	379	202	43	12	25	76	6,912
SEMI-TRAILERS: (Item 7) (a) 2000 - 3000	306	45	2	1	2	28	18	40	105	30	40	3	20	40	5	18	7	–	7	717
(b) 3001 - 5000	2,750	506	57	41	69	591	292	485	169	185	77	16	122	86	22	52	230	8	20	5,778
(c) 5001 - 7500	8,798	619	2,058	143	204	519	414	826	28	31	3	14	69	236	131	361	589	838	1,346	17,227
(d) 7501 - Over	599	64	2,332	56	30	20	11	29	3	–	–	–	2	530	250	20	21	20	68	4,055
TRAINS: (Item 8)	1,510	348	1,050	275	48	50	13	116	6	2	20	–	21	129	68	77	9	119	14	3,875
TOTAL	19,558	1,678	5,662	528	401	1,219	942	1,540	322	248	140	33	235	1,400	678	571	868	1,010	1,531	38,564

1. General Purpose Type Tanks—Tanks, such as conventionally used for petroleum products, and non-corrosive chemicals, etc., generally top-filling, bottom-unloading; designed for moderate or no pressure.

2. MC-300, 302, 303, 304, 305, 310, 311, and 330—These designate the ICC specifications. If designed to comparable specifications such as NFPA 385, insert in comparable ICC specification column.

3. List here only if not designed to ICC or ICC type specifications. Examples of such tanks are those used for asphalt, road oil, greases, and edible products.

4. Others—List tanks not covered by other columns; for example tube trailers and novel designs such as cryogenic tanks.

5. Dry bulk tanks—Tanks designed for cement, flour, granulated sugar, etc. Convert cubic feet capacity to gallons by multiplying by 7.5; viz. 1000 cubic feet—7500 gallons, and list opposite appropriate gallonage.

6. List unit tank trucks of 2000 gallons and over. Do *NOT* list unit tank trucks operated as part of a train. (See Item 8)

7. List, on appropriate line, the number of semi-trailers *operated* (both owned or leased) by you as part of a tractor semi-trailer combination. This includes spare semi-trailers. See Item 8 for listing of semi-trailers used in "trains".

8. List the total number of "trains" (truck-full trailers or tractor-semi-trailer-full trailer combination) *operated* (both owned and leased) by you. Count each "train" as only one unit. Do not count either tank trucks or semi-trailers included in these "trains" when listing your unit tank trucks or semi-trailers above.

TABLE 5

TOTALS ACTUALLY REPORTED
(AS OF DECEMBER 31, 1961)
NATIONAL PETROLEUM COUNCIL
SURVEY OF TANK TRUCK CLEANING FACILITIES*
(From Questionnaire Form No. 2)

	NUMBER OF CLEANING FACILITIES	NUMBER AND TYPES OF CLEANING SYSTEMS			
		HIGH PRESSURE SPINNER	STEAM JENNY	STEAM BOILER	TRICHLOR-ETHYLENE
Total PAD District No. 1	329	51	225	117	27
Total PAD District No. 2	315	49	199	102	17
Total PAD District No. 3	127	21	73	58	4
Total PAD District No. 4	47	2	27	15	3
Total PAD District No. 5	149	22	40	89	8
Total Alaska & Hawaii	2	-	1	1	-
Total United States	969	145	565	382	59

* A facility as used herein means a location which includes special designs, and/or buildings designed especially for cleaning the INSIDE of tank motor vehicles.

S E C T I O N IV

REPORT OF

THE SUBCOMMITTEE ON INLAND WATERWAYS TRANSPORTATION

OF THE

NATIONAL PETROLEUM COUNCIL'S

COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES

GEORGE A. PETERKIN, JR.

CHAIRMAN

April 10, 1962

Mr. Monroe E. Spaght, Chairman
NPC Committee on Oil and Gas
Transportation Facilities
c/o Shell Oil Company
50 West 50th Street
New York 20, New York

Dear Mr. Spaght:

Attached are the completed tables covering the propelled and non-propelled tank barges in the United States suitable for transporting petroleum and petroleum products in bulk on the inland waterways, the Great Lakes, and in some instances coastwise as of January 1, 1961. The information which we have gathered is obtained primarily from the U.S. Coast Guard, although the areas of operation and the firsthand checking has been accomplished by the Subcommittee and its individual members.

We believe that consideration should be given to a recommendation by the National Petroleum Council that the U.S. Coast Guard annually make a recapitulation of total barge carrying capacity of each geographic area in their "List of Inspected Tank Vessels" to facilitate future compilations of petroleum tank barges. We are informed that this would be a relatively simple task and should be quite accurate enough for the designed purpose.

In the layout of this report, the country has been divided into six areas of operation as follows:

1. The Mississippi River System and Gulf Intracoastal Waterway

2. The East Coast Waterways including the New York State Barge Canal

3. The West Coast

4. The Great Lakes

5. Alaska

6. Hawaii

The attached summary table gives a simplified listing of the entire barge petroleum fleet. The additional tables break down the fleet by construction years and are tied into the summary table by use of numerical outline designations. You will note the heavy density of petroleum barges on the Mississippi River and Gulf Intracoastal Canal. This is due to several factors, including the extensiveness of the area served, the excellence of the waterways, and the concentration of petroleum producing and refining facilities located on or close to these waterways. Another interesting feature is the trend toward larger barges which is apparent in the supporting tables. This trend is a reflection of the cooperation among the oil companies and the barge operators toward achieving the greatest economy of operation through larger individual liftings made feasible by technological advances during the last decade.

We believe that this report completes the work of our Subcommittee, but we stand ready to render other assistance or supply additional information, if needed.

Yours very truly,

/S/ George Peterkin, Jr.

George Peterkin, Jr., Chairman
NPC Subcommittee on Inland
Waterways Transportation

SUBCOMMITTEE ON INLAND WATERWAYS TRANSPORTATION
OF THE
NATIONAL PETROLEUM COUNCIL'S
COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES (1961)

CHAIRMAN:
George A. Peterkin, Jr.
President
Dixie Carriers, Inc.
3400 Montrose Boulevard
Houston 6, Texas

VICE CHAIRMAN:
Arthur E. Fischer
Manager, Inland Division
Marine Transportation Dept.
Socony Mobil Oil Company, Inc.
150 East 42nd Street
New York 17, New York

SECRETARY:
Braxton B. Carr, President
The American Waterways
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1025 Connecticut Ave., N. W.
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STAFF ASSISTANT:
Vincent M. Brown
Assistant Secretary-Treasurer
National Petroleum Council
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Washington 6, D. C.

* * * *

Ball, Munger T.
President and General Manager
Sabine Towing & Transportation
Company, Inc.
P. O. Drawer 1500
Port Arthur, Texas

Belford, J. Frank, Jr.
Executive Vice President
Seaboard Shipping Corporation
17 Battery Place
New York 4, New York

Crowley, Thomas B.
United Transportation Company
Pier 32
San Francisco 5, California

Forgie, J. W.
Assistant Manager
Marine Division
The Atlantic Refining Company
260 South Broad Street
Philadelphia 1, Pennsylvania

Foss, Henry O.
Foss Launch & Tug Company
225 East F Street
Tacoma, Washington

Gilbert, H. A.
Oil Transfer Corporation
17 Battery Place
New York 4, New York

SUBCOMMITTEE ON INLAND WATERWAYS TRANSPORTATION (Cont'd)

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1409 Winchester Avenue
Ashland, Kentucky

Jonassen, L. M.
President
Cleveland Tankers, Inc.
1700 Standard Building
P. O. Box 6479
Cleveland 1, Ohio

Russell, Lewis, Jr.
Tidewater Barge Lines
2609 N. E. Marine Drive
Portland 11, Oregon

Taylor, G. C., President
Mississippi Valley Barge
Line Company
411 North Seventh Street
St. Louis 1, Missouri

SUMMARY

TOTAL INDICATED U. S. INLAND WATERWAYS
PETROLEUM FLEET
JANUARY 1, 1961

	WATERWAYS SYSTEM	FOR DETAILS SEE SCHEDULE NO.	OVER 5,000 BARRELS CAPACITY NUMBER OF UNITS	OVER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)	UNDER 5,000 BARRELS CAPACITY NUMBER OF UNITS	UNDER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)	TOTAL BARRELS CAPACITY NUMBER OF UNITS	TOTAL BARRELS CAPACITY TOTAL CAPACITY (BARRELS)
SELF-PROPELLED PETROLEUM TANK VESSELS:								
1.	East Coast (Including New York State Barge Canal)	1	68	740,411	64	87,963	132	828,374
2.	Mississippi River & Gulf Intracoastal Canal	2	1	13,500	0	0	1	13,500
3.	West Coast	2	2	14,837	5	537	7	15,374
4.	Great Lakes	2	23	816,101	6	9,571	29	825,672
5.	Alaska	2	1	20,000	11	13,634	12	33,634
	Total Section A		95	1,604,849	86	111,705	181	1,716,554
NON-PROPELLED TANK BARGES:								
1.	Mississippi River & Gulf Intracoastal Canal	3	1,477	19,355,156	369	804,837	1,846	20,159,993
2.	East Coast (Including New York State Barge Canal)	4	247	3,169,353	111	246,785	358	3,416,138
3.	West Coast	5	82	1,122,914	30	77,976	112	1,200,890
4.	Great Lakes	6	18	211,216	9	12,852	27	224,068
5.	Alaska	7	3	19,300	8	12,486	11	31,786
6.	Hawaii	7	1	7,108	1	3,260	2	10,368
	Total Section B		1,828	23,885,047	528	1,158,196	2,356	25,043,243
LPG OR LIG * TANK BARGES:								
1.	Mississippi River & Gulf Intracoastal Canal	8	21	197,807	3	1,102	24	198,909
	Total United States		1,944	25,687,703	617	1,271,003	2,561	26,958,706

* Liquefied Inflammable Gas

SCHEDULE NO. 1

EAST COAST
PROPELLED PETROLEUM TANK VESSELS
JANUARY 1, 1961

YEAR BUILT	OVER 5,000 BARRELS CAPACITY NUMBER OF BARGES	OVER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)	UNDER 5,000 BARRELS CAPACITY NUMBER OF BARGES	UNDER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)
Prior to 1932	21	222,104	34	47,221
1932	1	5,053	1	947
1933	0	0	3	3,153
1934	5	83,125	3	8,350
1935	0	0	1	3,150
1936	1	5,380	1	4,910
1937	1	11,000	5	6,076
1938	2	19,111	1	452
1939	1	5,000	0	0
1940	1	13,000	0	0
1941	4	41,746	1	105
1942	3	29,052	0	0
1943	7	57,257	1	193
1944	8	97,881	0	0
1945	4	36,876	1	384
1946	1	15,000	1	544
1947	3	29,878	2	5,400
1948	1	10,476	1	198
1949	0	0	2	947
1950	0	0	1	1,227
1951	0	0	1	952
1952	0	0	0	0
1953	1	11,107	1	1,102
1954	1	9,000	1	1,200
1955	0	0	0	0
1956	1	13,950	1	452
1957	0	0	0	0
1958	1	24,415	1	1,000
1959	0	0	0	0
1960	0	0	0	0
Total	68	740,411	64	87,963

SCHEDULE NO. 2

GREAT LAKES, WEST COAST & ALASKA
PROPELLED PETROLEUM TANK VESSELS
JANUARY 1, 1961

SYSTEM	YEAR BUILT	OVER 5,000 BARRELS CAPACITY NUMBER OF VESSELS	OVER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)	UNDER 5,000 BARRELS CAPACITY NUMBER OF VESSELS	UNDER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)
MISSISSIPPI RIVER AND GULF COAST					
	Prior to 1932	1	13,500	0	0
WEST COAST					
	Prior to 1932	0	0	3	269
	1934	1	5,550	0	0
	1944	1	9,287	0	0
	1947	0	0	1	65
	1954	0	0	1	203
	Total	2	14,837	5	537
GREAT LAKES					
	Prior to 1932	17	621,019	4	3,941
	1937	2	86,684	0	0
	1938	1	28,794	0	0
	1941	1	15,500	0	0
	1945	1	38,190	0	0
	1950	0	0	1	1,300
	1953	1	25,914	0	0
	1960	0	0	1	4,330
	Total	23*	816,101*	6	9,571
ALASKA					
	1945	0	0	1	2,143
	1948	0	0	2	1,780
	1950	0	0	2	1,780
	1951	0	0	3	2,943
	1954	1	20,000	0	0
	1956	0	0	2	3,860
	1957	0	0	1	1,128
	Total	1	20,000	11	13,634

* With modification 5 Great Lake tankers, with a total capacity of 191,492 barrels could probably be approved for ocean trade. In addition 4 Great Lake tankers, with a total capacity of 57,692 barrels could probably be approved for short coastwise trade. Two of these tankers, with a total capacity of 42,409 barrels are definitely scheduled to leave Great Lakes service.

SCHEDULE NO. 3

MISSISSIPPI RIVER SYSTEM & GULF INTRACOASTAL CANAL
INLAND TANK BARGES
JANUARY 1, 1961

YEAR BUILT	OVER 5,000 BARRELS CAPACITY NUMBER OF BARGES	OVER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)	UNDER 5,000 BARRELS CAPACITY NUMBER OF BARGES	UNDER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)
Total Prior to 1932	21	200,606	69	144,728
1932	4	26,000	3	8,838
1933	8	62,904	9	17,520
1934	4	37,792	16	26,389
1935	17	193,811	8	22,570
1936	33	252,593	11	19,600
1937	49	404,954	10	23,439
1938	18	171,655	6	9,492
1939	35	329,915	11	29,205
1940	74	755,031	22	30,732
1941	106	979,331	6	9,176
1942	56	559,584	5	12,511
1943	63	601,056	4	9,424
1944	23	255,848	0	0
1945	56	605,549	10	28,758
1946	33	406,292	5	12,010
1947	61	798,340	10	12,144
1948	119	1,651,872	7	16,668
1949	67	1,117,806	10	16,524
1950	33	566,099	11	25,007
1951	95	1,734,003	19	51,039
1952	74	1,314,475	10	26,065
1953	21	366,969	6	12,865
1954	12	167,324	17	48,754
1955	65	972,327	8	14,205
1956	55	790,923	12	27,287
1957	69	1,104,354	28	46,569
1958	46	589,028	16	37,339
1959	69	921,004	9	33,051
1960	91	1,417,711	11	32,928
Total	1,477	19,355,156	369	804,837

SCHEDULE NO. 4

EAST COAST AREA
(INCLUDING NEW YORK STATE BARGE CANAL)
INLAND TANK BARGES
JANUARY 1, 1961

YEAR BUILT	OVER 5,000 BARRELS CAPACITY NUMBER OF BARGES	OVER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)	UNDER 5,000 BARRELS CAPACITY NUMBER OF BARGES	UNDER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)
Total Prior to 1932	22	193,270	33	75,867
1932	1	6,500	6	10,857
1933	3	40,608	3	8,416
1934	7	99,283	2	4,526
1935	1	17,085	3	9,186
1936	15	182,507	1	4,285
1937	23	278,930	7	27,558
1938	2	34,396	3	9,900
1939	5	38,555	3	6,535
1940	7	90,013	2	498
1941	12	117,364	3	5,383
1942	4	30,363	4	12,712
1943	2	24,384	4	13,593
1944	2	20,000	2	2,108
1945	14	171,100	3	3,690
1946	9	124,658	1	4,000
1947	7	130,357	6	11,197
1948	22	278,540	0	0
1949	22	284,571	2	2,588
1950	5	42,832	0	0
1951	11	206,129	2	2,540
1952	4	51,345	5	11,117
1953	3	47,121	0	0
1954	2	36,000	0	0
1955	8	111,507	4	10,823
1956	10	148,712	4	4,430
1957	11	150,072	2	778
1958	10	171,361	4	3,535
1959	3	41,790	1	428
1960	0	0	1	235
Total	247	3,169,353	111	246,785

SCHEDULE NO. 5

WEST COAST
TANK BARGES
JANUARY 1, 1961

YEAR BUILT	OVER 5,000 BARRELS CAPACITY NUMBER OF BARGES	OVER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)	UNDER 5,000 BARRELS CAPACITY NUMBER OF BARGES	UNDER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)
Total Prior to 1932	9	76,740	8	25,145
1937	0	0	1	3,000
1938	2	16,684	1	4,988
1939	1	6,190	2	9,309
1940	3	20,511	3	7,069
1941	3	22,575	2	2,055
1942	2	14,779	0	0
1943	8	82,073	3	10,953
1944	13	101,157	2	2,625
1945	2	32,319	3	4,056
1946	4	41,500	0	0
1947	2	26,277	0	0
1948	4	42,025	0	0
1949	2	17,350	0	0
1950	0	0	0	0
1951	1	12,920	1	1,143
1952	3	60,671	0	0
1953	3	67,788	0	0
1954	3	58,421	0	0
1955	3	78,364	1	189
1956	1	39,359	0	0
1957	2	46,025	0	0
1958	1	26,286	1	4,958
1959	1	11,837	1	2,200
1960	2	36,837	1	286
Total	75	938,688	30	77,976

TANK BARGES CERTIFIED
FOR COASTWISE SERVICE:

YEAR BUILT	OVER 5,000 BARRELS CAPACITY NUMBER OF BARGES	OVER 5,000 BARRELS CAPACITY TOTAL CAPACITY
1943	1	14,000
1949	1	23,214
1950	1	26,458
1957	2	22,554
1958	1	60,000
1960	1	38,000
Coastwise Sub-Total	7	184,226
Grand Total	82	1,122,914

SCHEDULE NO. 6

GREAT LAKES AREA
TANK BARGES
JANUARY 1, 1961

YEAR BUILT	OVER 5,000 BARRELS CAPACITY NUMBER OF BARGES	OVER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)	UNDER 5,000 BARRELS CAPACITY NUMBER OF BARGES	UNDER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)
Total Prior to 1932	1	12,500	4	2,737
1934	0	0	1	4,762
1937	1	6,650	1	3,785
1940	2	17,000	0	0
1941	4	55,500	0	0
1942	1	16,000	0	0
1945	3	25,800	0	0
1947	1	9,500	0	0
1949	1	20,000	2	760
1950	1	8,133	0	0
1951	1	8,133	0	0
1957	2	32,000	0	0
1960	0	0	1	808
Total	18	211,216	9	12,852

SCHEDULE NO. 7

ALASKA & HAWAII
TOTAL INLAND TANK BARGES
JANUARY 1, 1961

	YEAR BUILT	OVER 5,000 BARRELS CAPACITY NUMBER OF BARGES	OVER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)	UNDER 5,000 BARRELS CAPACITY NUMBER OF BARGES	UNDER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)
ALASKA					
	1941	0	0	2	3,033
	1942	0	0	1	297
	1948	0	0	2	5,571
	1951	0	0	1	1,619
	1952	0	0	1	490
	1953	2	14,300	0	0
	1956	1	5,000	0	0
	1957	0	0	1	1,476
	Total	3	19,300	8	12,486
HAWAII					
	1942	1*	7,108	0	0
	1945	0	0	1	3,260
	Total	1	7,108	1	3,260

* Certified for Coastwise Service

SCHEDULE NO. 8

MISSISSIPPI RIVER SYSTEM & GULF INTRACOASTAL CANAL
TANK BARGES WITH SPECIAL FEATURES
OR IN SPECIAL SERVICES
(LIQUEFIED PETROLEUM GAS OR LIQUEFIED INFLAMMABLE GAS)
JANUARY 1, 1961

YEAR BUILT	OVER 5,000 BARRELS CAPACITY NUMBER OF BARGES	OVER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)	UNDER 5,000 BARRELS CAPACITY NUMBER OF BARGES	UNDER 5,000 BARRELS CAPACITY TOTAL CAPACITY (BARRELS)
1950	1	8,571	0	0
1951	1	9,306	1	34
1955	2	12,832	0	0
1956	2	19,053	0	0
1957	5	35,244	2	1,102
1958	4	38,869	0	0
1960	6	73,932	0	0
Total	21	197,807	3	1,102

S E C T I O N V

REPORT OF

THE SUBCOMMITTEE ON TANK CAR TRANSPORTATION

OF THE

NATIONAL PETROLEUM COUNCIL'S

COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES

R. L. ANDREAS

CHAIRMAN

October 19, 1961

Mr. Monroe E. Spaght, Chairman
NPC Committee on Oil and Gas
Transportation Facilities
c/o Shell Oil Company
50 West 50th Street
New York, New York

Dear Mr. Spaght:

As Chairman of the Subcommittee on Tank Car Transportation of the National Petroleum Council's Committee on Oil and Gas Transportation Facilities (1961), I am pleased to attach your Subcommittee's report of tank cars available in the United States for the transportation of petroleum and petroleum products as of January 1, 1961. You will note that attached to the report is a breakdown by types of cars, together with explanatory data.

Our Subcommittee members have asked me to express to you their appreciation for the privilege of serving this effort.

Yours sincerely,

/S/ Ralph L. Andreas

Ralph L. Andreas, Chairman
NPC Subcommittee on Tank
Car Transportation

SUBCOMMITTEE ON TANK CAR TRANSPORTATION
OF THE
NATIONAL PETROLEUM COUNCIL'S
COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES (1961)

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* * * *

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REPORT OF
THE SUBCOMMITTEE ON TANK CAR TRANSPORTATION
OF THE
NATIONAL PETROLEUM COUNCIL'S
COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES

There were 169,191 tank cars operating from United States origins as of January 1, 1961. Attached is a statement showing a breakdown by types of these cars, together with explanatory data.

The statement also shows the cars assigned to petroleum, chemical, and other services. As a practical matter, many of the cars are used interchangeably, and the figures should be dealt with on that basis. In particular, cars in the TM, TMI, and TPI classes are frequently changed between the various services. Many types, such as TP, TPI, TR, and TRI could be used for motor fuel, heating oils, and other petroleum products in an emergency, although they were constructed for special purposes. Such utilization possibly would involve some structural modifications at origins and destinations because of loading and unloading situations.

Numerically, the 169,191 cars as of January 1, 1961, represent a 3.76 per cent increase over the 163,059 cars as of January 1, 1957, covered in the last previous report to the National Petroleum Council.

In regard to carrying capacities, the increase is 4.30 per cent; the January 1957 total being 1,525,702,000 gallons, and the January 1961 total 1,591,370,000 gallons. It is interesting to note that the percentage increase in total capacity exceeds the percentage increase in the total number of cars by 1/2 of 1 per cent. New construction in recent years has been principally of cars larger than 8,000 gallons in capacity. Cars retired from service have generally been of the 8,000-gallon size and smaller. Only 9 per cent of the January 1961 total were cars of 6,000 gallons and less. This tendency is expected to continue as large cars in sizes ranging from 20,000 to 30,000 gallons are finding greater acceptance.

The survey attached is based primarily on data provided by the American Railway Car Institute, which has been making an

annual survey since 1959; also on information furnished by the Association of American Railroads relative to railroad-owned cars. Complete surveys were made by the Association of American Railroads prior to 1959. These associations were genuinely helpful to us in our activities in collecting the data attached.

TABLE 1

TANK CARS - UNITED STATES - JANUARY 1, 1961

	TA	TAI	TG	TGI	TL	TLI	TM	TMI	TMU	TP	TPA	TPI	TR	TRI	TOTAL
PRIVATELY OWNED															
Petroleum Service	50	-	-	-	1,833	1,184	43,138	13,080	-	1,170	135	21,690	4	26	82,310
Chemical Service	4,484	198	-	6	2,920	3,557	15,272	4,358	415	300	1,338	11,769	1,184	1,816	47,617
Other Than Petroleum Or Chemical Service	23	-	-	-	1,691	2,049	20,816	5,223	188	-	-	724	61	12	30,787
Total Privately Owned	4,557	198	-	6	6,444	6,790	79,226	22,661	603	1,470	1,473	34,183	1,249	1,854	160,714
RAILROAD OWNED															
Petroleum Service	60	-	-	-	-	-	8,325	-	-	-	-	-	-	-	8,385
Chemical Service	-	-	-	-	-	-	61	-	-	-	-	-	-	-	61
Other Than Petroleum Or Chemical Service	-	-	-	-	-	-	31	-	-	-	-	-	-	-	31
Total Railroad Owned	60	-	-	-	-	-	8,417	-	-	-	-	-	-	-	8,477
Grand Total	4,617	198	-	6	6,444	6,790	87,643	22,661	603	1,470	1,473	34,183	1,249	1,854	169,191

This statement includes cars owned by companies from whom no reports were received.

In the designation shown, when an "I" is added, such as "TPI", the container or tank is insulated.

TA - This designation covers tank cars for shipment of various acids, such as sulphuric, oleum, nicotine, nitrobenzol, etc.

Tank car equipped with container of ICC Specification 103A, 103A-W, 103E-W, 103A-N-W, 103C, 103C-W, and 111A100-W-6. Also ARA-II, ARA-III, ICC-103, ICC-103-W, or ICC-111A100-W-2 if containers and appurtenances were originally designed or subsequently reconstructed to comply with the requirements for ICC-103A cars.

TG - This designation covers tank cars that are glass lined and used for wine, milk, etc.

Tank car having one or more glass-lined containers of ICC Specification 103A-W.

TL - These are tank cars that are lined or coated with various materials other than glass to prevent corrosion or contamination of contents. These handle such products as acetic acid, latex, plasticizers, phenol, etc.

Tank car equipped with container lined with any material other than glass, such as ICC Specification 103B, 103B-W, 103B100-W, 111A100-W-5, 105A300-W (rubber-lined). Also ARA III (rubber-lined).

TM - These are considered to be "general purpose" tank cars. These are used for everything from alcohols to zinc sulphate solutions, including most petroleum products, except liquefied petroleum gases.

Tank car equipped with container of ARA or AAR Specification I, II, III, III Experimental Welded Seams, IV, 203, 203-W, 203-X, or ICC Specification 103, 103-W, 103D-W, 104, 104-W, ICC-111A100-W-1, ICC-111A100-W-3, or Specification EMERGENCY USG-A, USG-B, or USG-C.

TPA - These are aluminum cars used for pressure products, such as fertilizer ammoniating solution containing free ammonia.

Tank car equipped with aluminum container of ICC Specification 104A-AL-W, 105A100AL-W, 105A200AL-W, 105A300AL-W,

109A100AL-W, 109A200-AL-W or 109A300AL-W.

TP - These are the tank cars used for liquefied petroleum gas, anhydrous ammonia, chlorine, etc.

Tank car equipped with container of ARA Specification IV-A, V, or AAR-205A300-W or ICC Specification 104A, 104A-W, 105, 105A100, 105A100-W, 105A200-W, 105A300, 105A300-W, 105A400, 105A400-W, 105A500, 105A500-W, 105A600, 105A600-W, 109A300-W, 111A100-W-4, 112A400-W or 112A500-W.

TR - Special type of tank car, made of aluminum, for fatty acids, nitrogen solutions, acetic acid, etc.

Tank car equipped with container of AAR Specification 201A35, 201A35 SPECIAL, 201A35-W, 201A35-X, 201A70-W, or ICC Specification 103AL, 103AL-W, 103A-AL-W, 103C-AL, and 111A60AL-W.

TMU - Special type of tank cars of high pressure used for trimethylamine, sulphur dioxide, sodium chloride, etc.

Tank car equipped with containers of ARA Specification VI, B. E. Specification 27, ICC Specification 27, 51, 106A500, 106A500-X, 106A800, 106A800-X, 106A800-NCI, 107A **** series or 110A500-W.

S E C T I O N VI

REPORT OF

THE SUBCOMMITTEE ON GAS PIPELINE TRANSPORTATION

OF THE

NATIONAL PETROLEUM COUNCIL'S

COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES

S. ORLOFSKY

CHAIRMAN

May 28, 1962

Mr. Monroe E. Spaght, Chairman
NPC Committee on Oil and Gas
Transportation Facilities
c/o Shell Oil Company
50 West 50th Street
New York 20, New York

Dear Mr. Spaght:

The National Petroleum Council's Subcommittee on Gas Pipeline Transportation is happy to report the completion of its assignment.

This report has been prepared in response to the request received December 19, 1960, from the Secretary of the Interior. The Secretary asked the National Petroleum Council to determine capacities and location of gas transportation facilities as of January 1, 1961, for use in mobilization planning of the Federal Government. In response to the Secretary's request, the National Petroleum Council authorized, on June 14, 1961, the formation of the Subcommittee on Gas Pipeline Transportation. Meeting in Washington, D. C. on August 3, 1961, and again on March 13, 1962, the Subcommittee formulated the plans for gathering the requested transmission pipeline information and approval of the final report. The report consists of the following:

Part I Natural Gas Pipeline Transportation Facilities

Part II The Importance of the Natural Gas Transmission Industry in Defense Planning

Part III Comments and Findings

Part IV Natural Gas Pipeline Transportation Facilities Data (Unrestricted)

Part V Assignment and Method of Obtaining Information and Data

The Subcommittee expresses its appreciation for the superior cooperation extended by the 86 companies that participated in the preparation and completion of the assignment. Also the Subcommittee is grateful for the assistance and guidance provided by the staff of the National Petroleum Council, and Department of the Interior, Office of Oil and Gas.

Very truly yours,

/S/ S. Orlofsky

S. Orlofsky, Chairman
NPC Subcommittee on Gas
Pipeline Transportation

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SUBCOMMITTEE ON GAS PIPELINE TRANSPORTATION
OF THE
NATIONAL PETROLEUM COUNCIL'S
COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES (1961)

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PART I

NATURAL GAS PIPELINE TRANSPORTATION FACILITIES

PART I

NATURAL GAS PIPELINE TRANSPORTATION FACILITIES

The information requested by the Secretary of the Interior with respect to the country's natural gas transmission facilities has been obtained from the industry by means of questionnaires and submission of pipeline maps.

The Subcommittee has prepared master pipeline facility map sets from this information. These questionnaires and the master map sets are by their very nature confidential, and will be made available only to the Department of the Interior for its use in classified defense and mobilization studies. Accordingly, the questionnaire was returned by the participating companies directly to the National Petroleum Council's Washington, D. C. office separately.

Attached hereto as "Part IV" are several tables which disclose statistical data that have been derived from the questionnaires.

PART II

THE IMPORTANCE OF THE NATURAL GAS TRANSMISSION INDUSTRY IN DEFENSE PLANNING

PART II

THE IMPORTANCE OF THE NATURAL GAS TRANSMISSION INDUSTRY IN DEFENSE PLANNING

It has now become clear that in the event of another general war the continental limits of the United States will be subject to nuclear attack. Because of this threat, our nation's industry must prepare for its survival. The way industry responds after nuclear attack may very well be the decisive factor in the final outcome of the conflict. The nation will depend on the undamaged portion of its industrial capacity to provide the required energy, goods and services for national survival.

In the event of nuclear attack, one of the most essential elements of the national economy that will have to be rehabilitated with a minimum of delay is the energy supply. The natural gas industry as of 1960 accounts for 31.5 per cent of the total energy requirements of the United States, serving 30.5 million customers. Since 1945 at the close of World War II, the annual interstate shipment of natural gas has increased from 1.1 trillion cubic feet to 7.5 trillion cubic feet in 1960. The natural gas industry spans the country in a vast network of over 238,740 miles of pipelines, 7,600,000 compressor horsepower at an approximate total gross cost of facilities of 9 billion dollars.

The natural gas pipeline transmission industry is aware of the need to participate in the over-all mobilization and defense effort of the country. In past emergencies there was little need for advanced preparedness measures by the natural gas industry because of the remote possibility that the energy industries of the United States would be subject to attack or destruction. Nuclear and missile warfare has changed the entire concept of national preparedness.

During past conflicts the underlying problem of preparedness and mobilization of the petroleum industry has been the logistics of supplying petroleum products for ships, airplanes and other vehicles of the armed forces, for the most part operating outside the United States. Although natural gas played an important role in World War II and the Korean War

efforts, the industry was never mobilized to the extent that is now required for the survival of the country in the event of nuclear attack.

The natural gas pipeline industry has an inherent characteristic that does not exist in other energy producing industries. Its natural gas pipelines differ from crude oil and products pipelines because they are not dependent upon refinery capacities or storage capacity that is subject to destruction by nuclear attack. It is less subject to major destruction by nuclear attack because, (1) the major facilities are underground pipelines vastly dispersed throughout the country; (2) the above ground facilities--primarily compressor stations--are usually located in highly rural areas that for the most part will not fall within the severe pressure and fire effect zones of nuclear explosions; (3) the originating sources of natural gas and the method used for the storage of natural gas are in deep underground reservoirs naturally protected from above-ground nuclear explosions; and, (4) there are no major concentrations of natural gas pipeline facilities such as exist in the electric and petroleum industries. The natural gas pipeline transmission segment of the economy can be expected to provide service to the undamaged sections of the country and restore service to areas affected by nuclear explosions with a minimum of delay during the rehabilitation period.

PART III

COMMENTS AND FINDINGS

PART III

COMMENTS AND FINDINGS

The function of the Natural Gas Pipeline Facilities Subcommittee was primarily to prepare a transportation study of the major natural gas pipeline transmission properties in the United States to be used for damage assessment and defense planning by the Department of the Interior and the Defense Agencies in the event of nuclear attacks on the United States.

Formulated from the experiences encountered in collecting and preparing natural gas pipeline facilities data for the study, the Subcommittee submits the following comments, findings and recommendations:

1. The highly detailed and technical information, data and maps furnished to the Department of the Interior in connection with this report will not afford ultimate utility to the Government unless maintained on a current and accurate basis. The natural gas transmission industry has grown in recent years so that it now plays a vital part in the nation's peacetime economy, and will be even more important in the event of a national emergency. Because of the nature of the transmission industry, it is extremely important that knowledge as to the location and capacity of all pipeline systems and interconnection between systems be kept up to date. Accordingly, your Subcommittee recommends that the data obtained on gas transmission facilities be annually updated by the Council at the request of the Department of the Interior.

2. The Subcommittee wishes to point out that it has produced a set of master maps of the nation's gas transmission facilities never before compiled in such detail or with such accuracy. In addition, it has obtained corollary information on exact locations and capacities of compressor stations, gathering and transmission lines, interconnections, underground storage compressor stations, communications systems, river crossings, as well as location of dispatching centers. It is believed that in completing the mapping work and turning over this technical detail to the Government, the Subcommittee should be available to the Department of the Interior to supply any supplemental information the Department desires, as well as to furnish any further analysis or explanations

required by the Department. Accordingly, the Subcommittee recommends that it be continued in existence for a time in order to furnish such assistance as needed by the Department of the Interior, and its Office of Oil and Gas, relative to interpretation of the material which the Subcommittee has furnished.

3. The study indicates that the gas transmission industry has provided reasonably adequate emergency interconnections. There are certain areas where improvements can and will be made by the industry. It is the opinion of the Subcommittee that these and future connections would be facilitated by simplification of the procedural requirements for their approval.

4. The responsibility for the development of emergency preparedness plans for mobilization and rehabilitation for the natural gas pipeline transmission industry should be vested with a single Federal agency. The Subcommittee concurs with Executive Order 10997 issued February 16, 1962, that placed over-all coordination of national emergency planning of the energy industries with the Department of the Interior. The Subcommittee recommends that the Department of the Interior act as the single agency that will coordinate the defense planning requirements of Federal, state and local bodies, and the military of the natural gas transmission industry. Defense and mobilization in the event of all national emergencies, including nuclear attacks on the United States, involve all energy producing industries. Separate agencies of the Federal, state and local governments, and the military should not divide the mobilization and rehabilitation responsibilities of the energy industry. The entire energy industry mobilization and rehabilitation preparedness program to be efficient and effective should be channeled through and be under the direction of the Department of the Interior.

5. The Subcommittee finds that the gas pipeline industry has not provided or established emergency headquarters and employee fallout shelters to the extent that will be necessary to enable the industry to accomplish an early resumption of service and rehabilitation of facilities following a period of nuclear attacks.

PART IV

NATURAL GAS PIPELINE TRANSPORTATION FACILITIES DATA

TABLE 1

STATISTICAL DATA ON NATURAL GAS TRANSMISSION COMPANY
COMPRESSOR STATION INSTALLATIONS ABOVE 1,000 HORSEPOWER
AS OF JANUARY 1, 1961

COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOYEES
Alabama Tennessee Natural Gas Co.				
1	G	3	1,050	4
Algonquin Gas Transmission Co.				
1	G	4	10,800	7
2	G	4	8,000	10
3	G	3	8,100	7
	Total	11	26,900	24
American Louisiana Pipe Line Co.				
2	G	4	8,000	15
3	G	6	12,000	20
5	G	5	10,000	18
6	G	6	12,000	18
8	G	6	12,000	19
9	G	5	10,000	20
11	G	6	12,000	19
	Total	38	76,000	129
Arkansas Louisiana Gas Company				
1	G	7	3,300	1
2	G	4	1,600	1
3	G	2	1,500	2
4	G	5	1,300	1
5	G	3	1,050	1
6	G	3	1,405	4
7	G	4	1,800	8
8	G	8	2,680	4
9	G	2	1,320	1
10	G	7	2,725	
11	G	4	1,870	1
12	G	2	1,100	1
13	G	8	2,400	
14	G	4	2,000	1
15	G	5	7,500	13
16	G	5	7,000	14
17	G	5	1,750	1
18	G	5	1,750	1
19	G	4	1,400	6
20	G	11	1,865	10
21	G	13	2,960	1
22	G	6	1,875	6
23	G	10	10,000	17
24	G	6	1,950	
25	G	3	3,900	
26	G	7	10,500	17
27	G	6	1,020	1
28	G	4	1,810	1
	Total	153	81,330	114
Atlantic Seaboard Corporation				
710	G	8	10,600	14
711	G	4	6,000	20
712	G	7	8,600	14
713	G	4	3,200	12
714	G	4	3,200	14
715	G	3	2,480	6
716	G	6	6,600	10
717	G	1	5,500	8
718	G	5	4,800	14
719	G	4	4,400	11
720	G	4	8,000	7
	Total	50	63,380	130
Cabot Carbon Company				
1045	G	3	2,650	5
3902	G	21	6,790	5
3903	G	30	10,790	5
	Total	54	20,230	15

NOTE: G = Gas Turbine E = Electric S = Steam Turbine

COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOY
Cities Service Gas Company				
52	G	1	1,100	
53	G	6	2,925	1
56	G	8	3,505	8
57	G	10	1,700	11
58	G	1	1,800	
59	G	6	6,000	17
61	G	7	7,000	18
63	G	8	10,600	15
64	G	3	6,000	5
65	G	7	7,000	17
66	G	3	6,000	5
68	G	5	7,100	
69	G	3	6,000	5
71	G	5	4,760	17
72	G	4	4,000	15
74	G	5	7,850	11
77	G	7	8,600	22
78	G	15	14,470	21
79	G	5	5,000	16
80	G	7	7,000	19
81	G	5	5,000	16
82	G	8	8,000	23
83	G	9	7,000	25
84	G	1	1,100	1
85	G	15	15,000	29
87	G	16	25,600	57
88	G	3	4,050	10
89	G	5	3,110	13
91	G	8	1,360	6
92	G	10	1,700	11
93	G	7	11,200	25
95	G	2	2,700	5
96	G	4	6,900	13
	Total	209	211,130	457
Coastal Transmission Corporation				
2	G	1	2,500	9
4	G	2	4,000	10
6	G	2	4,000	10
8	G	3	6,000	11
	Total	8	16,500	40
Colorado Interstate Gas Company				
1	G	13	9,560	36
2	G	8	4,800	10
3	G	5	4,600	1
4	G	6	4,600	10
5	G	6	5,200	14
6	G	5	4,050	3
7	G	4	3,200	7
8	G	12	14,400	28
9	G	10	12,360	17
10	G	11	14,520	24
11	G	4	5,400	7
12	G	4	5,400	7
13	G	7	9,980	22
14	G	3	4,500	7
15	G	7	5,320	17
16	G	1	2,000	
	Total	106	109,890	210
Colorado-Wyoming Gas Company				
1	G	10	6,840	17
Columbia Gulf Transmission Co.				
1	G	4	14,000	10
2	G	1	10,500	
2	G	7	14,000	11
3	G	4	14,000	10
4	G	1	4,000	
4	G	7	14,000	11
5	G	4	14,000	10
6	G	7	14,800	11
7	G	4	14,000	10
8	G	7	14,000	11
9	G	4	14,000	10
10	G	7	14,000	11
	Total	57	155,300	105

STATISTICAL DATA ON NATURAL GAS TRANSMISSION COMPANY
COMPRESSOR STATION INSTALLATIONS ABOVE 1,000 HORSEPOWER
AS OF JANUARY 1, 1961

COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOYEES
Commonwealth National Gas Corp.				
1	G	3	2,400	10
Consumers Power Company				
1	G	4	10,800	13
2	G	3	8,100	14
	Total	7	18,900	27
Cumberland & Allegheny Gas Company				
1	G	3	1,350	9
East Ohio Gas Company				
1	G	7	4,200	17
2	G	4	5,400	16
3	G	2	1,130	
4	G	3	4,500	12
	Total	16	15,230	45
El Paso Natural Gas Company				
1[a]	G	7	14,000	12
2	G	4	8,000	5
4	G	4	8,000	8
6	G	4	6,000	13
7	G	3	4,500	6
8	G	3	6,000	6
9	G	3	6,000	4
10	G	3	6,000	9
11	G	3	6,000	5
12	G	3	4,500	9
13	G	3	4,500	8
14	G	4	4,000	11
18	G	4	8,000	13
23[b]	G	6	4,620	22
24	G	3	1,980	1
25	G	7	14,000	9
26	G	14	17,600	21
27	G	5	6,750	10
28	G	6	6,600	10
29	G	4	2,640	8
30	G	4	2,120	3
31[c]	G	12	10,560	10
32	G	27	52,720	50
33[d]	G	1	1,100	-
34[d]	G	3	1,980	-
35[d]	G	3	1,650	-
36[d]	G	5	3,520	-
37[d]	G	4	4,000	-
38	G	7	10,500	14
39	G	3	3,300	5
40[d]	G	3	1,500	-
41	G	8	9,000	14
42	G	23	25,500	29
43[d]	G	4	3,080	-
44	G	7	9,450	15
45	G	12	16,500	23
46[f]	G	24	16,300	36
47	G	6	6,600	9
48[h]	G	4	1,230	-
49	G	2	1,320	2
50	G	4	2,380	5
51	G	2	2,000	3
52	G	10	20,000	15
53[g]	G	12	24,000	25
54	G	5	6,750	13
55[d & e]	G	7	4,340	-
56	G	9	11,150	14
57[d]	G	3	1,320	-
58	G	4	4,400	9
El Paso Natural Gas Company (Cont'd)				
59	G	3	1,980	3
60	G	7	5,600	14
61	G	6	4,400	13
62	G	7	5,600	16
63	G	6	4,800	16
64	G	6	4,800	15
65	G	15	24,480	27
66	G	12	12,100	21
67	G	3	17,100	8
68	G	25	25,600	30
69	G	3	17,100	8
70	G	3	17,100	8
71	G	25	28,000	30
72	G	3	17,100	8
73	G	3	17,100	8
74	G	21	23,100	29
75[i]	G	6	4,800	-
76	G	2	11,400	8
77	G	3	17,100	8
78	G	2	1,600	8
79	G	15	24,320	27
80[i]	G	3	2,400	1
81	G	2	11,400	8
82[i]	G	3	2,400	1
83	G	3	17,100	8
84	G	17	18,700	26
85	G	3	17,100	8
86	G	15	17,100	21
87	G	14	23,650	22
88	G	2	10,000	8
89	G	3	10,200	9
90	G	12	17,600	18
91	G	2	10,000	8
92	G	3	10,200	8
93	G	10	15,240	18
94	G	9	22,500	25
95	G	18	29,000	34
96	G & E	18	33,000	34
97	G	14	31,800	29
98	E	2	10,000	2
99[j]	G	10	28,400	28
100[k]	G	24	29,080	34
101	G	4	1,650	6
102	G	4	3,520	9
103	G	7	4,520	7
104	G	5	3,980	4
105	G	4	2,640	4
106[l]	G	10	21,400	19
107	G	4	4,400	8
108	G	12	18,560	20
	Total	724	1,110,680	1,216
Florida Gas Transmission Company				
10	G	3	6,000	11
12	G	3	6,000	11
14	G	3	6,000	11
16	G	3	6,000	11
	Total	12	24,000	44
Home Gas Company				
1	G	5	2,280	10
Hope Natural Gas Company				
1	G	5	3,100	14
2	G	8	4,000	22
3	G	16	16,400	62
4	G	2	2,000	11
5	G	6	3,100	10

a Two recompression units of 550 HP each are located at this station.
b Four compressor units totaling 3,520 HP owned by Belco are located at this station and operated by EPNG personnel.
c Three repressuring units totaling 1,100 HP are located at this station.
d Operated by other companies for EPNG.
e One 150 HP recompression unit is located at this station.
f Two recompression units totaling 780 HP are located at this station.
g Two recompression units totaling 1,760 HP are located at this station.
h Operated by EPNG personnel from Westlake.
i Operated intermittently.
j Two 440 HP recompression units are located at this station.
k One 220 HP recompression unit is located at this station.
l Two 440 HP and one 100 HP recompression units are located at this station.

NOTE: Horsepower included in the footnotes is not listed in tabulation.

STATISTICAL DATA ON NATURAL GAS TRANSMISSION COMPANY
COMPRESSOR STATION INSTALLATIONS ABOVE 1,000 HORSEPOWER
AS OF JANUARY 1, 1961

COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOYEES
Hope Natural Gas Company (Cont'd)				
6	G	5	1,825	6
7	G	18	32,100	120
8	G	4	1,980	15
9	G	9	8,050	24
10	G	1	1,100	7
11	G	4	3,200	11
12	G	6	4,800	20
13	G	4	2,000	10
14	G	4	5,400	15
15	G	6	7,200	20
	Total	98	96,255	367
Illinois Power Company				
1	E	4	2,800	6
2	E	3	2,400	—
	Total	7	5,200	6
Kansas Power & Light Company				
1	G	4	4,000	11
2	G	7	7,150	17
3	G	7	9,200	17
4	G	3	4,800	11
5	G	5	8,100	—
	Total	26	33,250	56
Kentucky Gas Transmission Corp.				
205	G	4	3,520	9
207	G	3	2,640	10
209	G	4	2,400	6
	Total	11	8,560	25
Lone Star Gas Company				
1	G	3	2,010	7
2	G	16	2,720	8
3	G	2	1,750	2
4	G	9	3,660	10
5	G	7	2,170	10
6	G	2	2,880	4
7	G	4	3,280	6
8	G	10	3,380	12
9	G	17	2,890	11
10	G	3	2,640	9
11	G	12	3,280	4
12	G	14	2,380	10
13	G	5	1,240	9
14	G	2	2,670	8
15	G	4	1,320	3
16	G	3	4,050	10
17	G	2	3,200	4
18	G	9	1,530	1
	Total	124	47,050	128
Manufacturers Light & Heat Company				
1	G	5	6,640	9
2	G	2	1,760	10
3	G	4	2,400	7
4	G	4	1,800	9
5	G	2	2,200	10
6	G	5	2,880	10
7	G	4	2,000	10
8	G	2	2,200	8
9	G	3	2,050	8
10	G	3	1,600	9
11	G	4	5,280	11
12	G	3	3,500	10
13	G	3	2,640	9
	Total	44	36,950	120
Michigan Consolidated Gas Company				
1	G	21	40,000	20
Michigan Gas Storage Company				
1	G	13	15,700	32
2	G	18	25,200	34
	Total	31	40,900	66

COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOYEES
Michigan Wisconsin Pipe Line Company				
	G	15	36,000	56
1	G	9	13,240	21
2	G	8	10,560	23
3	G	8	10,560	23
4	G	8	10,560	23
5	G	7	11,600	28
6	G	7	10,400	23
7	G	8	10,560	23
8	G	7	10,400	23
9	G	7	10,400	23
10	G	7	10,590	28
11	G	5	7,750	22
12	G	5	7,750	22
13	G	5	7,750	22
14	G	7	8,640	20
15	G	4	2,640	
16	G	3	6,000	6
17	G	2	3,000	5
13A	G	13	20,280	53
	Total	135	208,680	444
Midwestern Gas Transmission Company				
2101	G	4	8,940	9
2110	G	3	8,100	8
2201	G	3	5,100	8
2213	G	3	5,100	9
	Total	13	27,240	34
Mississippi River Fuel Corp.				
1	G	3	2,250	
2	G	2	1,320	
3	G	9	9,400	22
4	G	6	3,600	9
5	G	8	7,040	14
6	G	8	8,000	30
7	G	6	3,600	9
8	G	8	8,600	14
9	G	7	7,000	25
10	G	6	3,600	9
11	G	8	6,495	14
12	G	7	7,000	31
13	G	4	3,200	9
14	G	8	5,890	13
15	G	7	7,000	32
16	G	6	4,600	10
17	G	1	1,850	5
6A	G	6	6,600	
9A	G	6	6,000	
12A	G	6	6,400	
15A	G	5	5,500	—
	Total	127	114,945	246
Montana-Dakota Utilities Company				
1	G	10	4,050	7
2	G	8	2,470	5
3	G	8	1,990	4
4	G	3	1,980	4
5	G	4	2,640	4
6	G	8	2,400	4
7	G	7	2,160	5
8	G	4	2,640	4
9	G	5	1,335	6
10	G	7	6,160	12
	Total	64	27,825	55
Montana Power Company				
1	G	3	1,980	4
2	E	2	1,200	1
3	G	6	1,320	4
4	G	2	1,320	4
	Total	13	5,820	13
Mountain Fuel Supply Company				
1	G	4	5,280	8
2	G	6	1,750	4
3	G	3	1,040	4
	Total	13	8,035	16

STATISTICAL DATA ON NATURAL GAS TRANSMISSION COMPANY
COMPRESSOR STATION INSTALLATIONS ABOVE 1,000 HORSEPOWER
AS OF JANUARY 1, 1961

COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOYEES
Natural Gas Pipeline Co. of America				
101	G	5	8,750	25
102	G	7	12,250	34
103	G	10	17,500	42
104	G	10	17,500	39
105	G	11	19,250	40
106	G	10	17,500	66
107	G	10	17,500	49
108	G	10	17,500	49
109	G	10	17,500	49
110	G	8	14,000	36
111	G	20	20,000	94
112	G	17	20,250	92
155	G	3	1,821	8
156	G	3	8,280	11
300	G	3	8,550	14
301	G	6	15,840	29
302	G	6	15,840	29
303	G	7	18,480	28
304	G	7	18,480	31
305	G	7	18,480	28
306	G	7	18,480	39
307	G	7	18,480	33
308	G	7	18,480	31
309	G	7	18,480	30
310	G	6	15,840	28
311	G	7	18,480	29
	Total	211	413,511	983
Natural Gas Storage Company of Illinois				
201	G	7	8,640	46
203	G	3	1,650	5
	Total	10	10,290	51
New York State Natural Gas Corp.				
1	G	5	7,750	14
13	G	7	4,920	13
24	G	12	30,000	60
28	G	6	12,000	14
45	G	3	1,200	6
63	G	6	11,100	14
85	G	6	7,500	15
91	G	7	5,200	15
100	G	5	5,000	6
111	G	7	6,380	12
144	G	6	11,100	15
151	G	4	1,650	6
172	G	8	13,000	23
24A	G	8	9,630	17
	Total	90	126,430	230
Niagara Mohawk Power Corporation				
1	E	3	2,200	
2	E	3	1,200	
	Total	6	3,400	
North Central Gas Company				
1	G	4	1,350	5
Northern Illinois Gas Company				
50	G	4	2,525	11
Northern Indiana Public Service Co.				
1	G	1	1,000	
1	E	2	1,200	8
1	E	2	1,200	
1	E	2	2,000	
1	G	2	1,200	
2	G	1	400	
2	G	2	2,000	4
3	E	1	125	4
3	S	1	125	
3	E	1	265	
3	E	1	1,000	
3	E	1	600	
	Total	17	11,115	16

COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOYEES
Northern Natural Gas Company				
4	G	16	11,200	29
5	G	10	11,660	18
6	G	4	4,510	11
7	G	14	18,750	32
10	G	5	1,980	
11	G	6	6,600	39
13	G	16	28,200	44
15	G	3	1,150	
16	G	4	3,360	8
17	G	4	1,430	
18	G	18	32,200	46
20	G	2	1,100	
20	G	6	10,560	21
21	G	25	39,200	83
22	G	29	40,100	82
25	G	24	39,000	75
28	G	14	18,200	60
32	G	8	12,800	41
34	G	4	6,400	24
34	G	13	20,250	28
36	G	11	14,520	39
38	G	4	1,980	
40	G	4	22,800	18
41	G	22	34,800	61
42	G	8	7,740	25
43	G	3	8,400	14
43	G	25	42,000	69
44	G	6	5,100	26
45	G	3	3,960	14
47	G	2	1,100	
61	G	17	28,950	58
62	G	15	20,700	57
63	G	13	18,250	48
64	G	5	4,400	17
67	G	2	7,000	18
67	G	4	8,000	10
80	G	2	2,640	8
81	G	4	3,520	15
91	G	4	5,280	59
101	G	4	22,800	18
102	G	2	4,000	16
	Total	385	576,590	1,231
Northern Natural Gas Pipeline Company				
1	G	4	2,720	
Ohio Fuel Gas Company				
803	G	4	1,440	10
806	G	7	3,500	16
850	G	4	6,000	10
852	G	3	3,300	5
854	G	5	6,800	21
855	G	9	11,650	36
856	G	7	4,320	14
903	G	19	16,850	56
910	G	3	2,700	9
912	G	6	3,600	13
950	G	9	2,490	14
952	G	3	3,300	5
	Total	79	65,950	209
Oklahoma Natural Gas Company				
1	G	6	3,000	20
2	G	5	5,500	
	Total	11	8,500	20
Olin Gas Transmission Company				
1	G	10	11,250	24
2	G	7	8,900	8
	Total	17	20,150	32

STATISTICAL DATA ON NATURAL GAS TRANSMISSION COMPANY
COMPRESSOR STATION INSTALLATIONS ABOVE 1,000 HORSEPOWER
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COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOYEES
Pacific Gas & Electric Company				
1	G	10	35,000	38
2	G	10	25,100	36
3	G	19	27,000	36
4	G	2	1,320	
5	E	1	3,000	
6	E	1	2,300	
	Total	43	93,720	110
Pacific Gas Transmission Company				
4	G	1	6,000	12
8	G	2	10,000	12
13	G	2	10,000	
	Total	5	26,000	24
Pacific Lighting Gas Supply Company				
4	G	1	1,100	2
5	G	27	4,900	15
11	G	16	11,560	26
14	G	8	4,700	20
15	G	26	8,040	22
18	G	4	2,670	14
19	G	6	8,100	17
50	G	18	5,920	23
246	G	6	6,220	32
262	G	15	25,280	39
366	G	1	5,700	6
370	G	1	6,200	5
485	G	6	12,000	27
	Total	135	102,390	248
Panhandle Eastern Pipeline Company				
1	G	18	13,840	30
2	G	20	30,700	60
3	G	14	24,800	50
4	G	13	23,000	48
5	G	19	24,610	48
6	G	16	21,200	52
7	G	13	22,960	45
8	G	14	20,400	47
9	G	14	20,400	44
10	G	12	13,200	40
11	G	14	20,300	47
12	G	12	18,700	42
13	G	13	21,700	41
14	G	12	19,700	42
15	G	10	11,160	34
16	G	10	11,000	23
17	G	4	4,400	2
18	G	2	2,200	2
19	G	5	5,500	5
20	G	11	15,000	24
21	G	3	2,640	3
22	G	9	3,200	3
23	G	5	6,840	3
24	G	1	1,100	2
25	G	2	2,000	1
	Total	266	360,550	738
Penn Gas Company				
1	G	17	8,380	38
Peoples Natural Gas Company				
1	G	5	2,800	7
2	G	5	2,200	7
3	G	2	1,200	4
4	G	1	1,000	1
5	G	2	1,320	7
6	G	2	1,260	4
7	G	6	1,800	7
	Total	23	11,580	37
Pioneer Natural Gas Company				
1	G	12	6,650	85
2	G	7	5,900	75
3	G	4	4,400	60
4	G	7	3,180	60
5	G	11	3,940	60
6	G	7	2,780	55
7	G	2	1,500	20
	Total	50	28,350	415
San Diego Gas & Electric Company				
1	G	3	3,300	5
2	G	2	1,760	4
	Total	5	5,060	9
Shamrock Oil & Gas Corporation				
1	G	4	5,399	1
2	G	3	4,049	1
3	G	3	2,400	1
4	G	8	5,497	2
5	G	2	2,521	2
6	G	3	1,238	2
	Total	23	21,104	9
Southern Natural Gas Company				
401	G	3	3,300	19
403	G	4	4,800	16
405	G	13	13,900	24
407	G	10	10,000	28
409	G	8	10,400	26
411	G	20	22,100	41
413	G	16	21,250	39
415	G	11	11,700	28
417	G	9	9,000	26
421	G	7	9,450	25
423	G	6	8,400	22
425	G	6	8,750	23
427	G	6	6,600	19
429	G	5	5,500	19
431	G	4	5,400	18
454	G	5	3,850	9
458	G	3	1,650	6
462	G	2	1,320	2
466	G	10	10,600	26
470	G	11	9,330	19
474	G	3	1,320	2
476	G	5	5,000	13
479	G	2	2,000	1
487	G	3	2,120	6
	Total	172	187,740	457
Southern Union Gas Company				
1	G	7	3,980	7
2	G	7	4,320	10
3	G	1	400	
	Total	15	8,700	17
Tennessee Gas Transmission Company				
1	G	12	17,800	33
9	G	12	22,000	17
17	G	17	22,150	43
25	G	16	25,600	51
32	G	20	26,200	48
40	G	19	30,800	53
47	G	25	30,650	54
54	G	28	38,520	58
63	G	32	38,150	58
71	G	23	33,650	58
79	G	30	39,100	54
87	G	32	44,000	59
96	G	32	41,200	65
106	G	29	42,100	65
110	G	4	26,800	19
114	G	20	23,750	45
200	G	12	18,600	27
204	G	12	22,870	22
209	G	13	21,000	23
214	G	13	19,880	19
219	G	13	16,050	20
224	G	4	8,000	12

STATISTICAL DATA ON NATURAL GAS TRANSMISSION COMPANY
COMPRESSOR STATION INSTALLATIONS ABOVE 1,000 HORSEPOWER
AS OF JANUARY 1, 1961

COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOYEES
Tennessee Gas Transmission Company (Cont'd)				
229	G	6	6,000	18
237	G	2	4,000	9
241	G	2	6,800	3
245	G	5	5,000	13
254	G	6	6,000	7
261	G	3	1,605	4
307	G	4	8,000	9
313	G	10	13,200	18
524	E	3	4,500	8
527	G	2	8,000	8
530	G	4	8,000	9
534	G	2	6,000	8
538	G	4	8,000	10
542	G	1	5,500	8
546	G	4	10,000	11
550	G	1	5,500	8
555	G	3	7,500	10
823	G	10	16,150	21
827	G	2	13,400	8
834	G	7	11,350	14
838	G	8	15,850	16
843	G	9	14,350	15
847	G	2	13,400	11
851	G	8	13,500	15
856	G	2	12,500	11
860	G	8	17,000	15
	Total	536	849,975	1,190
Texaco, Inc.				
1	G	12	7,920	9
2	G	5	2,420	4
	Total	17	10,340	13
Texas Eastern Transmission Corp.				
1	E	1	2,000	
2	E	4	8,000	11
3	G	8	8,300	13
4	E	4	8,000	13
5	E	4	7,750	12
6	G	8	8,800	14
7	E	4	8,000	13
8	E	3	4,500	8
9	G	10	10,000	17
10	E	2	4,000	8
11	G	7	7,000	15
1A	G	3	7,500	1
12	E	2	3,500	10
13	G	7	7,000	15
14	E	2	4,000	8
15	E	2	3,500	9
16	E	3	4,750	6
17	E	2	4,000	9
18	G	7	7,700	14
19	E	4	6,500	9
20	E	3	5,500	
23	E	3	7,500	9
25	E	1	2,000	2
26	G	4	4,400	13
27	G	3	6,150	1
110	G	4	4,400	11
112	G	2	5,000	1
16A	G	6	7,500	12
211	E	6	15,000	12
21A	G	4	4,400	3
212	G	4	30,400	14
213	E	7	30,000	11
22A	G	9	11,880	15
24A	G	6	10,560	15
309	G	10	14,600	15
310	G	3	15,000	9
311	G	6	18,300	10
313	G	3	15,000	9
314	G	3	15,000	9
315	G	17	26,200	19
316	G	1	13,400	1
317	G	1	13,400	1
318	G	1	13,400	1
319	G	1	13,400	1
401	G	2	2,000	2
402	G	9	12,100	19
403	G	2	15,200	11
404	G	9	18,450	15

COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOY
Texas Eastern Transmission Corp. (Cont'd)				
405	G	4	4,000	7
406	G	4	30,400	15
407	G	13	32,050	20
408	G	5	10,250	14
501	G	4	30,400	14
502	G	14	35,000	19
503	E	2	30,000	7
504	E	7	30,000	12
505	E	2	30,000	8
506	E	7	30,000	13
507	E	2	30,000	7
508	G	12	34,470	15
509	G	4	30,400	13
601	G	6	6,600	13
602	G	7	4,200	13
603	G	2	2,000	8
	Total	312	844,710	644
Texas Gas Transmission Corp.				
1	G	3	3,960	8
2	G	11	11,900	25
3	G	10	18,320	27
4	G	8	14,080	26
5	G	7	14,000	25
6	G	7	14,000	25
7	G	10	17,000	24
8	G	10	14,560	26
9	G	11	16,560	26
10	G	11	15,570	25
11	G	7	10,500	22
12	G	8	10,560	22
14	G	6	6,200	16
15	G	8	5,640	16
19	G	7	8,600	23
20	G	7	5,400	16
21	G	4	1,760	11
22	G	7	11,000	20
23	G	7	11,000	21
24	G	4	5,960	7
101	G	3	1,800	1
10A	G	7	10,500	23
102	G	3	3,760	1
	Total	166	232,630	436
Transcontinental Gas Pipeline Corp.				
20	G	5	8,320	28
30	G	7	17,000	23
35	G	4	14,460	17
40	G	6	14,400	23
45	G	7	17,500	21
50	G	10	27,040	36
60	G	9	21,800	23
65	G	3	13,200	17
70	G	4	19,830	22
80	G	9	21,800	23
90	G	9	21,800	23
100	G	4	20,330	22
110	G	9	21,800	23
120	G	9	21,800	23
130	G	11	18,720	27
140	G	9	21,900	23
145	E	1	12,500	8
150	G	10	16,960	23
155	G	3	11,460	17
160	G	10	17,200	23
165	G	5	10,000	19
170	G	7	17,000	23
175	G	3	13,200	17
180	G	10	17,200	23
185	G	5	10,000	19
190	G	9	15,200	23
195	G	3	11,460	17
200	G	9	15,600	23
520	G	3	6,000	13
	Total	193	475,480	622

STATISTICAL DATA ON NATURAL GAS TRANSMISSION COMPANY
COMPRESSOR STATION INSTALLATIONS ABOVE 1,000 HORSEPOWER
AS OF JANUARY 1, 1961

COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOYEES
Transwestern Pipeline Company				
3	G	2	7,000	9
5	G	2	7,000	9
7	G	2	7,000	9
9	G	2	7,000	9
10	G	2	7,000	9
11	G	5	6,600	7
12	G	2	1,760	4
13	G	2	2,640	3
	Total	19	46,000	59
Trunkline Gas Company				
8	G	1	6,350	15
16	G	3	6,000	18
23	G	1	6,350	15
31	G	3	6,000	19
40	G	1	6,350	15
48	G	6	14,000	22
57	G	4	11,000	22
66	G	5	11,000	22
75	G	6	11,000	22
84	G	7	11,000	22
93	G	4	11,000	22
103	G	5	10,700	22
112	G	4	11,000	22
	Total	50	121,750	258
United Fuel Gas Company				
31	G	9	9,000	42
35	G	5	3,350	10
36	G	6	12,000	17
39	G	16	15,550	60
41	G	6	5,500	15
47	G	4	5,050	16
53	G	3	2,000	11
54	G	1	1,100	6
55	G	9	4,600	23
61	G	12	17,000	33
63	G	7	4,125	25
64	G	6	6,600	18
65	G	7	7,000	28
76	G	4	4,000	14
78	G	3	3,000	14
83	G	4	2,550	11
	Total	102	102,425	343

COMPANY AND STATION NUMBER	PRIME MOVER	NUMBER OF UNITS	HORSEPOWER	EMPLOYEES
United Gas Pipe Line Company				
2351	G	2	1,100	
2701	G	9	6,160	15
2702	G	3	2,640	3
2752	G	3	3,000	5
2754	G	4	2,640	
4051	G	6	6,000	2
4062	G	8	12,000	15
4063	G	1	5,000	7
4111	G	6	6,000	14
4202	G	4	1,200	
4204	G	6	6,000	3
4205	G	10	9,400	13
4311	G	24	3,840	
4312	G	8	12,000	21
4313	G	3	3,000	2
4314	G	6	7,920	15
4315	G	6	7,920	14
4316	G	8	1,280	2
4317	G	8	12,000	20
4351	G	4	2,350	3
4352	G	16	2,560	2
4353	G	4	8,000	14
4354	G	7	11,000	15
4381	G	16	2,720	9
4382	G	4	4,400	3
4502	G	4	4,000	14
4503	G	4	4,000	9
4701	G	8	1,360	3
4751	G	4	4,000	11
4752	G	8	8,000	13
4753	G	4	2,560	
4754	G	5	3,800	9
	Total	213	167,850	256
United Natural Gas Company				
1	G	10	2,940	9
2	G	9	2,190	8
3	G	5	2,250	11
	Total	24	7,380	28
	GRAND TOTAL		7,598,745	12,941

TABLE 2

STATISTICAL DATA ON NATURAL GAS TRANSMISSION
COMPANY MAIN SYSTEM PIPELINES
AS OF JANUARY 1, 1961

COMPANY	NUMBER OF EMPLOYEES	DIAMETER (INCHES)	LENGTH IN MILES
Alabama Tennessee Natural Gas Co.		3	22.79
		4	.57
		6	35.18
		8	46.22
		10	91.36
		12	28.18
Total	56		224.30
Algonquin Gas Transmission Co.		6	39.41
		8	16.70
		10	46.77
		12	32.14
		16	18.05
		20	16.90
		22	.98
		24	99.54
		26	168.85
		28	.15
Total	68		439.49
Amere Gas Utilities Co.		8	43.20
		10	16.50
Total	2		59.70
American Louisiana Pipe Line Co.		12	33.06
		16	44.26
		22	120.81
		24	43.80
		26	37.36
		30	971.48
Total	97		1,250.77
Arkansas Louisiana Gas Co.		4	12.30
		6	407.70
		7	12.00
		8	569.10
		10	424.40
		12	312.10
		14	252.90
		16	223.40
		18	316.90
		20	437.80
Total	2,674		2,968.60
Atlantic Seaboard Corp.		6	.70
		8	1.10
		10	5.00
		20	422.10
		24	49.40
		26	531.60
Total	119		1,009.90
Casitas Pipeline Co.		5	13.60
		6	9.60
		20	58.80
Total			82.00
Cheviot Hills Pipeline Co.		8	11.80
		12	26.70
		14	8.00
		22	2.50
Total			49.00
Cities Service Gas Co.		6	11.00
		8	261.00
		10	29.00
		12	490.00
		16	649.00
		18	97.00
		20	714.00
		24	10.00
		26	771.00
		30	109.00
Total	279		3,141.00
Coastal Transmission Corp.		8	22.00
		10	43.00
		12	162.00
		20	150.00
		22	62.00
		24	251.00
Total	34		690.00
Colorado Interstate Gas Co.		2	15.35
		3	4.34
		4	29.90
		6	14.57
		8	122.67
		12	23.58
		16	21.74
		20	746.15
		22	659.42
		24	23.58
		26	9.26
Total	116		1,670.56
Colorado-Wyoming Gas Co.		6	60.40
		8	124.10
		10	38.10
		16	40.90
Total	17		263.50
Columbia Gulf Transmission Co.		30	1,190.60
Total	112		1,190.60
Commonwealth Natural Gas Corp.		8	39.90
		12	123.50
		16	9.00
		18	177.30
Total	23		349.70
Consumers Power Co.		10	3.28
		12	54.62
		16	12.33
		24	106.23
		26	123.47
Total	18		299.93
Cumberland & Allegheny Gas Co.		6	38.59
		8	27.31
		10	72.07
		12	82.37
Total			220.34
Cuyama Pipeline Co.		8	25.90
		10	56.60
		14	4.90
Total			87.40
East Ohio Gas Co.		4	4.56
		6	5.76
		8	15.10
		10	34.46
		12	37.02
		16	51.37
		18	394.25
		20	467.55
		24	87.50
		26	89.50
		30	158.56
Total	173		1,345.63
East Tennessee Natural Gas Co.		2	1.11
		3	29.66
		4	100.58
		6	99.00
		8	49.69
		12	233.82
		16	147.68
		22	169.57
Total	34		831.11
El Paso Natural Gas Co.		2	40.50
		3	40.30
		4	347.90
		5	137.80
		6	673.70
		8	648.90
		10	601.89
		12	679.80
		14	62.60
		16	672.37
		18	29.50
		20	406.93
		22	671.60
		24	774.70
		26	1,615.20
		30	2,037.60
		31	19.30
		34	431.50
Total	803		9,892.09

STATISTICAL DATA ON NATURAL GAS TRANSMISSION
COMPANY MAIN SYSTEM PIPELINES
AS OF JANUARY 1, 1961

COMPANY	NUMBER OF EMPLOYEES	DIAMETER (INCHES)	LENGTH IN MILES
Florida Gas Transmission Co.		4	52.10
		6	43.00
		8	169.10
		10	13.40
		12	45.40
		14	36.20
		16	66.90
		18	171.70
		20	98.40
		24	683.20
Total	85		1,379.40
Home Gas Co.		6	467.29
		8	36.90
		10	52.08
		12	151.67
		14	4.05
		16	22.05
Total	68		734.04
Hope Natural Gas Co.		6	22.28
		8	122.38
		10	115.34
		12	442.30
		14	25.02
		16	224.47
		18	93.87
		20	245.08
		24	19.89
Total	117		1,310.63
Houston Pipe Line Co.		12	290.50
		16	81.20
		18	282.70
		24	86.90
		30	27.70
Total	57		769.00
Humble Oil & Refining Co.		4	7.50
		6	10.90
		7	12.60
		8	98.10
		10	124.90
		12	72.70
		14	62.50
		16	26.50
		20	28.00
		24	9.80
		26	13.00
		30	305.30
Total			771.80
Illinois Power Co.		8	55.00
		10	33.00
		12	57.00
		14	20.00
		16	22.00
		18	7.00
Total	219		194.00
Iroquois Gas Corp.		8	96.00
		12	68.00
		16	59.00
		20	78.00
		22	21.00
Total	80		322.00
Kansas Power & Light Co.		2	19.00
		3	8.00
		4	35.00
		6	97.00
		8	306.00
		10	27.00
		12	67.00
		14	2.00
		16	280.00
		18	64.00
		20	149.00
		22	24.00
Total	41		1,078.00
Kentucky Gas Transmission Corp.		6	4.40
		8	48.60
		10	38.60
		12	41.10
		14	66.10
		20	182.60
		24	33.50
		26	20.50
Total	42		435.40
Lone Star Gas Co.		4	23.80
		6	94.25
		8	452.53
		10	518.13
		12	648.90
		14	79.48
		16	457.66
		18	404.11
		20	425.70
		24	43.56
Total	404		3,148.12
Manufacturers Light & Heat Co.		3	3.24
		4	49.77
		5	7.18
		6	498.19
		8	743.93
		9	3.67
		10	401.93
		12	332.96
		14	126.24
		16	461.14
		20	373.02
		24	32.58
		26	30.08
Total	598		3,063.93
Michigan Consolidated Gas Co.		3	3.38
		4	62.09
		6	31.48
		8	117.41
		10	93.03
		12	92.96
		16	48.57
		24	266.26
		30	124.83
Total	22		840.01
Michigan Gas Storage Co.		8	23.42
		12	95.22
		16	80.30
		20	71.32
		22	104.82
		24	41.16
		26	67.95
Total	22		484.19
Michigan Wisconsin Pipe Line Co.		2	972.75
		4	9.01
		6	55.20
		8	46.08
		10	114.49
		12	40.05
		14	40.94
		16	64.35
		18	1.42
		20	82.02
		22	358.28
		24	725.50
		30	191.88
Total	185		2,701.97
Midwestern Gas Transmission Co.		3	5.82
		4	11.06
		6	19.93
		8	17.86
		24	497.46
		30	351.44
Total	65		903.57
Mississippi River Fuel Corp.		8	.23
		10	13.76
		12	28.66
		13	1.75
		14	15.97
		16	8.63
		18	17.85
		20	7.47
		22	664.87
		24	223.11
		26	92.50
Total	65		1,074.80
Montana-Dakota Utilities Co.		3	29.91
		4	58.67
		6	138.67
		8	294.23
		10	123.15
		12	1,021.87
		14	36.56
		16	53.15
Total	456		1,756.21

STATISTICAL DATA ON NATURAL GAS TRANSMISSION
COMPANY MAIN SYSTEM PIPELINES
AS OF JANUARY 1, 1961

COMPANY	NUMBER OF EMPLOYEES	DIAMETER (INCHES)	LENGTH IN MILES
Montana Power Co.		4	52.76
		6	171.63
		8	180.76
		10	116.86
		12	331.81
		16	124.53
		20	188.12
Total	32		1,166.47
Monterey Pipe Line Co.		4	4.10
		14	14.20
Total	2		18.30
Mountain Fuel Supply Co.		6	1.01
		14	33.52
		16	90.94
		18	195.93
		20	92.66
		24	6.93
Total	14		420.99
Natural Gas Pipeline Co. of America		16	18.00
		20	278.00
		24	1,160.00
		26	1,426.00
		30	1,677.00
		36	776.60
Total	403		5,335.60
Natural Gas Producers, Inc.		2	.69
		4	36.17
		6	15.41
		8	2.69
		10	48.08
Total	10		103.04
Natural Gas Storage Co. of Illinois		14	14.00
		30	17.00
		36	31.00
		10	113.52
		12	55.48
		16	53.96
Total	34		284.96
New Jersey Natural Gas Co.		6	22.00
		8	28.00
		10	50.00
Total	93		100.00
New York State Natural Gas Corp.		6	10.02
		8	25.35
		10	27.77
		12	253.65
		14	156.70
		16	241.45
		18	9.99
		20	637.71
		26	14.46
		30	64.39
Total	220		1,441.49
Niagara Mohawk Power Corp.		6	2.19
		8	2.75
		10	132.05
		12	122.28
		14	15.50
		16	35.66
		18	18.50
		24	50.37
Total	1,041		379.30
North Central Gas Co.		3	55.00
		6	48.00
		8	37.00
		10	66.60
		12	91.40
		16	13.95
Total	18		311.95
Northern Illinois Gas Co.		16	5.00
		22	118.00
		30	48.00
Total			171.00
Northern Indiana Public Service Co.		8	25.80
		10	176.80
		12	22.70
		14	6.20
		16	93.20
		20	8.00
		22	62.50
		30	21.60
		36	9.40
Total	90		426.20
Northern Natural Gas Co.		2	417.39
		3	559.14
		4	914.09
		6	1,162.19
		8	706.70
		10	468.34
		12	273.14
		14	76.05
		16	1,112.79
		18	179.70
		20	1,006.68
		24	1,168.77
		26	1,042.65
		30	942.88
Total	591		10,030.51
Northern Utilities Co.		4	28.46
		6	40.50
		8	16.00
		10	96.97
		12	87.03
		14	43.42
		16	34.39
Total	33		346.77
Ohio Fuel Gas Co.		6	9.60
		8	144.40
		10	110.55
		12	319.90
		16	504.35
		18	180.50
		20	735.90
		24	125.10
Total	235		2,130.30
Oklahoma Natural Gas Co.		8	11.75
		10	45.70
		12	287.28
		14	21.60
		16	259.72
		18	6.50
		24	24.70
		26	42.75
Total	2,100		700.00
Olin Gas Transmission Co.		2	.34
		4	5.83
		6	34.24
		8	63.00
		10	41.48
		12	32.69
		13	31.71
		14	73.11
		16	180.23
		18	3.15
		20	42.47
		22	248.94
Total	88		757.19
Pacific Gas & Electric Co.		6	51.25
		8	319.12
		10	335.07
		12	516.30
		16	272.93
		18	34.73
		20	306.96
		22	144.12
		24	101.68
		26	8.44
		30	43.05
		34	1,013.67
		36	298.50
Total	375		3,445.82
Pacific Gas Transmission Co.		36	612.50
Total	95		612.50

STATISTICAL DATA ON NATURAL GAS TRANSMISSION
COMPANY MAIN SYSTEM PIPELINES
AS OF JANUARY 1, 1961

COMPANY	NUMBER OF EMPLOYEES	DIAMETER (INCHES)	LENGTH IN MILES
Pacific Lighting Gas Supply Co.		8	44.50
		10	25.80
		12	207.00
		15	39.20
		16	130.21
		18	67.33
		20	136.07
		22	112.46
		24	39.07
		26	177.42
		30	825.78
		34	195.89
		36	118.10
Total	238		2,118.83
Pan American Gas Co.		4	7.89
		6	13.21
		8	5.96
		12	43.20
		16	57.90
		18	9.70
Total	32		137.86
Panhandle Eastern Pipeline Co.		2	.16
		3	46.44
		4	157.61
		5	16.29
		6	181.79
		8	150.10
		10	107.44
		12	252.15
		16	227.04
		18	107.05
		20	220.33
		22	764.54
		24	1,035.47
		26	898.32
		30	406.19
Total	333		4,570.92
Penn Gas Co.		8	128.00
		10	61.00
		12	72.52
Total	50		261.52
Peoples Natural Gas Co.		8	36.80
		10	22.90
		12	119.80
		14	45.00
		16	14.50
		20	106.90
		24	56.20
Total	138		402.10
Phillips Natural Gas Co.		3	24.75
		4	8.25
		8	27.50
		10	30.50
Total	1		91.00
Pioneer Natural Gas Co.		3	27.83
		4	110.80
		6	103.43
		7	11.70
		8	195.06
		10	278.36
		12	145.93
		15	52.70
		16	80.50
		20	54.26
		22	27.58
		24	9.95
Total	38		1,098.10
San Diego Gas & Electric Co.		16	49.57
		30	50.54
Total	1		100.11
Shamrock Oil & Gas Corp.		20	48.70
Total	1		48.70
Shenandoah Gas Co.		6	3.73
Total	17		3.73
South Georgia Natural Gas Co.		4	18.00
		6	78.00
		8	26.00
		10	100.00
		12	104.00
Total	48		326.00
South Jersey Gas Co.		6	8.10
		8	26.20
		10	30.30
		12	28.70
		16	22.30
Total	5		115.60
Southern Natural Gas Co.			.93
		4	7.80
		6	121.30
		8	223.38
		10	174.60
		12	346.40
		14	212.10
		16	446.90
		18	537.80
		20	585.20
		22	461.70
		24	830.60
		26	67.90
		30	5.40
Total	438		4,022.01
Southern Union Gas Co.		3	3.00
		4	65.90
		5	84.80
		6	181.20
		7	23.80
		8	183.30
		10	78.70
		12	44.80
		14	32.00
		18	12.00
		20	27.90
Total			737.40
Standard Pacific Gas Lines, Inc.		8	3.80
		10	3.10
		12	8.80
		15	24.80
		16	9.10
		20	9.76
		22	20.85
		24	17.00
		26	129.40
Total	50		226.61
Tennessee Gas Transmission Co.		3	21.68
		4	73.45
		6	73.93
		8	67.75
		10	31.05
		12	17.94
		16	149.74
		18	2.63
		20	228.84
		24	2,519.89
		26	1,782.46
		30	3,914.82
		31	126.55
Total	388		9,010.73
Texaco, Inc.		8	2.80
		12	8.20
		14	5.10
		20	11.20
Total	2		27.30
Texas Eastern Transmission Corp.		6	.85
		8	6.12
		12	62.20
		14	3.24
		16	144.66
		20	978.57
		24	1,954.85
		26	157.73
		30	2,595.01
		36	40.20
Total	370		5,943.43

STATISTICAL DATA ON NATURAL GAS TRANSMISSION
COMPANY MAIN SYSTEM PIPELINES
AS OF JANUARY 1, 1961

COMPANY	NUMBER OF EMPLOYEES	DIAMETER (INCHES)	LENGTH IN MILES
Texas Gas Transmission Corp.		6	33.05
		8	145.31
		10	219.49
		12	324.68
		14	8.97
		16	166.40
		18	409.60
		20	318.29
		26	1,519.34
		30	397.33
Total	295		3,542.46
Transcontinental Gas Pipe Line Corp.		10	51.21
		12	41.49
		14	45.17
		16	34.95
		18	26.35
		20	58.36
		23	163.96
		24	143.44
		26	93.48
		30	2,091.78
		36	1,409.83
Total	276		4,160.02
Transwestern Pipeline Co.		20	61.20
		24	457.30
		30	644.70
Total	65		1,163.20
Trunkline Gas Co.		20	262.98
		24	271.00
		26	952.64
		30	711.60
Total	232		2,198.22
United Fuel Gas Co.		6	19.60
		8	51.95
		10	160.90
		12	141.80
		14	35.10
		16	109.30
		18	60.10
		20	314.90
		24	34.40
		26	18.50
		30	57.50
Total	326		1,004.05
United Gas Pipe Line Co.		4	9.25
		6	9.60
		7	.17
		8	144.79
		10	81.43
		12	933.05
		14	304.29
		16	1,121.87
		18	732.79
		20	960.03
		22	135.71
		24	453.41
		26	43.80
		30	1,223.85
		36	48.20
Total	727		6,202.24
United Natural Gas Co.		8	47.32
		12	248.80
		16	7.01
		20	87.65
		22	20.47
Total	315		411.25
GRAND TOTAL	17,011		123,138.47

TABLE 3

STATISTICAL DATA ON NATURAL GAS TRANSMISSION
COMPANY GATHERING SYSTEM PIPELINES
AS OF JANUARY 1, 1961

COMPANY	NUMBER OF EMPLOYEES	DIAMETER (INCHES)	LENGTH IN MILES
Arkansas Louisiana Gas Co.		14	19.00
		16	25.20
Total			44.20
Cabot Carbon Company		6	6.01
		8	21.36
		10	26.00
Total	6		53.37
Cities Service Gas Co.		12	21.00
		16	87.00
		20	63.00
		22	13.00
		26	34.00
		30	21.00
Total	77		239.00
Colorado Interstate Gas Co.		4	1.89
		10	4.33
		12	19.92
		16	46.87
		18	27.90
		20	50.97
		22	18.30
		24	7.92
Total	104		178.10
Columbia Gulf Transmission Co.		12	51.50
		20	140.40
		24	120.60
Total	37		312.50
El Paso Natural Gas Co.		4	6.93
		6	49.39
		8	72.70
		10	253.51
		12	150.92
		14	46.11
		16	331.43
		18	83.60
		20	328.88
		24	32.00
		26	6.30
		30	94.00
Total	133		1,455.77
Hope Natural Gas Co.		12	13.93
Total			13.93
Houston Pipe Line Co.		8	13.30
		12	51.70
		16	80.30
		18	56.70
Total	41		202.00
Humble Oil & Refining Co.		5	9.60
		6	7.20
		8	89.60
		10	11.00
		12	72.70
		16	11.30
		20	14.00
		24	64.50
Total	59		279.90
Kansas Power & Light Co.		8	11.00
		10	6.00
Total			17.00
Lone Star Gas Co.		6	17.51
		8	21.49
		10	19.75
		12	34.18
		16	17.59
		20	12.21
Total			122.73
Manufacturers Light & Heat Co.		6	26.29
		8	10.84
		10	30.88
		12	3.35
		16	17.48
Total			88.84
Mississippi River Fuel Corp.		16	89.24
		18	50.76
Total	12		140.00
Montana-Dakota Utilities Co.		3	59.40
		4	220.96
		6	73.97
		8	16.90
		10	.80
		12	58.30
		14	7.40
Total	92		437.73
Monterey Pipe Line Co.		8	26.40
Total	2		26.40
Mountain Fuel Supply Co.		3	2.45
		4	19.95
		6	10.85
		7	.15
		8	52.16
		10	43.66
		18	63.73
		20	103.00
Total	106		295.95
Natural Gas Pipe Line Co. of America		12	38.00
		16	60.00
		20	101.00
		24	95.00
Total			294.00
Natural Gas Producers, Inc.		2	1.74
		3	1.91
		4	7.62
Total			11.27
Northern Natural Gas Co.		6	42.47
		8	78.62
		10	46.08
		12	68.81
		14	53.54
		16	96.81
		18	12.59
		20	95.00
		24	52.69
		26	19.93
Total	46		566.54

STATISTICAL DATA ON NATURAL GAS TRANSMISSION
COMPANY GATHERING SYSTEM PIPELINES
AS OF JANUARY 1, 1961

COMPANY	NUMBER OF EMPLOYEES	DIAMETER (INCHES)	LENGTH IN MILES
Northern Natural Gas Pipeline Co.		3	15.22
		4	12.69
		6	16.12
		8	18.77
		12	28.16
		16	23.50
Total	3		114.46
Northern Utilities Co.		6	15.00
Total			15.00
Olin Gas Transmission Co.		6	.80
		8	.52
		10	6.45
		12	28.28
		16	26.76
		22	5.90
Total	132		68.71
Pacific Gas & Electric Co.		12	34.97
		14	.47
		16	20.46
		18	18.52
Total	2		74.42
Panhandle Eastern Pipeline Co.		6	14.76
		8	7.81
		10	15.19
		12	54.80
		16	60.18
		18	83.83
		20	24.78
		22	19.12
		24	54.87
		26	37.10
Total	53		372.44
Peoples Natural Gas Co.		10	16.20
		12	10.00
Total			26.20
Pioneer Natural Gas Co.		6	7.60
		8	12.80
		10	28.75
		12	5.15
		15	4.00
		16	15.75
Total	23		74.05
Shamrock Oil & Gas Corp.		12	32.49
		14	5.20
		16	66.62
		18	3.16
		20	49.07
		26	6.43
Total	12		162.97
Southern Natural Gas Co.		14	144.20
		16	48.80
		20	44.80
Total	42		237.80
Tennessee Gas Transmission Co.		8	6.36
		12	73.45
		16	229.66
		20	172.31
		26	170.56
Total	13		652.34
Texaco, Inc.		10	3.00
		14	37.00
		16	5.30
		18	23.50
		20	22.00
Total	6		90.80
Texas Eastern Transmission Co.		8	23.43
		10	49.04
		12	5.11
		14	104.65
		16	84.62
Total	23		266.85
Transcontinental Gas Pipeline Corp.		10	133.00
		12	81.51
		14	136.39
		16	228.85
		20	113.34
		23	8.51
		24	242.85
		30	.04
Total	42		944.49
Trunkline Gas Co.		2	.47
		3	.41
		4	34.34
		6	17.29
		8	17.75
		10	14.76
		12	39.75
		14	5.92
		16	96.71
		18	24.41
		20	116.59
		26	78.15
Total			446.55
United Fuel Gas Co.		4	2.20
		6	72.20
		7	11.80
		8	125.80
		10	152.70
		12	56.70
		16	29.80
		18	4.30
		20	25.00
Total	204		480.50
United Gas Pipe Line Co.		6	4.35
		12	132.40
		14	13.56
		16	68.79
		18	.27
		20	15.50
		24	18.25
Total			253.12
*GRAND TOTAL	1,270		9,059.93

* Note: The grand total of 9,059 miles of gathering system pipeline does not represent the total mileage of field and gathering lines in service in the gas transmission industry. The companies participating in the study were instructed to only report major gathering lines. It was felt by the subcommittee that the reporting of all gathering and field lines regardless of importance would only burden the final mapping assignment with information that was not purposeful for the study. As a comparison, the American Gas Association estimated that the total miles of field and gathering lines in service in 1960 was 56,800 miles.

TABLE 4

STATISTICAL DATA ON NATURAL GAS TRANSMISSION
COMPANY MAIN PIPELINE INTERCONNECTIONS
AS OF JANUARY 1, 1961

COMPANY	KIND OF CONNECTIONS	NUMBER OF CONNECTIONS
Alabama Tennessee Natural Gas Co.	E	1
"	O	2
Algonquin Gas Transmission Co.	O	7
Amere Gas Utilities Company	O	10
"	P	11
"	R	1
American Louisiana Pipe Line Co.	E	2
"	O	4
Arkansas Louisiana Gas Company	O	25
"	V	1
Atlantic Seaboard Corporation	E	4
"	O	60
"	P	19
Cities Service Gas Company	O	14
Coastal Transmission Corporation	O	3
Colorado Interstate Gas Company	O	14
Colorado-Wyoming Gas Company	O	3
Columbia Gulf Transmission Co.	O	5
Commonwealth Natural Gas Corp.	O	2
Consumers Power Company	O	2
Cumberland & Allegheny Gas Co.	E	1
"	O	18
"	P	26
East Ohio Gas Company	E	3
"	O	12
East Tennessee Natural Gas Co.	O	4
El Paso Natural Gas Company	O	152
"	P	28
Home Gas Company	E	3
"	O	39
"	P	5
Hope Natural Gas Company	O	16
Houston Pipe Line Company	E	2
"	O	8
Florida Gas Transmission Co.	O	1
Iroquois Gas Corporation	O	7
Kansas Power & Light Company	E	1
Kentucky Gas Transmission Corp.	E	6
"	O	24
"	P	14
Lone Star Gas Company	O	2
Manufacturers Light & Heat Co.	O	142
"	P	79
"	R	2
Michigan Consolidated Gas Co.	O	1
Michigan Gas Storage Company	O	4
Michigan Wisconsin Pipe Line Co.	O	8
Midwestern Gas Transmission Co.	O	26
"	P	4
"	V	3
Mississippi River Fuel Corporation	E	1
"	O	4
Montana-Dakota Utilities Company	O	2
Montana Power Company	O	3
Mountain Fuel Supply Company	O	1
Natural Gas Pipeline Co. of America	O	11
Natural Gas Producers, Inc.	R	1
New Jersey Natural Gas Co.	O	5
New York State Natural Gas Corp.	O	2
"	O	72
"	P	15
"	V	3
"	R	2
Niagara Mohawk Power Corp.	O	17
"	V	1
"	P	1
North Central Gas Company	O	5
Northern Illinois Gas Company	O	5
Northern Indiana Public Service Co.	O	10
"	P	5
Northern Natural Gas Company	E	10
"	O	23
Northern Utilities Company	O	7
"	O	1
Ohio Fuel Gas Company	O	14
Oklahoma Natural Gas Company	O	10
Olin Gas Transmission Company	O	6
"	V	2
Pacific Gas & Electric Company	O	6
"	P	1
"	V	50
"	R	3
Pacific Gas Transmission Company	E	1
"	O	5
Pacific Lighting Gas Supply Co.	O	6
"	V	7
Panhandle Eastern Pipeline Co.	O	164
"	P	20
Penn Gas Company	O	7
Peoples Natural Gas Company	E	1
"	O	25
"	P	6
Pioneer Natural Gas Company	O	15
San Diego Gas & Electric Company	O	3
South Georgia Natural Gas Company	O	1
Southern Natural Gas Company	E	2
"	O	18
Standard Pacific Gas Lines, Inc.	E	1
"	O	13
"	V	5
Tennessee Gas Transmission Co.	E	9
"	O	221
"	P	31
"	V	4
Texas Eastern Transmission Corp.	O	157
"	P	33
Texas Gas Transmission Corporation	O	17
Transcontinental Gas Pipeline Corp.	O	30
Trunkline Gas Company	O	17
"	V	6
United Fuel Gas Company	E	19
"	O	87
"	P	51
United Gas Pipe Line Company	O	24
United Natural Gas Company	O	23
Cabot Carbon Company	O	3
Monterey Pipe Line Company	V	2
Pan American Gas Company	O	6
Phillips Natural Gas Company	E	1
"	O	3
Casitas Pipeline Company	O	2
Cuyama Pipeline Company	O	1
Shamrock Oil & Gas Corporation	O	5
Texaco, Inc.	O	5
GRAND TOTAL		2,187

Legend: E = Emergency P = Positive Meter V = Gate Valve
O = Orifice Meter R = Rotary Meter

TABLE 5

STATISTICAL DATA ON NATURAL GAS TRANSMISSION
COMPANY MAJOR RIVER CROSSINGS
AS OF JANUARY 1, 1961

COMPANY	TYPE OF CROSSING	NUMBER OF CROSSINGS
Alabama Tennessee Natural Gas Co.	S	1
Algonquin Gas Transmission Company	S	4
American Louisiana Pipe Line Co.	S	7
Arkansas Louisiana Gas Company	S	1
"	O	22
Atlantic Seaboard Corporation	S	23
Cities Service Gas Company	S	2
"	O	11
Coastal Transmission Corporation	S	6
Colorado Interstate Gas Company	S	16
Colorado-Wyoming Gas Company	S	3
Columbia Gulf Transmission Company	S	12
Commonwealth Natural Gas Corporation	S	2
East Ohio Gas Company	S	3
East Tennessee Natural Gas Company	S	2
"	O	21
El Paso Natural Gas Company	S	26
"	O	16
Hope Natural Gas Company	S	7
Houston Pipe Line Company	S	1
"	O	12
Florida Gas Transmission Company	S	1
Kansas Power & Light Company	S	1
"	O	2
Kentucky Gas Transmission Corporation	S	7
Lone Star Gas Company	S	20
"	O	28
Manufacturers Light & Heat Company	S	3
"	O	65
Michigan Wisconsin Pipe Line Co.	S	1
"	O	7
Midwestern Gas Transmission Company	S	15
Mississippi River Fuel Corporation	S	25
Montana-Dakota Utilities Company	S	10
"	O	12
Mountain Fuel Supply Company	S	1
"	O	2
Natural Gas Pipeline Co. of America	S	5
"	O	9
Natural Gas Storage Co. of Illinois	S	1
New York State Natural Gas Corporation	S	3
Niagara Mohawk Power Corporation	S	4
"	O	22
North Central Gas Company	S	4
Northern Illinois Gas Company	S	1
Northern Indiana Public Service Co.	S	5
Northern Natural Gas Company	S	9
"	O	19
Northern Utilities Company	S	3
Ohio Fuel Gas Company	S	9
Olin Gas Transmission Company	S	6
Pacific Gas & Electric Company	S	6
"	O	29
Pacific Gas Transmission Company	S	3
Pacific Lighting Gas Supply Company	S	23
"	O	27
Panhandle Eastern Pipeline Company	S	2
"	O	59
Penn Gas Company	S	3
Peoples Natural Gas Company	S	10
Pioneer Natural Gas Company	S	1
"	O	8
San Diego Gas and Electric Company	S	4
South Georgia Natural Gas Company	S	3
South Jersey Gas Company	S	1
Southern Natural Gas Company	S	72
Southwest Gas Corporation	S	2
Standard Pacific Gas Lines, Inc.	S	2
Tennessee Gas Transmission Company	S	19
"	O	124
Texas Eastern Transmission Corp.	S	2
"	O	134
Texas Gas Transmission Corporation	S	21
Transcontinental Gas Pipe Line Corp.	S	5
"	O	44
Transwestern Pipeline Company	S	2
"	O	3
Trunkline Gas Company	S	12
United Fuel Gas Company	S	16
United Gas Pipe Line Company	S	9
"	O	204
United Natural Gas Company	S	4
Humble Oil & Refining Company	S	7
Monterey Pipe Line Company	S	1
Shamrock Oil & Gas Corporation	S	1
Texaco, Inc.	S	1
GRAND TOTAL		1,362

Note: S = Submerged Crossing O = Overhead Crossing

TABLE 6

STATISTICAL DATA ON NATURAL GAS TRANSMISSION
COMPANY STORAGE FIELDS AS OF JANUARY 1, 1961

COMPANY	STORAGE FIELD	POOL NAME	MAXIMUM DAILY MMCF	TOTAL SEASON MMCF
Arkansas Louisiana Gas Company	Collinson	Severy	10	450
	Tuscarora	Vooch	13	1,000
	North Ada Reservoir	Cromwell Sand	20	800
	Chapman Reservoir	Marble Falls Limestone	2	80
	Lester Reservoir	Marble Falls Limestone	2	80
Atlantic Seaboard Corp.	X-56	Cleveland	35	1,800
	X-76	Terra Alta	200	6,785
Cities Service Gas Company	Boyer	Boyer	2	300
	Craig	Craig	32	1,000
	North Welda	North Welda	60	5,000
	South Welda	South Welda	80	6,000
	Colony	Colony	110	6,000
	McLouth	McLouth	90	5,500
	Piqua	Piqua	10	700
	Elk City	Elk City	100	5,000
	Alden	Alden	55	4,000
Consumers Power Company	Overisel		210	20,000
East Ohio Gas Company	Stark-Summitt	Stark-Summitt	500	24,300
	Chippewa	Chippewa	265	1,400
	Columbiana	Columbiana	35	1,700
	Garbor	Garbor	55	500
El Paso Natural Gas Company	Rhodes	Yates	46	5,682
Home Gas Company	Dundee	Dutcher	52	3,437
	Gilbert	Gilbert	4	145
	Greenwood	Greenwood	8	690
Hope Natural Gas Company	Bridgeport District	Bridgeport	82	3,264
	Kennedy District	Fink	434	15,300
	Kennedy District	Kennedy	434	14,688
	Kennedy District	Newberne	71	1,020
	Kennedy District	Racket	71	714
Houston Pipe Line Company	Bammel	Bammel	1,250	3,700
Illinois Power Company	North Tilden	North Tilden	30	820
	Freeburg	Freeburg	30	1,830
	Gillespie-Benld	Gillespie-Benld	5	31
Iroquois Gas Corporation	Appalachian	Bennington	45	2,600
	Appalachian	Colden	40	4,000
	Appalachian	Collins	30	2,100
	Appalachian	Derby	5	250
	Appalachian	Holland	25	1,600
	Appalachian	Lawtons	21	1,200
	Appalachian	Nashville	80	4,600
	Appalachian	Perrysburg		
	Appalachian	Sheridan	25	1,500
	Appalachian	Zoar	40	1,100
Kentucky Gas Transmission Corp.		Menifee	10	1,205
Lone Star Gas Company	Lefray	Moran Sand	16	5,279
	Ambassador	Mississippian Lime	17	1,176
	New York City	Mississippian Lime	56	4,625
	View	Flippen Sand	9	2,644
	Tri-Cities	Bacon Lime	173	19,405
	Tri-Cities	Rodessa Lime	173	8,820
Manufacturers Light & Heat Co.	Brinker	Brinker	42	3,025
	Cross Creek	Cross Creek	1	86
	Donegal	Donegal	70	3,275
	Heard	Heard	24	2,750
	Holbrook	Holbrook	16	550
	Iowa	Iowa	3	95
	Irwin	Irwin	2	75
	Majorsville	Majorsville	144	9,275
	Munderf	Munderf	1	25
	Victory	Victory	205	10,654
Michigan Consolidated Gas Co.	Six Lakes	Michigan Stray	600	30,000
Michigan Gas Storage Company	Cranberry Lake		94	8,300
	Riverside		33	3,100
	Winterfield		313	20,400
Michigan Wisconsin Pipe Line Co.	Austin	Michigan Stray	444	8,134
	Goodwell	Michigan Stray	153	14,520
	Reed City	Michigan Stray	6	13,000
	Lincoln-Freeman	Michigan Stray	11	16,230
Mississippi River Fuel Corp.	Waterloo	Roubidoux-Gasconade-Dolemite	20	75
Montana-Dakota Utilities Co.	Baker	Cedar Creek Anticline	51	3,278
	Billy Creek	Billy Creek	9	331
	Elk Basin	Cloverly Sand	42	3,245
Montana Power Company	Madison	Madison	32	480
	Shelby	Shelby	7	250
	Box Elder	Box Elder	12	350
Mountain Fuel Supply Company	Chalk Creek	Chalk Creek	30	
Natural Gas Storage Company of Illinois	Herscher	Galesville	596	20,000
	Hersher	Mt. Simon	100	
	Cooks Mills	Cooks Mills	25	1,000

STATISTICAL DATA ON NATURAL GAS TRANSMISSION
COMPANY STORAGE FIELDS AS OF JANUARY 1, 1961

COMPANY	STORAGE FIELD	POOL NAME	MAXIMUM DAILY MMCF	TOTAL SEASON MMCF
New York State Natural Gas Corporation	Oakford	Murrysville	280	33,150
	Oakford	Murrysville Fifth Sand		
	Oakford	South Bend	255	4,692
	Oakford	Tioga	204	6,936
	Oakford	Sharon	52	1,530
	Oakford	Sabinsville	316	11,883
	Oakford	Harrison	127	10,037
	Oakford	Woodhull	357	16,438
Northern Illinois Gas Company	Troy Grove		150	4,300
Northern Natural Gas Company	Redfield	Mt. Simon	90	10,000
	Redfield	St. Peter-Elgin	100	8,500
Ohio Fuel Gas Company	Benton		250	15,000
	Weaver		350	23,000
	Knox		20	1,400
	Wellington		200	8,000
	Panonia		200	13,000
	Holmes		100	9,000
	Guernsey		25	1,800
	Zane		5	
	McArthur		100	5,000
	Medina		80	2,800
Oklahoma Natural Gas Company	Depew	Dutcher	450	18,100
	Haskell	Booch	60	3,100
	Osage	Burgess	70	1,300
	Sayrf	Panhandle-Dolomite		
	West Edmond	Bartlesville		
Pacific Gas & Electric Company	Pleasant Creek	Peters Sand	6	650
	McDonald Island	McDonald Island Sand		
Pacific Lighting Gas Supply Co.	East Whittier		75	800
	Goleta		460	12,500
	Playa Del Rey		480	1,500
	Monterello		231	12,500
Panhandle Eastern Pipeline Co.	Ira	Michigan Prod	15	3,000
Penn Gas Company	Ludlow	Keelor	30	800
	Erie County	Corry	12	300
	Ludlow	Deerlick	1	100
	Elk County	Duhring	7	150
	Ludlow	East Branch	60	4,200
	Elk County	Owls Nest	12	1,000
	Erie County	Summit	60	2,800
	Ludlow	Swede Hill	15	500
Peoples Natural Gas Company		Mt. Royal	18	225
		Truittsburg	35	2,100
		Patton	10	75
		Webster	35	540
		Colvin	120	800
		Gamble-Hayden	46	1,100
		Murrysville	110	1,500
Southern Union Gas Company	Tignor	Red Sand	10	275
Tennessee Gas Transmission Co.	Colden	Medina Sandstone	92	5,100
	Harrison	Oriskany Sandstone	187	10,037
	Hebron	Oriskany Sandstone	409	20,401
Texas Eastern Transmission Corp.	Oakford	Murrysville Sand & Fifth Sand	224	30,601
	Leidy	Leidy	204	15,300
Texas Gas Transmission Corp.	Alford	Alford	41	989
	Oaktown	Oaktown	9	623
	Dixie	Dixie	101	2,575
	West Greenville	West Greenville	61	1,836
	Wilfred	Wilfred	31	1,860
Trans-Cont. Gas Pipeline Corp.	Leidy	Leidy	204	15,130
United Fuel Gas Company	X-4	Lake	15	745
	X-2	Lanham	40	1,800
	X-1	Heizer	22	214
	X-6	Derricks Creek	35	1,970
	X-7	Sissonville	10	450
	X-8	Grapevine A	2	270
	X-15 A & B	Browns Creek A & B	35	1,365
	X-49	Poca	5	270
	X-19 A & B	Epling A & B	1	127
	X-17	Reedy	12	895
	X-52 A	Coco A	255	14,715
	X-52 B	Coco B	70	3,305
	X-52 C	Coco C	80	5,285
	X-53	Grapevine B	5	28
	X-54	Hunt	25	1,505
	X-58	Rockport	95	4,410
	X-59	Ripley	125	10,999
United Gas Pipe Line Company	Jackson	Jackson Gas Storage	98	2,600
United Natural Gas Company	St. Marys	Belmouth	7	840
	St. Marys	Boone Mountain	12	1,000
	Knoxdale	Bullers	1	40
	Knoxdale	Galbraith	20	860
	Henderson	Henderson	25	1,820
	Knoxdale	Markle	15	60
	Ridgway	Mohan Run	1	80
	Queen	Queen	3	260
	St. Marys	St. Marys	5	280
	Clermont	Wellendorf	15	310
	Tuscarora	Tuscarora	45	2,700
	Hebron	Hebron	25	2,500
	Kane	Keelor	20	600
		GRAND TOTAL		801,459

TABLE 7

STATISTICAL DATA ON THE LOCATIONS
OF GAS CONTROL AND DISTRIBUTION CENTERS
OF NATURAL GAS TRANSMISSION COMPANIES
AS OF JANUARY 1, 1961

COMPANY	DISPERSING CENTER	ADDRESS	CITY AND STATE
Alabama Tennessee Natural Gas Co.	M	East Second St.	Sheffield, Ala.
	E	East Second St.	Sheffield, Ala.
Algonquin Gas Transmission Co.	M	25 Faneuil Hall Square	Boston 9, Mass.
Amere Gas Utilities Co.	M	1700 MacCorkle Ave., S.E.	Charleston, W. Va.
	S	127 South Heber St.	Beckley, W. Va.
American Louisiana Pipe Line Co.	M	500 Griswold St.	Detroit, Mich.
	E	Proposed location in the vicinity	Big Rapids, Mich
Arkansas Louisiana Gas Co.	M	P.O. Box 1734	Shreveport, La.
	S	P.O. Box 1439	Oklahoma City, Okla.
Atlantic Seaboard Corp.	M	1700 MacCorkle Ave., S.E.	Charleston, W. Va.
	S	P.O. Box 467	Herndon, Va.
Casitas Pipeline Co.	M	So. Cuyama Plant	New Cuyama, Calif.
	S	5900 Cherry St.	Long Beach, Calif.
	S	Richfield Oil Corp., P.O. Box 97	Ojai, Calif.
	S	Richfield Oil Corp., 4121 So. H St.	Bakersfield, Calif.
Cheviot Hills Pipeline Co.	M	Richfield Oil Corp., 5900 Cherry St.	Long Beach, Calif.
Cities Service Gas Co.	M	First National Building	Oklahoma City, Okla.
Coastal Transmission Corp.	M	520 Bank of Commerce Bldg.	Houston, Tex.
	E	520 Bank of Commerce Bldg.	Houston, Tex.
Colorado Interstate Gas Co.	M	P.O. Box 1087	Colorado Springs, Colo.
Colorado-Wyoming Gas Co.	M	888 Sherman St.	Denver, Colo.
	S	Third & Lipan Sts.	Denver, Colo.
	E	Third & Lipan Sts.	Denver, Colo.
Columbia Gulf Transmission Co.	M	P.O. Box 683	Houston, Tex.
Commonwealth Natural Gas Corp.	M	116 S. Third St.	Richmond, Va.
Consumers Power Co.	M	212 W. Michigan Ave.	Jackson, Mich.
Cumberland & Allegheny Gas Co.	M	800 Union Trust Bldg.	Pittsburgh 19, Pa.
Cuyama Pipeline Co.	M	Richfield Oil Corp.	New Cuyama, Calif.
	S	Richfield Oil Corp.	Bakersfield, Calif.
	S	Richfield Oil Corp.	Bakersfield, Calif.
East Ohio Gas Co.	M	1717 East Ninth St.	Cleveland 14, Ohio
	S	Box 2276 Freedom Rd.	N. Canton, Ohio
	E	1020 Market Ave.	N. Canton 4, Ohio
East Tennessee Natural Gas Co.	M	P.O. Box 10245	Knoxville 19, Tenn.
	E	P.O. Box 2511	Houston, Tex.
	E	Tennwood Emergency Center	Hockley, Tex.
El Paso Natural Gas Co.	M	P.O. Box 1492	El Paso, Tex.
	S	P.O. Box 990	Farmington, N. Mex.
	S	P.O. Box 1526	Salt Lake City, Utah
	S	P.O. Box 1384	Jal, N. Mex.
	S	P.O. Box 7	Topock, Ariz.
Florida Gas Transmission Co.	M	Houston Texas Gas & Oil Corp.	St. Petersburg, Fla.
Home Gas Co.	M	800 Union Trust Bldg.	Pittsburgh 19, Pa.
Hope Natural Gas Co.	M	445 West Main St.	Clarksburg, W. Va.
Houston Pipe Line Co.	M	P.O. Box 1188	Houston, Tex.
Humble Oil & Refining Co.	M	P.O. Box 2025	Tyler, Tex.
	M	P.O. Box 120	Baytown, Tex.
	S	P.O. Box 1150	Kingsville, Tex.
Illinois Power Co.	M	2701 N. Broadway	Decatur, Ill.
Iroquois Gas Corp.	M	10 Lafayette Square	Buffalo 3, N.Y.
	S	365 Mineral Spring Rd.	Buffalo 10, N.Y.
	E	365 Mineral Spring Rd.	Buffalo 10, N.Y.
Kansas Power & Light Co.	M	116 West Iron Ave.	Salina, Kan.
Kentucky Gas Transmission Corp.	M	1700 MacCorkle Ave., S.E.	Charleston, W. Va.
Lone Star Gas Co.	M	301 South Harwood St.	Dallas 1, Tex.
Manufacturers Light & Heat Co.	M	800 Union Trust Bldg.	Pittsburgh 19, Pa.
Michigan Consolidated Gas Co.	M	415 Clifford St.	Detroit, Mich.
	E	Proposed	Big Rapids, Mich.
Michigan Gas Storage Co.	M	212 West Michigan Ave.	Jackson, Mich.
Michigan Wisconsin Pipe Line Co.	M	500 Griswold St.	Detroit 26, Mich.
Midwestern Gas Transmission Co.	M	P.O. Box 187	Plainfield, Ill.
	M	W.D. Franke, Chief Dispatcher	Minooka, Ill.
	E	P.O. Box 2511, Hdqrs. Tennessee Bldg.	Houston, Tex.
	E	Tennwood Emergency Center	Hockley, Tex.
Mississippi River Fuel Corp.	M	5149 Patterson Rd.	St. Louis 29, Mo.
	S		Perryville, La.
Montana-Dakota Utilities Co.	M	313 Valentine St.	Glendive, Mont.
	S	111 West Montana Ave.	Baker, Mont.

NOTE: M = Main S = Sub E = Emergency

STATISTICAL DATA ON THE LOCATIONS
OF GAS CONTROL AND DISTRIBUTION CENTERS
OF NATURAL GAS TRANSMISSION COMPANIES
AS OF JANUARY 1, 1961

COMPANY	DISPERSING CENTER	ADDRESS	CITY AND STATE
Montana Power Co.	M		Butte, Mont.
	S		Cut Bank, Mont.
	S		Shelby, Mont.
	S		Absarokee, Mont.
	E		Butte, Mont.
Monterey Pipe Line Company	M	Waverly Station, P.O. Box 169	Thibodaux, La.
	E	Sugar Bowl Gas Co., P.O. Box 169	Thibodaux, La.
Mountain Fuel Supply Co.	M	P.O. Box 1129	Rock Springs, Wyo.
	S	P.O. Box 989	Salt Lake City, Utah
	S	P.O. Box 730	Price, Utah
Natural Gas Pipeline Company of America	M	122 S. Michigan Ave.	Chicago 3, Ill.
	S	P.O. Box 283	Houston, Tex.
	E	P.O. Box 908	Joliet, Ill.
Natural Gas Storage Company of Illinois	M	122 S. Michigan Ave.	Chicago 3, Ill.
	E	P.O. Box 908	Joliet, Ill.
New Jersey Natural Gas Co.	M	100 Brook St.	Long Branch, N.J.
	S	Carrol St.	Dover, N.J.
	S	Lincoln Ave.	Wildwood, N.J.
New York State Natural Gas Co.	M	2 Gateway Center	Pittsburgh, Pa.
	S	P.O. Box 460	Westfield, Pa.
Niagara Mohawk Power Corp.	M	Hiawatha Boulevard, West	Syracuse, N.Y.
	M	1125 North Broadway	Albany, N.Y.
	S	Harbor Point	Utica, N.Y.
	S	West First St.	Oswego, N.Y.
	E	300 Erie Boulevard, West	Syracuse, N.Y.
North Central Gas Co.	M	North Central Gas Co., P.O. Box 1091	Casper, Wyo.
	S	North Central Gas Co.	Sidney, Neb.
	S	North Central Gas Co.	Bridgeport, Neb.
	S	North Central Gas Co.	Scottsbluff, Neb.
Northern Illinois Gas Co.	M	615 Eastern Ave.	Bellwood, Ill.
	E	421 South River St.	Aurora, Ill.
Northern Indiana Public Service Co.	M	Indianapolis Blvd./Riley Rd.	East Chicago, Ind.
	M	Hale Ave./Riedmiller St.	Fort Wayne, Ind.
	S	Pennsylvania Ave. & Miami St.	South Bend, Ind.
	S	Indiana State Rd. 24 & Cook Ave.	Peru, Ind.
Northern Natural Gas Co.	M	2223 Dodge St.	Omaha, Neb.
	E	Hooper Compressor Station	Hooper, Neb.
Northern Natural Gas Pipeline Co.	M	2223 Dodge St.	Omaha, Neb.
	S	Hooper Compressor Station	Hooper, Neb.
Northern Utilities Co.	M	P.O. Box 1091	Casper, Wyo.
	S		Sand Draw, Wyo.
Ohio Fuel Gas Co.	M	99 N. Front St.	Columbus 15, Ohio
	S	The Ohio Fuel Gas Co.	Pavonia, Ohio
	S	The Ohio Fuel Gas Co.	Sugar Grove, Ohio
	E	1000 Brentnell Ave.	Columbus, Ohio
	E	2101 W. Main St.	Springfield, Ohio
	E	3151 W. Lincoln Way	Wooster, Ohio
	E	The Ohio Fuel Gas Co., Rt. 1	Lucas, Ohio
	E	The Ohio Fuel Gas Co., Rt. 1	Laurelville, Ohio
	E	The Ohio Fuel Gas Co.	Wellston, Ohio
Oklahoma Natural Gas Co.	M	P.O. Box 871	Tulsa, Okla.
Olin Gas Transmission Co.	M	Shada Ave., P.O. Box 3127	Baton Rouge, La.
	S	Lawtell Station, P.O. Box 708	Opelousas, La.
	S	De Siard Station, P.O. Box 1482	Monroe, La.
	S	Brock Station, P.O. Box 191	Ferriday, La.
	E	P.O. Box 1482	Monroe, La.
	E	De Siard Station, P.O. Box 1482	Monroe, La.
Pacific Gas & Electric Co.	M	System Gas Control, 245 Market St.	San Francisco, Calif.
	S	Antioch Terminal, Bridge Head Rd.	Antioch, Calif.
	S	Brentwood Terminal Concord Ave.	Brentwood, Calif.
	S	Eureka Gas Load Center	Eureka, Calif.
	S	Fresno Gas Plant, Button/Thorn Sts.	Fresno, Calif.
	E	Brentwood Terminal	Brentwood, Calif.
	E	Hollister Meter Station	Hollister, Calif.
	E	Santa Rosa Substation A	Santa Rosa, Calif.
	E	Miliptas Terminal	Miliptas, Calif.
	S	Hinkley Compressor Station	Barstow, Calif.
	S	Hollister Meter Station	Hollister, Calif.

NOTE: M = Main S = Sub E = Emergency

STATISTICAL DATA ON THE LOCATIONS
OF GAS CONTROL AND DISTRIBUTION CENTERS
OF NATURAL GAS TRANSMISSION COMPANIES
AS OF JANUARY 1, 1961

COMPANY	DISPERSING CENTER	ADDRESS	CITY AND STATE
Pacific Gas & Electric Co. (Cont'd)	S	Kettleman Compressor Station	Avenal, Calif.
	S	Marysville Gas Load Center	Marysville, Calif.
	S	Oakland Gas Plant, 50 Market St.	Oakland, Calif.
	S	Potrero Gas Load Center	San Francisco, Calif.
	S	Sacramento Gas Plant, 200 Front St.	Sacramento, Calif.
	S	San Rafael Gas Plant	San Rafael, Calif.
	S	Stockton Gas Plant	Stockton, Calif.
	S	Topock Compressor Station	Needles, Calif.
	S	Milpitas Terminal Station	Milpitas, Calif.
Pacific Gas Transmission Co.	M	5105 East Third St.	Spokane, Wash.
	E	124 Beale St.	San Francisco, Calif.
Pacific Lighting Gas Supply Co.	M	3494 East Pico Blvd.	Los Angeles, Calif.
	S	5616 San Fernando Rd.	Glendale, Calif.
	S	37 North Mills Rd.	Ventura, Calif.
	S	27,690 Gas Company Rd.	Taft, Calif.
Pan American Gas Co.	M	900 Grant Ave., Terminal Dispersing	Texas City, Tex.
	S	P.O. Box 249	Texas City, Tex.
Panhandle Eastern Pipeline Co.	M	3444 Broadway	Kansas City, Mo.
	S	Third & Lincoln Sts.	Liberal, Kan.
Penn Gas Co.	M	Warren Sta., 449 Conewango Ave.	Warren, Pa.
	S	Erie Sta., East Grandview Blvd.	Erie, Pa.
Pioneer Natural Gas Co.	M	P.O. Drawer 1121	Lubbock, Tex.
	S	P.O. Box 511	Amarillo, Tex.
San Diego Gas & Electric Co.	M	Foot of 10th St.	San Diego, Calif.
Shamrock Oil & Gas Corp.	M	Shamrock, McKee Plant	Sunray, Tex.
Shenandoah Gas Co.	M	P.O. Box 804, 121 S. Loudoun St.	Winchester, Va.
South Georgia Natural Gas Co.	M	P.O. Box 791, 1217 Albany Rd.	Thomasville, Ga.
Southern Union Gas Co.	M	Mainline Dept. So. Union Gas Co.	Albuquerque, N. Mex.
	S	Kutz Office, So. Union Gas Co.	Bloomfield, N. Mex.
Southwest Gas Corp.	M	2011 Las Vegas Blvd.	Las Vegas, Nev.
	S	35 West Owens St.	Las Vegas, Nev.
Standard Pacific Gas Lines, Inc.	M	245 Market St.	San Francisco, Calif.
	S	Bridge Head Rd.	Antioch, Calif.
Tennessee Gas Transmission Co.	M	Tennessee Bldg., P.O. Box 2511	Houston, Tex.
	S	P.O. Box 7	Agua Dulce, Tex.
	S	P.O. Box 286	Agawam, Mass.
	S	R.D. No. 4	Mercer, Pa.
	E	Tennwood Emergency Center	Hockley, Tex.
Texaco, Inc.	M	Paradis Gasoline Plant, P.O. Box 123	Paradis, La.
	E	Texaco, Inc., P.O. Box 252	New Orleans, La.
Texas Eastern Transmission Co.	M	Texas Eastern Bldg.	Shreveport, La.
	S	Decker Dr. & Baker Rd.	Baytown, Tex.
	S	P.O. Box 589	Cuero, Tex.
	S	P.O. Box 225	Eagle, Pa.
	S	Phone GL 8-5311	Uwchland, Pa.
	S	P.O. Box 431	Waynesburg, Pa.
Texas Gas Transmission Corp.	M	416 W. Third St.	Owensboro, Ky.
	S	Weaver Rd., P.O. Box 11007	Memphis 16, Tenn.
	S	Rt. 2, Box 193	Eunice, La.
Transcontinental Gas Pipeline Corp.	M	3100 Travis St.	Houston, Tex.
	S	3200 South Wood Dr.	Linden, N.J.
Transwestern Pipeline Co.	M	P.O. Box 2018	Roswell, N. Mex.
Trunkline Gas Co.	M	3000 Bissonnet St., P.O. Box 1642	Houston, Tex.
United Fuel Gas Co.	M	1700 MacCorkle Ave., S.E.	Charleston, W. Va.
United Gas Pipe Line Co.	M	1525 Fairfield Ave.	Shreveport, La.
	S	P.O. Box 952	Beaumont, Tex.
	S	P.O. Box 548	Carthage, Tex.
	S	12906 Zavalla St.	Houston 35, Tex.
	S	P.O. Box 421	San Antonio, Tex.
	E	P.O. Box 218	Panola, Tex.
	S	P.O. Box 1020	Jackson 5, Miss.
	S	P.O. Box 1628	New Orleans, La.
	S	1525 Fairfield Ave.	Shreveport, La.
	S	P.O. Box 1422	Monroe, La.
	S	P.O. Box 1843 O.C.S.	Lafayette, La.
United Natural Gas Co.	M	308 Seneca St.	Oil City, Pa.

NOTE: M = Main S = Sub E = Emergency

PART V

ASSIGNMENT AND METHOD OF OBTAINING INFORMATION AND DATA

PART V

ASSIGNMENT AND METHOD OF OBTAINING INFORMATION AND DATA

The initial request by the Government to obtain facility information and capabilities of the natural gas transmission industry was made by the Secretary of the Interior on December 19, 1960. The National Petroleum Council, on February 7, 1961, agreed to undertake the transportation study in response to the request. A subcommittee was authorized by the National Petroleum Council on June 14, 1961, to determine the major natural gas transmission facilities. To fulfill the assignment the Subcommittee has gathered detailed information on all compressor stations above 1,000 horsepower, description of main and gathering pipelines, description of major river crossings, storage field data, main pipeline interconnections, pipeline communications systems and location of main and sub gas dispatching centers. The geographic locations of compressor stations, river crossings, storage fields and main pipeline interconnections were accurately determined and reported to the exact latitude and longitude in degrees, minutes and seconds. This facility information was compiled through the use of a questionnaire. A copy of the questionnaire has been reproduced in the report, along with an exhibit of the pipeline facility mapping prepared on U.S. Strategic Maps. The detailed information received through the questionnaire medium is confidential, and has been released only for the use of the Department of the Interior, Office of Oil and Gas, and the Defense Agencies.

In addition to the facility information, the Subcommittee has prepared two sets of pipeline master maps. The natural gas transmission systems, based upon information furnished by the participating companies, were prepared on U.S. Strategic Maps and are interrelated with the questionnaires. The confidential map sets have been supplied the Department of the Interior, Office of Oil and Gas, as a primary part of the assignment of the Subcommittee.

On October 2, 1961, the Natural Gas Pipeline Transportation Facilities questionnaire was mailed by the office of the National Petroleum Council in two groups. The first group of questionnaires was mailed October 2, 1961, to the interstate

transmission companies. These questionnaires were to be completed and returned by November 15, 1961. The second group was mailed October 18, 1961, to primarily intrastate companies with the request to be completed and returned by December 15, 1961.

The mapping instructions were sent to all companies on October 23, 1961, with the request that the information be returned to the Subcommittee by January 1, 1962.

In all a total of 86 companies have participated in the program of gathering the pipeline facility and capacity data.

Based on statistics of Natural Gas Companies 1960 of the Federal Power Commission, the companies participating in the assignment of the Subcommittee represent 35 out of 40 companies that are defined as natural gas pipeline companies by the Federal Power Commission. The five companies that did not participate represent a very small segment of the industry.

In addition, 41 companies that have the characteristics of pipeline companies and 10 intrastate natural gas companies cooperated in the study.

All 86 companies participating in the survey were contacted by telephone by engineers assigned to the Subcommittee by the industry to answer questions or provide assistance in completing the questionnaire or mapping assignment. In addition to the telephone contacts, 46 of the companies were visited by the Subcommittee's engineers.

A mapping task force, consisting of nine pipeline draftsmen supplied by Trunkline Gas Company, Tennessee Gas Transmission Company, Transcontinental Gas Pipe Line Corporation, Texas Eastern Transmission Corporation and Columbia Gulf Transmission Company, started the arduous task of transposing the mapping information furnished by the participating companies to the master map sets. The mapping assignment was completed by the task force in May 1962.

NATIONAL PETROLEUM COUNCIL'S NATURAL GAS PIPELINE TRANSPORTATION FACILITIES SURVEY (1961) QUESTIONNAIRE FORM

COVER PAGE

Please attach one of these cover pages to each group of reports submitted. If your company has subsidiaries, provide a cover page for each subsidiary reported. The cover page will be removed and filed in the office of the National Petroleum Council, after the forms have been company code numbered.

_____
(Date)

Number of Pages Attached_____

Reporting Company_____

Address:_____

_____

_____

Reporting Company person who should be contacted if questions arise:_____

NATIONAL PETROLEUM COUNCIL'S NATURAL GAS PIPELINE TRANSPORTATION FACILITIES SURVEY QUESTIONNAIRE

FORM C-1

Pipeline System Originates _____ (County & State)

Pipeline System Terminates _____ (County & State)

TYPE OF FACILITY - COMPRESSOR STATION INSTALLATIONS ABOVE 1000 H. P.

INCLUDE ALL EXISTING FACILITIES AND ASSURED CONSTRUCTION THROUGH JANUARY 1, 1962

(1) Station No. And/Or Name	(2) Type of Prime Mover	(3) Type of Compressor	(4) Units (No.)	(5) Installed Horse-power	(6) Design Pressure Suction	(7) Design Pressure Discharge	(8) Capacity (MMCF/Day)	(9) Automated (Totally)	(10) Employees (Number)	(11) Latitude (Deg.-Min.-Sec.)	(12) Longitude (Deg.-Min.-Sec.)	(13) County	(14) State	(15) Map No.

SEE INSTRUCTION SHEET

Enter additional clarifying or supporting information here.

NATIONAL PETROLEUM COUNCIL'S NATURAL GAS PIPELINE TRANSPORTATION FACILITIES SURVEY QUESTIONNAIRE

FORM P-2

Pipeline System Originates _____ (County & State) Pipeline System Terminates _____ (County & State)

TYPE OF FACILITY - MAIN AND GATHERING SYSTEM PIPELINE

INCLUDE ALL EXISTING FACILITIES AND ASSURED CONSTRUCTION THROUGH JANUARY 1, 1962

(1) Purpose of Pipeline Section	(2) From (Facility)	(3) To (Facility)	(4) Length (Miles)	(5) Diameter (Inches)	(6) Maximum Allowable Operating Pressure (PSIG)	(7) Pipeline Section Design Capacity (MMCF/Day)	(8) Input Points (Number)	(9) Delivery Points (Number)	(10) Location of Employees	(11) Employees (Number)	(12) Map No.
						*	*	*	*	*	

* Please Show Total for Entire System

SEE INSTRUCTION SHEET

Enter additional clarifying or supporting information here.

NATIONAL PETROLEUM COUNCIL'S NATURAL GAS PIPELINE TRANSPORTATION FACILITIES SURVEY QUESTIONNAIRE

FORM R-3

Pipeline System Originates _____ (County & State)

Pipeline System Terminates _____ (County & State)

TYPE OF FACILITY - MAJOR RIVER CROSSING

INCLUDE ALL EXISTING FACILITIES AND ASSURED CONSTRUCTION THROUGH JANUARY 1, 1962

(1) Name of River	(2) Width of Channel (Feet)	(3) Length of Pipeline Crossing (Feet)	(4) Number of Lines	(5) Diameter (Inches)	(6) Type of Construction (Submerged-Overhead)	(7) Latitude (Deg.-Min.-Sec.)	(8) Longitude (Deg.-Min.-Sec.)	(9) County	(10) State	(11) Map No.

SEE INSTRUCTION SHEET

Enter additional clarifying or supporting information here.

NATIONAL PETROLEUM COUNCIL'S NATURAL GAS PIPELINE TRANSPORTATION FACILITIES SURVEY QUESTIONNAIRE

FORM I-4

Pipeline System Originates _____ (County & State)

Pipeline System Terminates _____ (County & State)

TYPE OF FACILITY - MAIN PIPELINE INTERCONNECTIONS

INCLUDE ALL EXISTING FACILITIES AND ASSURED CONSTRUCTION THROUGH JANUARY 1, 1962

(1) System (Name)	(2) Connected With (Sale or Purchase)	(3) Type of Connection	(4) Size of Connection	(5) Pressure Available (PSIG)	(6) Latitude (Deg.-Min.-Sec.)	(7) Longitude (Deg.-Min.-Sec.)	(8) County	(9) State	(10) Map No.

SEE INSTRUCTION SHEET

Enter additional clarifying or supporting information here.

NATIONAL PETROLEUM COUNCIL'S NATURAL GAS PIPELINE TRANSPORTATION FACILITIES SURVEY QUESTIONNAIRE

FORM S-5

Pipeline System Originates _____ (County & State)

Pipeline System Terminates _____ (County & State)

TYPE OF FACILITY - STORAGE FIELDS

INCLUDE ALL EXISTING FACILITIES AND ASSURED CONSTRUCTION THROUGH JANUARY 1, 1962

(1) Field Name	(2) Pool Name	(3) Surface Size (Acres)	(4) Maximum Daily Withdrawal (MMCF)	(5) Minimum Daily Withdrawal (MMCF)	(6) Total Seasonal Withdrawal (MMCF)	(7) Latitude (Deg.-Sec.-Min.)	(8) Longitude (Deg.-Sec.-Min.)	(9) County	(10) State	(11) Map No.

SEE INSTRUCTION SHEET

Enter additional clarifying or supporting information here.

NATIONAL PETROLEUM COUNCIL'S NATURAL GAS PIPELINE TRANSPORTATION FACILITIES SURVEY QUESTIONNAIRE

FORM D-6

GAS CONTROL AND DISPATCHING LOCATIONS

INCLUDE ALL EXISTING FACILITIES AND ASSURED CONSTRUCTION THROUGH JANUARY 1, 1962

Address of Main Gas Dispatching Center	1._____
Address of Sub-Gas Dispatching Center	1._____
	2._____
	3._____
	4._____
Address of Emergency Dispatching Center, If any	1._____
	2._____
	3._____

NATIONAL PETROLEUM COUNCIL'S NATURAL GAS PIPELINE TRANSPORTATION FACILITIES SURVEY QUESTIONNAIRE

FORM X-7

Pipeline System Originates _____ (County & State)

Pipeline System Terminates _____ (County & State)

TYPE OF FACILITY - COMPRESSOR STATION COMMUNICATION SYSTEMS

INCLUDES ALL EXISTING FACILITIES AND ASSURED CONSTRUCTION THROUGH JANUARY 1, 1962

(1) Station No. and/or Name	(2) Microwave	(3) V.H.F. Radio	(4) Leased Wire Line	(5) Company Owned Wire Line

CHECK APPROPRIATE COMMUNICATION FACILITY

additional clarifying or supporting information here.

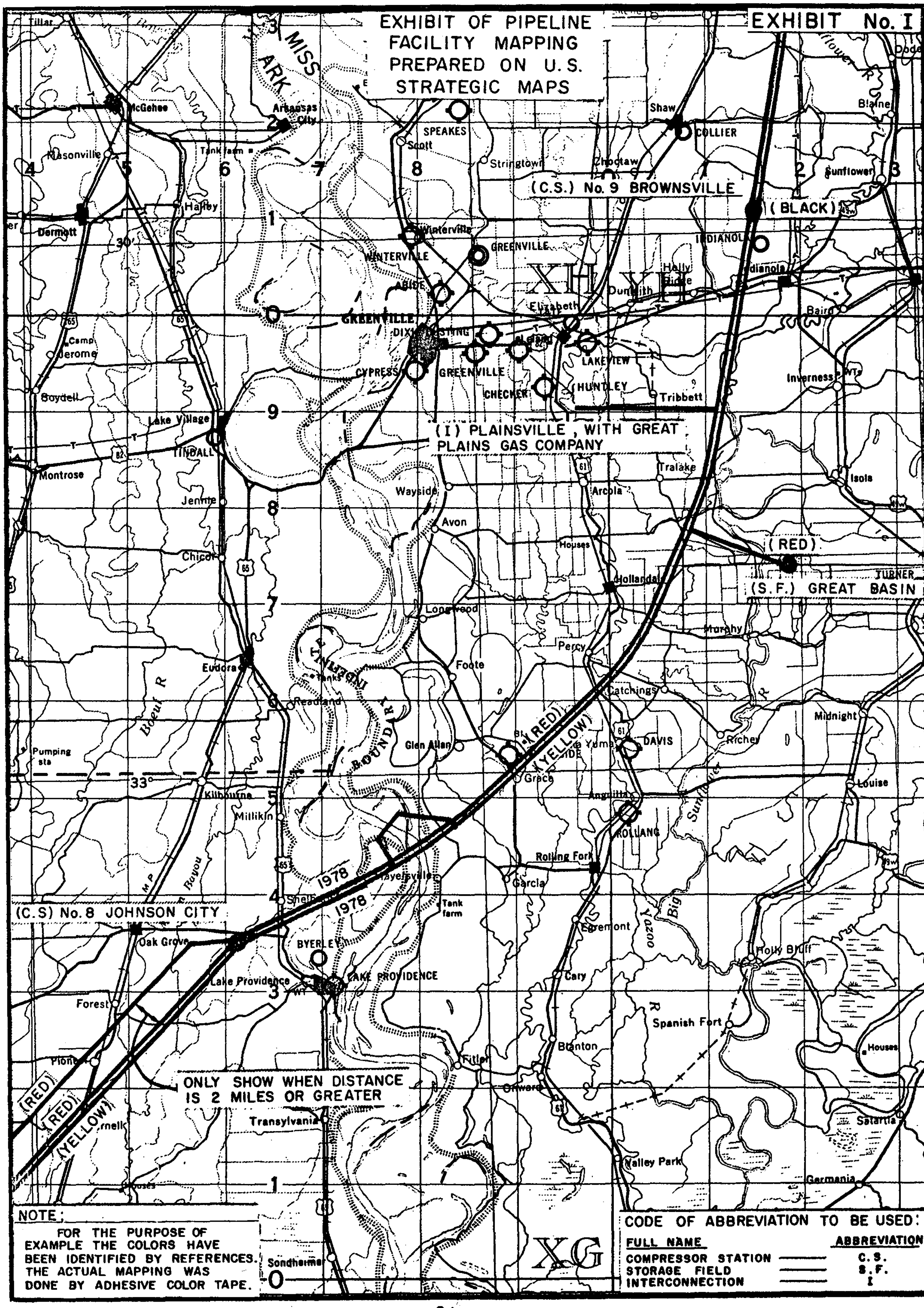
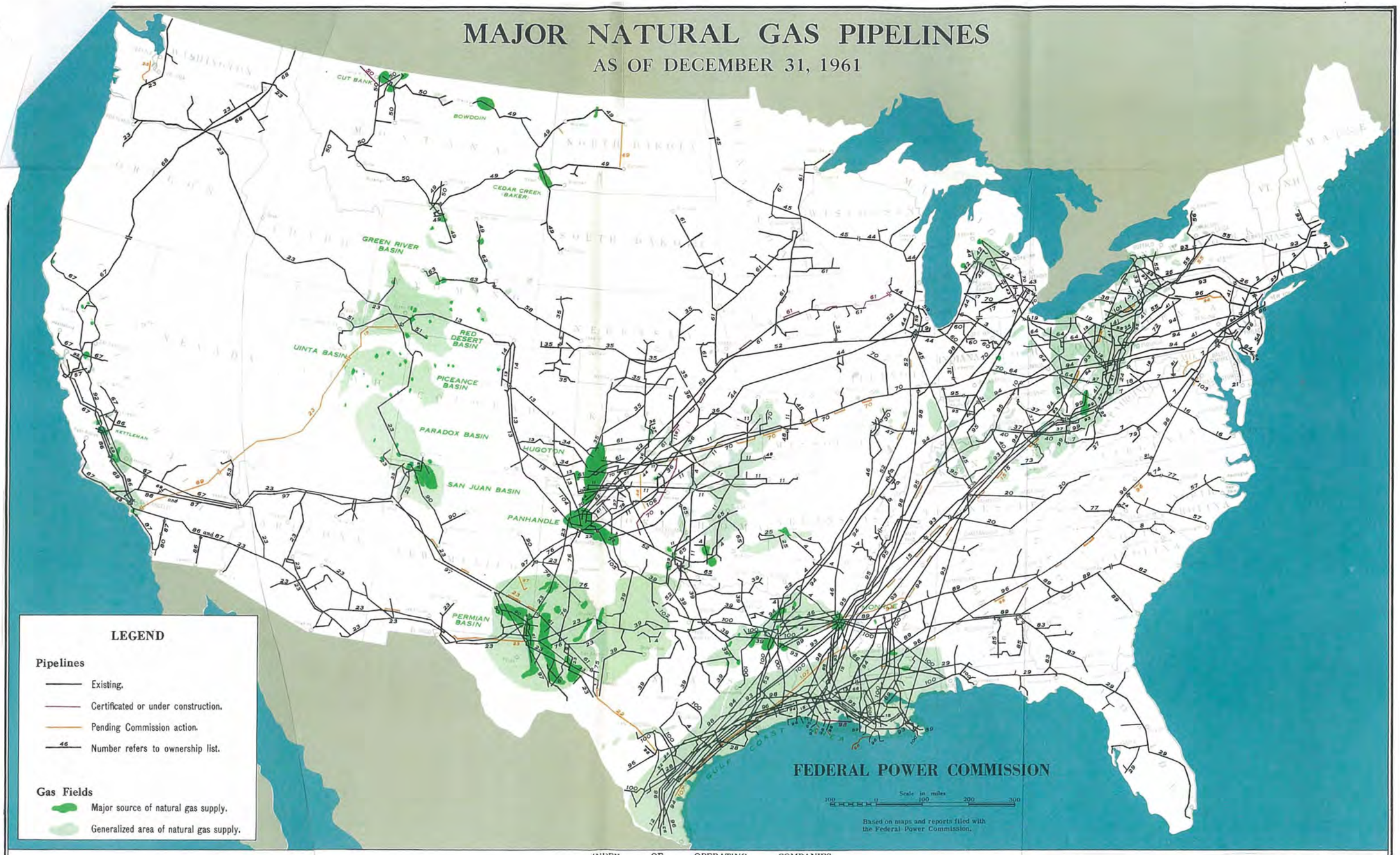


EXHIBIT OF PIPELINE FACILITY MAPPING PREPARED ON U.S. STRATEGIC MAPS
EXHIBIT No. I
(C.S.) No. 9 BROWNSVILLE
(BLACK)
(I) PLAINSVILLE, WITH GREAT PLAINS GAS COMPANY
(RED)
(S.F.) GREAT BASIN
(RED)
(YELLOW)
1978
1978
(C.S) No. 8 JOHNSON CITY
ONLY SHOW WHEN DISTANCE IS 2 MILES OR GREATER
(RED)
(RED)
(YELLOW)
NOTE;
FOR THE PURPOSE OF EXAMPLE THE COLORS HAVE BEEN IDENTIFIED BY REFERENCES. THE ACTUAL MAPPING WAS DONE BY ADHESIVE COLOR TAPE.
CODE OF ABBREVIATION TO BE USED:
FULL NAME — ABBREVIATION
COMPRESSOR STATION — C.S.
STORAGE FIELD — S.F.
INTERCONNECTION — I
GREENVILLE
SPEAKES
COLLIER
INDIANOLA
WINTERVILLE
ABIDE
DIXIE
CYPRESS
CHECKER
LAKEVIEW
HUNTLEY
DAVIS
ROLLANG
BYERLEY
LAKE PROVIDENCE
TURNER
XG

MAJOR NATURAL GAS PIPELINES

AS OF DECEMBER 31, 1961



LEGEND

Pipelines

- Existing.
- Certificated or under construction.
- Pending Commission action.
- 46 — Number refers to ownership list.

Gas Fields

- Major source of natural gas supply.
- Generalized area of natural gas supply.

INDEX OF OPERATING COMPANIES

1 Alabama-Tennessee Natural Gas Co.
2 Algonquin Gas Transmission Co.
3 American Louisiana Pipe Line Co.
4 Arkansas-Louisiana Gas Co.
5 Arkansas-Missouri Power Co.
6 Associated Natural Gas Co.
7 Atlantic Seaboard Corp.
8 Carolina Pipeline Co.
9 Chicago District Pipeline Co.
10 Cincinnati Gas & Electric Co., The
11 Cities Service Gas Co.
12 Coastal Transmission Corp.
13 Colorado Interstate Gas Co.
14 Colorado-Wyoming Gas Co.
15 Columbia Gulf Transmission Co.
16 Commonwealth Natural Gas Corp.
17 Consumers Power Co.
18 Cumberland & Allegheny Gas Co.
19 East Ohio Gas Co., The
20 East Tennessee Natural Gas Co.
21 Eastern Shore Natural Gas Co.
22 El Paso Gas Supply Co.
23 El Paso Natural Gas Co.
24 Equitable Gas Co.
25 Fort Smith Gas Corp.
26 Home Gas Company
27 Hope Natural Gas Co.
28 Houston Pipeline Co.
29 Houston Texas Gas & Oil Corp.
30 Illinois Power Co.
31 Indiana Gas & Water Co., The
32 Iowa-Illinois Gas & Electric Co.
33 Iroquois Gas Corp.
34 Kansas-Colorado Utilities Co.
35 Kansas-Nebraska Natural Gas Co., Inc.
36 Kansas Power & Light Co.
37 Kentucky Gas Transmission Corp.
38 Lake Shore Pipe Line Co.
39 Lone Star Gas Co.
40 Louisville Gas & Electric Co.
41 Manufacturers Light & Heat Co., The
42 Michigan Consolidated Gas Co.
43 Michigan Gas Storage Co.
44 Michigan Wisconsin Pipe Line Co.
45 Midwestern Gas Transmission Corp.
46 Mississippi River Fuel Corp.
47 Mississippi River Transmission Corp.
48 Missouri Public Service Co.
49 Montana Dakota Utilities Co.
50 Montana Power Co.
51 Mountain Fuel Supply Co.
52 Natural Gas Pipeline Co. of America
53 Nevada Natural Gas Pipe Line Co.
54 New Jersey Natural Gas Co.
55 New York State Natural Gas Corp.
56 Niagara Mohawk Power Corp.
57 North Carolina Natural Gas Corp.
58 North Central Gas Co.
59 Northern Illinois Gas Co.
60 Northern Indiana Public Service Co.
61 Northern Natural Gas Co.
62 Northern Pipe Line Co.
63 Northern Utilities Co.
64 Ohio Fuel Gas Co., The
65 Oklahoma Natural Gas Co.
66 Olin Gas Transmission Corp.
67 Pacific Gas & Electric Co.
68 Pacific Gas Transmission Corp.
69 Pacific Lighting Gas Supply Co.
70 Panhandle Eastern Pipe Line Co.
71 Pennsylvania Gas Co.
72 Peoples Natural Gas Co., The
73 Petroleum Exploration, Inc.
74 Piedmont Natural Gas Co., Inc.
75 Pioneer Gathering System, Inc.
76 Pioneer Natural Gas Co.
77 Public Service Co. of N. C., Inc.
78 Public Service Corp. of Texas
79 Roanoke Pipe Line Co.
80 San Diego Gas & Electric Co.
81 Shenandoah Gas Co.
82 South Carolina Natural Gas Co.
83 South Georgia Natural Gas Co.
84 South Jersey Gas Company
85 Southeast Alabama Gas District
86 Southern California Gas Co.
87 Southern Counties Gas Co. of Calif.
88 Southern Gas Lines, Inc.
89 Southern Natural Gas Co.
90 Southern Union Gas Co.
91 Southwestern Virginia Gas Co.
92 Standard Pacific Gas Lines, Inc.
93 Tennessee Gas Transmission Co.
94 Texas Eastern Transmission Corp.
95 Texas Gas Transmission Corp.
96 Transcontinental Gas Pipe Line Corp.
97 Transwestern Pipeline Co.
98 Trunkline Gas Co.
99 United Fuel Gas Co.
100 United Gas Pipe Line Co.
101 United Natural Gas Co.
102 Upham Gas Company
103 Washington Gas Light Co.
104 Western Gas Service Co.
105 West Texas Utilities Co.
106 Zenith Gas System, Inc.
107 Monterey Gas Transmission Co.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. - Price 15 cents
Order No.: FPC M-63

☆ GPO : 1962 O—633015

COMPANIES THAT PARTICIPATED IN THE NATURAL GAS PIPELINES FACILITIES SUBCOMMITTEE SURVEY

COMPANY	REMARKS
Alabama-Tennesse Natural Gas Company Box 380 Florence, Alabama B. F. Grizzle, President	
Algonquin Gas Transmission Company 25 Faneuil Hall Square Boston 9, Massachusetts George R. Copeland, President	
American Louisiana Pipe Line Company 500 Griswold Street Detroit 26, Michigan R. D. McClintock, Vice President & Manager of Operations (Michigan Wisconsin Pipe Line Co.)	Facility data was supplied by American Louisiana Pipe Line and in addition for their affiliate, Michigan Wisconsin Pipe Line Company.
Arkansas Louisiana Gas Company Box 1734 Shreveport, Louisiana Earl P. Farmer, Vice President-Operations	
Cabot Carbon Company Southwest Division Box 1101 Pampa, Texas Hugh Burdette, Vice President & Manager	
Cities Service Gas Company Box 1995 Oklahoma City 1, Oklahoma C. D. Rogers, Vice President, Transportation Division	
Coastal Transmission Corporation 520 Bank of Commerce Building Houston 2, Texas D. B. Sprow, Executive Vice President	
Colorado Interstate Gas Company Box 1087 Colorado Springs, Colorado N. B. LauBach, Vice President-Operations (Natural Gas Producers, Inc.)	Facility data was supplied by Colorado Interstate Gas Co. and in addition for their subsidiary, Natural Gas Producers, Inc.
Colorado-Wyoming Gas Company Box 480 Denver 1, Colorado W. J. Giddings, Vice President	
Columbia Gulf Transmission Company P. O. Box 683 Houston 1, Texas S. Orlofsky, Vice President	
Commonwealth Natural Gas Corporation 116 S. Third Street Richmond 19, Virginia Paul H. Riley, Vice President & Chief Engineer	
Consumers Power Company 212 W. Michigan Avenue Jackson, Michigan J. H. Campbell, President (Michigan Gas Storage Company)	Facility data was supplied by Consumers Power Co. and in addition for their subsidiary Michigan Gas Storage Company.
East Ohio Gas Company, The East Ohio Gas Building 1717 E. Ninth Street Cleveland, Ohio J. H. Carson, Vice President-Operations	
El Paso Natural Gas Company P. O. Box 1492 El Paso, Texas H. F. Steen, Vice President & Manager Pipeline Operations	
Florida Gas Transmission Company Box 10400 St. Petersburg 33, Florida G. B. Bennett, Vice President-Sales & Operations	Formerly the Houston, Texas Gas & Oil Corporation.
Hope Natural Gas Company 445 West Main Street Clarksburg, West Virginia E. Wayne Corrin, President	
Houston Pipe Line Company Box 1188 Houston 1, Texas H. D. Carmouche, General Superintendent, Operations	
Humble Oil & Refining Company Box 2180 Houston 1, Texas H. W. Haight, Executive Vice President (Monterey Pipe Line Company)	Facility data was supplied by Humble Oil & Refining Co. and in addition for Monterey Pipe Line Company.
Illinois Power Company 500 S. 27th Street Decatur, Illinois R. A. Blakeney, Manager Gas Operations	
Kansas Power & Light Company, The P. O. Box 59 Salina, Kansas W. J. White, Gas Engineer	
Lone Star Gas Company 301 S. Harwood Street Dallas 1, Texas John M. Kindle, Vice President-Transmission	
Manufacturers Light & Heat Company, The P. O. Box 1196 Pittsburgh 30, Pennsylvania James E. Coleman, Vice President & General Manager (Cumberland & Allegheny Gas Co.) (Home Gas Company)	Facility data was supplied by Manufacturers Light & Heat Co. and in addition for their subsidiaries, Cumberland and Allegheny Gas Company, and Home Gas Company.
Michigan Consolidated Gas Company 415 Clifford Street Detroit 26, Michigan A. V. Brashear, Vice President & Manager of Operations	
Mississippi River Fuel Corporation 9900 Clayton Road St. Louis 24, Missouri E. A. Childress, Chief Engineer	
Montana-Dakota Utilities Company Montana-Dakota Utilities Building 831 - 2nd Avenue South Minneapolis 2, Minnesota H. M. Frederickson, Assistant Vice President & Gas Engineer	
Montana Power Company, The Box 1338 Butte, Montana L. S. Stadler, Vice President-Gas Operations	
Mountain Fuel Supply Company P. O. Box 1129 Rock Springs, Wyoming J. T. Simon, Vice President	
National Fuel Gas Company 30 Rockefeller Plaza New York 20, New York W. H. Locke, President (Iroquois Gas Corporation) (Penn. Gas Company) (United Natural Gas Company)	Facility data was supplied by Iroquois Gas Corp. and by Iroquois for United Natural Gas Co. Penn. Gas Company furnished their own data. All companies are subsidiaries of the National Fuel Gas Company.
Natural Gas Pipeline Co. of America 122 South Michigan Avenue Chicago 3, Illinois Keith Bentz, Vice President-Operations (Natural Gas Storage Co. of Illinois)	Facility data was supplied by Natural Gas Pipeline Company of America and in addition for their subsidiary, Natural Gas Storage Company of Illinois.
New Jersey Natural Gas Company 601 Bangs Avenue Asbury Park, New Jersey L. J. Pollitt, Jr., Vice President-Operations	
New York State Natural Gas Corporation Two Gateway Center Pittsburgh 22, Pennsylvania R. J. Plank, President	
Niagara Mohawk Power Corporation 300 Erie Boulevard West Syracuse, New York J. Leo Welch, Vice President-Operations	
Northern Illinois Gas Company 50 Fox Street Aurora, Illinois Marvin Chandler, President	

COMPANIES THAT PARTICIPATED IN THE NATURAL GAS
PIPELINES FACILITIES SUBCOMMITTEE SURVEY (CONT'D)

COMPANY	REMARKS
Northern Indiana Public Service Company 5265 Hohman Avenue Hammond, Indiana Carl D. Rees, Vice President General Operations	
Northern Natural Gas Company 2223 Dodge Street Omaha 1, Nebraska J. T. Innis, Vice President (Northern Natural Gas Pipeline Company)	Facility data was supplied by Northern Natural Gas Co. and in addition for their subsidiary Northern Natural Gas Pipeline Company.
Northern Utilities Company Box 1091 Casper, Wyoming L. T. Krueger, Vice President (North Central Gas Company)	Facility data was supplied by Northern Utilities Company and in addition for their subsidiary, North Central Gas Company.
Ohio Fuel Gas Company, The 99 North Front Street Columbus 15, Ohio P. W. Rogers, Vice President	
Oklahoma Natural Gas Company Box 871 Tulsa 2, Oklahoma P. K. Wallace, Vice President-Operations	
Olin Gas Transmission Company P. O. Box 1482 Monroe, Louisiana J. R. Dillon, Chief Engineer, Pipelines	
Pacific Gas & Electric Company 245 Market Street San Francisco 6, California E. Howard Fisher, Vice President & Chief Engineer (Standard Pacific Gas Lines, Inc.)	Facility data was supplied by Pacific Gas & Electric Company and in addition for their subsidiary, Standard Pacific Gas Lines, Inc.
Pacific Gas Transmission Company 124 Beale Street San Francisco 6, California Charles Pennypacker Smith Vice President & Manager	
Pacific Lighting Corporation 810 Flower Street Los Angeles 17, California R. R. Blackburn, Vice President (Pacific Lighting Gas Supply Co.) (Southern California Gas Company) (Southern Counties Gas Co. of Calif.)	Facility data was supplied by Southern Calif. Gas Co. for themselves, Pacific Lighting Gas Supply Co., and Southern Counties Gas Co. of Calif. All companies are subsidiaries of Pacific Lighting Corporation.
Pan American Gas Company Box 591 Tulsa 1, Oklahoma F. G. Moore, President	
Panhandle Eastern Pipe Line Company 3444 Broadway P. O. Box 1348 Kansas City 41, Missouri Francis J. McElhatton, Vice President Gathering & Transmission	
Peoples Natural Gas Company, The Two Gateway Center Pittsburgh 22, Pennsylvania H. D. Borger, President & General Manager	
Phillips Natural Gas Company Adams Building Bartlesville, Oklahoma F. B. Neptune, Executive Vice President & General Manager	
Pioneer Natural Gas Company Box 511 Amarillo, Texas T. S. Whitis, Vice President-Transmission	
Richfield Oil Corporation 555 South Flower Street Los Angeles 17, California Rollin Eckis, Executive Vice President (Casitas Pipeline Company) (Cheviot Hills Pipeline Company) (Cuyama Pipeline Company)	Facility data was supplied by Richfield Oil Corporation for their subsidiaries - Casitas Pipeline Company, Cheviot Hills Pipeline Company, and Cuyama Pipeline Company
San Diego Gas & Electric Company Box 1831 San Diego 12, California E. D. Sherwir, President	
Shamrock Oil and Gas Corporation Box 631 Amarillo, Texas Harry Wheeldon, Vice President Operations	
Shenandoah Gas Company 121 South Loudoun Street P. O. Box 804 Winchester, Virginia	Subsidiary of Washington Gas Light Company
South Georgia Natural Gas Company Box 791 Thomasville, Georgia John O. Sholar, President	
South Jersey Gas Company 2001 Atlantic Avenue Atlantic City, New Jersey B. W. Conover, Manager-Operations	
Southern Natural Gas Company Box 2563 Birmingham, Alabama O. W. Clark, Senior Vice President Operations	
Southern Union Gas Company Fidelity Union Tower Dallas 1, Texas N. P. Chesnutt, Vice President & Operations Manager	
Southwest Gas Corporation Box 271 Las Vegas, Nevada James L. Sanders	Formerly the Nevada Natural Gas Pipeline Company.
Tennessee Gas Transmission Company Box 2511 Houston, Texas W. C. McGee, Jr., President (East Tennessee Natural Gas Co.) (Midwestern Gas Transmission Co.)	Facility data was supplied by Tennessee Gas Transmission Company and for their subsidiaries East Tennessee Natural Gas Company and Midwestern Gas Transportation Company.
Texaco, Inc. 1111 Rusk Avenue P. O. Box 2332 Houston 1, Texas Mr. W. V. Vietti, Division Manager	
Texas Eastern Transmission Corporation Box 1612 Shreveport 94, Louisiana E. T. Robinson, Senior Vice President	
Texas Gas Transmission Corporation P. O. Box 1160 Owensboro, Kentucky A. L. Roberts, Vice President	
Transcontinental Gas Pipeline Corporation Box 296 Houston 1, Texas W. H. Davidson, Vice President	
Transwestern Pipeline Company Box 1502 Houston 1, Texas N. C. Turner, Vice President Engineering & Operations	
Trunkline Gas Company P. O. Box 1642 Houston 1, Texas William K. Sanders, President	
United Fuel Gas Company 1700 MacCorkle Avenue, S. E. Charleston 4, West Virginia James S. Phillips, President (Amere Gas Utilities Company) (Atlantic Seaboard Corporation) (Kentucky Gas Transmission Corp.)	Facility data was supplied by United Fuel Gas Company and for their subsidiaries - Amere Gas Utilities Company, Atlantic Seaboard Corporation, Kentucky Gas Transmission Corporation.
United Gas Pipe Line Company Box 1407 Shreveport 92, Louisiana C. C. Barnett, Vice President	

S E C T I O N VII

REPORT OF

THE SUBCOMMITTEE ON PETROLEUM PIPELINE TRANSPORTATION

OF THE

NATIONAL PETROLEUM COUNCIL'S

COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES

E. W. UNRUH

CHAIRMAN

May 1, 1962

Mr. Monroe E. Spaght, Chairman
NPC Committee on Oil and Gas
Transportation Facilities
c/o Shell Oil Company
50 West 50th Street
New York 20, New York

Dear Mr. Spaght:

Your Subcommittee on Petroleum Pipeline Transportation respectfully submits its report to you and your Committee covering crude petroleum, refined products, and LPG pipelines. This report treats with significant developments, current trends and potential trouble spots in case of emergency in the pipeline transportation industry. It brings up to date the last report (1957) prepared by the National Petroleum Council. In addition, valuable data has been assembled through questionnaires and maps which will not only supply the information requested by the Department of the Interior, but also goes considerably further in anticipation of possible material allocation in time of emergency. The "tools" are within the report to step in immediately to set up a streamlined emergency agency, such as the Petroleum Administration for War or the Petroleum Administration for Defense during the past.

In preparation and assembly of this vast amount of data, I would like to pay particular tribute to Mr. Millard Neptune (Products Lines) and Mr. Ted Aude (Crude Lines) Vice Chairmen, and their District Chairmen for the yeomen's service rendered--also to Mr. John Boice, Mr. H. H. Ammerman, and Mr. L. H. Richmond for the excellent job they have done in bringing up to date the 1957 report. Excellent cooperation was received from every pipeline company involved in amassing the vast amount of data requested.

A master set of crude and products maps has been prepared for use by the Department of the Interior. The mapping work was coordinated and handled by Service Pipe Line Company and Texas Eastern Transmission Corporation which consolidated all data onto two master sets of coordinate maps.

In submitting this report, I would be remiss if I failed to acknowledge the contributions of Mr. Vincent M. Brown, and the staff of the National Petroleum Council office, and Mr. Earl G. Ellerbrake of the Department of the Interior; the former who gave invaluable assistance in the way of assembling data, transferring same to IBM cards, valuable advice, and a great deal of staff assistance; and the latter, who clarified our task and helped to make the whole survey one of practical use to the Government, as well as to the industry.

Respectfully submitted,

/S/ Earl W. Unruh

Earl W. Unruh, Chairman
NPC Subcommittee on Petroleum
Pipeline Transportation

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SUBCOMMITTEE ON PETROLEUM PIPELINE TRANSPORTATION
OF THE
NATIONAL PETROLEUM COUNCIL'S
COMMITTEE ON OIL AND GAS TRANSPORTATION FACILITIES (1961)

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Sinclair Building
Independence, Kansas

VICE CHAIRMAN (CRUDE LINES):
T. R. Aude
Vice President - Traffic
Service Pipe Line Company
P. O. Box 1979
Tulsa 2, Oklahoma

VICE CHAIRMAN (PRODUCTS LINES):
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Senior Vice President
Texas Eastern Transmission Corp.
P. O. Box 1189
Houston 1, Texas

SECRETARY:
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Terrace, N. E.
Washington 17, D. C.

STAFF ASSISTANT:
Vincent M. Brown
Assistant Secretary-Treasurer
National Petroleum Council
1625 K Street, N. W.
Washington 6, D. C.

* * * *

Irvin, J. L., President
Gulf Refining Company
P. O. Drawer 2100
Houston 1, Texas

Kalbaugh, F. E.
General Manager
Southern Pacific Pipe Lines,
Inc.
65 Market Street
San Francisco, California

Kygar, W. L., President
Continental Pipeline Co.
P. O. Drawer 1267
Ponca City, Oklahoma

Moore, Ralph F., President
Platte Pipe Line Company
1200 Power and Light Building
Kansas City 5, Missouri

Moreland, Harry, President
Great Lakes Pipe Line Company
P. O. Drawer 2239
Kansas City 42, Missouri

Paine, Ralph K., Manager
Pipe Line Department
Standard Oil Company of
California
225 Bush Street
San Francisco 20, California

Patterson, George S.
President
The Buckeye Pipe Line Company
30 Broad Street
New York 4, New York

Rice, Jack H., President
Marathon Pipe Line Company
539 South Main Street
Findlay, Ohio

True, L. H., President
Magnolia Pipe Line Company
P. O. Box 900
Dallas 21, Texas

Wilkins, W. J., President
Laurel Pipe Line Company
(Ohio)
Trindle & Fallowfield Roads
P. O. Box 426
Camp Hill, Pennsylvania

PART I

CONDENSED REPORT

PART I

CONDENSED REPORT

A. SUMMARY

The Subcommittee reports that petroleum pipelines--both for crude oil and products--are in excellent state of readiness to handle present transportation needs and, in general, substantial increases in traffic.

Facilities built since the report of 1957 have eliminated bottlenecks, increased throughput capacity, and provided a greater flexibility to the petroleum pipeline system of the nation.

The projected Colonial pipeline could serve to transfer a sizable segment of product transport from submarine vulnerability to the more secure pipeline method in the event of an emergency.

There are situations in which severe emergencies could create deficiencies in pipeline capacities (such as a need to draw heavily on West Texas crude capacity); however, neither the nature of an emergency nor the extent and nature of the needed added facilities can be forecast so as to justify a recommendation for remedial or anticipatory action.

B. CONCERNING THE REPORT

Origin

This report was prepared pursuant to a request from the Secretary of the Interior, in his letter to the Chairman of the National Petroleum Council, dated December 19, 1960.

Scope

This report covers the crude oil and petroleum products pipeline capacities of the nation as of January 1, 1961.

Principles of Preparation

In the preparation of this report and the supporting data and maps, which were submitted to the Council, the Subcommittee has been guided by the following aims:

1. To inform the Council in general terms and numbers concerning the capacities of the nation's pipelines in relation to their current and prospective uses.

2. To provide, with respect to specific areas of supply and consumption and specific pipelines, the more extensive and more precise details which representatives of the Government have indicated as being needed in planning for defense, damage assessment and catastrophe recovery.

3. To assemble, catalog, map and index the data and information on individual pipeline companies, and their individual pumping stations and river crossings.

The materials in Items 1 and 2 above are included in this report. One master set of the materials in Item 3 was compiled and it will be kept in the custody of the Department of the Interior. In the event that it should ever be necessary to activate an emergency petroleum agency, this detailed data will constitute the basic factual files which would be required by the pipeline transportation staff of such an agency.

Date of Information

Although the request was for a report concerning facilities as of January 1, 1961, the Committee has taken the liberty

of including more up-to-date information in those cases where it could be done without creating confusion, and where it was felt that the result would be a more valuable report for those requesting it.

C. MAGNITUDE OF PETROLEUM PIPELINE TRANSPORTATION

The Secretary of the Interior requested the National Petroleum Council to make a thorough study of petroleum pipeline capacities, and also to submit information on individual pump station locations by latitude and longitude, including data on the installed horsepower, the type of prime mover, etc. In addition, data was requested on the degree of automation of pump stations, as well as information on larger river crossings.

To fulfill its assignment, the Petroleum Pipeline Subcommittee compiled the detailed data through the use of questionnaires which were mailed to 98 crude oil pipeline companies, and 124 products pipeline companies. In all, a total of 82 crude pipeline companies, and 80 products pipeline companies participated in this survey by supplying pipeline facility data and system maps.

The information received via the questionnaire route is confidential and is being made available only to Governmental Defense Agencies for their own use in classified studies. However, summary tables have been compiled for this report, and appear in the Appendix to Part I. As shown on these tables, data was obtained on 1169 crude oil pump stations at which were located 3588 pumping units; and 606 products stations at which were located 1519 individual pumps. In addition, information was compiled on 742 crude oil pipeline river crossings, and 813 products pipeline river crossing locations.

D. SIGNIFICANT CHANGES SINCE REPORT OF 1957

During the past four years since September 30, 1957, approximately 14,600 miles of crude and products pipelines have been constructed at an estimated cost of $637 million. Two-thirds of this additional mileage is represented by products lines, and one-half of which are confined to the transportation of liquefied petroleum gas. Augmenting the new construction was the return to product service from natural gas of Texas Eastern Transmission Corporation's formerly Government owned "Little Big Inch" line, from Baytown, Texas to Lebanon, Ohio. The trend towards joint ownership of pipelines continued with five new companies being formed, and the percentage of total pipeline mileage represented by joint venture lines has increased to 48%.

E. CURRENT TRENDS IN PIPELINE TRANSPORTATION

Significant trends already discernible in the 1957 report are now more apparent than ever. Large diameter lines, automation, centralized controls, automatic custody transfers, expanded use of computers for complex problems in scheduling and operation, joint-venture projects, closer cost controls, and greater segregation of crude oils, are all current programs which have received very considerable attention and development. Two large liquefied petroleum gas pipeline projects have been completed in 1961 to give this portion of the pipeline industry added impetus.

Construction trends definitely towards the use of large diameter thin wall pipe for savings both in initial costs per barrel mile capacity and in power requirements as indicated by the fact that over 3,200 miles, or one-fourth, of construction since the last report was of pipe in excess of 12 inches in diameter.

The implication of many of the foregoing programs is cost reduction and more efficient operation. This has catalyzed another trend relating to the upgrading and development of personnel. With much higher levels of technology required, the pipeline companies are realizing the need for training of existing personnel and management to fully utilize the new tools and equipment being developed. In addition, technicians and engineers in greater quantity and of higher quality are being sought as they complete their academic training.

This old but efficient mode of transportation is being used for moving a growing variety of commodities. Included in such movements are the Gilsonite slurries, pulverized coal in water slurry, wood pulp, petrochemicals and other chemicals, helium, raw material and feed stocks of many kinds for rubber, plastics industries, etc.

The law of supply and demand viewed through economic evaluations has brought about the installation of pipeline transportation facilities from nearly all remote oil-producing areas to market. By the same token, nearly all substantial inland concentrations of population are now served by refined petroleum pipelines.

F. PRINCIPAL PIPELINES IN PLANNING OR CONSTRUCTION

Comparatively few crude lines are in the planning stage or under construction. Most significant is the Glacier pipeline extending from the United States/Canadian border near Piegas, Montana, 507 miles South through Cut Bank, Montana to Byron, Wyoming, to a connection with Platte pipeline. (The 4 to 10-inch line was actually completed late in July, 1961, with an initial capacity of 50,000 barrels per day.)

Phillips Pipe Line Company is planning the construction of 153 miles of 3 to 12-inch trunk and gathering lines to connect production in Beaver and Texas Counties, Oklahoma, to Phillips Petroleum Company's refinery at Phillips, Texas. (The system was completed in June, 1961, with an initial capacity of 15,000 barrels per day.)

Service Pipe Line Company plans 60 miles of 12-inch loops on its LaPlata, Missouri to Wood River, Illinois line for a capacity increase of 20,000 barrels per day. (These additions were completed in late 1961, as planned.)

Dixie Pipeline Company has been organized to construct a liquefied petroleum gas line originating at Mont Belvieu, Texas, and crossing the southern United States to terminals in the vicinity of Raleigh, North Carolina. The 1100-mile, 6 to 12-inch system will have an initial capacity of 50,000 barrels per day and is expected to cost $35 million. (Construction started in mid-July, 1961, and the first truck was loaded with propane from the Raleigh terminal on March 1, 1962.)

Mid-America Pipe Line Company reported completion of its 2184-mile, 4 to 10-inch liquefied petroleum gas pipeline from Eunice, New Mexico through Texas, Oklahoma and Kansas, to terminals in the Minneapolis-St. Paul area and Madison, Wisconsin in December, 1960. Initial delivery capacity in the terminal areas is 50,000 barrels per day. (Early in 1961, Mid-America announced plans for two branch extensions--a 107-mile, 6-inch line from Whiting, Iowa to Ogden, Iowa for completion in the fall; and a 100-mile, 6-inch line extension from Ogden to Charles City, Iowa for completion sometime in 1962. Additional plans have recently been published to build a 110-mile spur from Birmingham, Iowa to Farmington, Illinois. Pumping capacity all over the existing system is being increased. Maximum daily delivery potential will be raised to 125,000 barrels.)

Colonial Pipe Line Company

This proposed transportation giant is currently underway in its preliminary stages. It will serve to a great extent the same (though considerably expanded) function in time of emergency that the "Little and Big Inch Lines" served during the second World War. The transportation by inland means from the Gulf Coast to the East Coast became a necessity when the submarine menace to American tank ships played havoc with supply.

As a common carrier, because of its size, it will provide low-cost transportation for petroleum products for shippers throughout the southeast and eastern states as far as the New York harbor. This 36-30" carrier will be the largest products carrier to date, and further illustrates a number of current trends--the economy of large capacity systems, automation, etc.

Miscellaneous Projects

There are numerous expansion, extension and modernization projects under way or planned throughout the country. Generally speaking, these involve existing systems and are merely to improve service, eliminate bottlenecks, provide additional outlets, or to increase efficiencies of operation. However, there are several announced projects, most of which are listed and covered in Tables 2 and 4 of Part III.

G. PRINCIPAL POTENTIAL TROUBLE SPOTS IN EMERGENCIES

PAD District I would be the major and most serious trouble spot in the event of an emergency involving the curtailment of tanker traffic. The District's 36 refineries, representing 16% of the nation's capacity, receive virtually their entire crude supply by water carrier--in 1960, 438,500 barrels per day from the Gulf Coast, and 667,000 barrels per day from foreign sources. There are no pipeline facilities in existence or planned to provide adequate alternative transport for crude from PAD District III, which could be made available to replace the present supply. Should a serious crisis develop, some relief might be obtained by cooperative and joint use of the existing gas transmission systems, so that one of such lines might be converted to petroleum service.

While some bottlenecks existing in the District III pipeline network at the time of the Suez Crisis have been eliminated, a real emergency would still reveal bottlenecks in the industry's ability to move crude oil out of the Permian Basin.

Other Potential Serious Problem Areas

With the trend towards electrification, the pipeline industry has become highly dependent upon electric power to energize its prime movers. This fact points up a seriou situation in the event of a catastrophe involving possible destruction of power plants and transmission systems. The volume of spare diesel engines and gas turbines would be very inadequate to meet needs. Those who are responsible for disaster planning should give serious consideration to reducing delivery time on such critical items as diesel equipment, motors, pumps, valves, etc.

H. DISCUSSION OF BASIC AND SUPPLEMENTARY DATA

In addition to data which would serve for the disaster planning, it was deemed expedient to secure additional up-to-date information from the pipe line companies. This data would provide basic information to a "PAD" type agency in the event of a national emergency. Pertinent data, such as spare or stand-by pumps and motors, extra river crossings, and detailed maps for possible interconnections, will be invaluable for a quick start in an emergency.

With regard to data requested on latitude and longitude of pumping station locations, it was determined that this data would have been plotted on the Government coordinate maps. Our decision to use the coordinate maps and plot, not only pumping stations, but the entire pipeline system of each company on a master set of maps, we hope will circumvent a great deal of work which the Government agencies would have had to do.

This mapping system will also point out locations of major river crossings in exact location.

A set of maps was sent to each company, and were returned with the data plotted as requested. Composite master sets were then made by Texas Eastern Transmission Corporation (products lines), and Service Pipe Line Company (crude lines), and they were upon completion turned over to the National Petroleum Council's office.

NPC SURVEY OF PETROLEUM PIPELINE FACILITIES
CRUDE OIL AND PRODUCTS PIPELINE PUMP STATION DATA*

	CRUDE OIL PIPELINE PUMP STATIONS	PRODUCTS PIPELINE PUMP STATIONS
TOTAL UNITED STATES		
1. Total Number of Pump Stations	1,169	606
2. Total Number of Pumping Units	3,588	1,519
Includes Standby Units numbering	223	91
3. Aggregate Capacity of Pump Stations Reported (Thousand Bbls./Day)	80,946	38,855
4. Aggregate Horsepower Rating of Pump Stations Reported (HP)	1,564,980	720,030
5. Total Number of Full-Time Operating Personnel at Stations	3,103	1,844
6. Types of Pumps at Station **		
a. Reciprocating	696	78
b. Centrifugal	638	568
c. Other	23	1
7. Types of Prime Movers Reported **		
a. Electric	742	512
b. Diesel	1,795	67
c. Dual Fuel	52	67
d. Natural Gas	333	-
e. Turbine	10	5
f. Other	60	17
8. Degree of Station Automation		
a. Semi-automatic	406	151
b. Manual	624	292
c. Remote	234	188

* Petroleum pipeline facilities within continental United States only. (Includes trunk lines only)

** A number of stations have more than one type of pump and/or more than one type of prime mover.

NPC SURVEY OF PETROLEUM PIPELINE FACILITIES
CRUDE OIL AND PRODUCTS PIPELINES/MAJOR RIVER CROSSINGS DATA

	CRUDE OIL PIPELINE CROSSINGS	PRODUCTS PIPELINE CROSSINGS
TOTAL UNITED STATES		
1. Total Number of River Crossings	742	813
2. Diameter of Pipe		
a. 1" to 6"	110	134
b. 7" to 11"	307	481
c. 12" to 18"	204	173
d. 19" to 24"	105	24
e. 25" and Over	16	1
	742	813
3. Length of Crossing		
a. 75' or Less	-	51
b. 76' to 200'	98	175
c. 201' to 500'	175	216
d. 501' to 1,000'	169	150
e. 1,001' to 2,640'	151	143
f. 2,641' and Over	133	75
g. Unspecified	16	3
	742	813
4. Kind of River Crossing		
a. Overhead	70	54
b. Buried	672	759
	742	813
5. Estimated Replacement Time		
a. Number of Days to Establish Temporary Service:		
(1) 1 to 5 Days	339	352
(2) 6 to 10 Days	218	206
(3) 11 and Over	150	243
(4) Unspecified	35	12
	742	813
b. Number of Weeks to Establish Permanent Installation:		
(1) 1 to 3 Weeks	418	437
(2) 4 to 7 Weeks	130	188
(3) 8 Weeks and Over	149	181
(4) Unspecified	45	7
	742	813

PART II

GENERAL DISCUSSION

PART II

GENERAL DISCUSSION

INTRODUCTORY

Many changes have taken place in the petroleum pipeline network of the United States since the last study was made September 30, 1957, by the National Petroleum Council for the Government. The physical pipeline network has continued to expand and modernize. Traffic patterns of both crude and products systems have changed--crude from new producing areas to refining centers, and products from refineries to consuming areas.

The purpose of this report is to bring up to date similar studies made by the National Petroleum Council--one in 1950 and the latest in 1957, showing primarily the traffic flow pattern of the oil industry in the United States by pipelines.

About 14,600 miles of principal crude oil and products pipelines have been constructed at an estimated cost of more than $637 million; the greatest expansion being in products and liquefied petroleum gas pipelines to consuming areas which had been served by other modes of transportation. As to the immediate future, the more than 200,000 miles of petroleum pipelines in the United States will increase with the completion of additional projects scheduled for construction in 1961 and 1962. At this writing, many of these projects have been completed--others have been started. Included with the attached statements are lists of the principal crude oil and products pipelines laid since the last study in 1957 to January 1, 1961, and those proposed for 1961 and 1962.

This pipeline network is part of the most efficient and modern oil industries in the world. No other nation has the facilities and means of providing petroleum and its related products comparable with the United States. On January 1, 1961, the United States estimated proven reserves of crude oil and natural gas liquids aggregated 38,429,270,000[1] barrels. Production of crude oil during the year 1960 averaged 7,035,000 barrels daily, whereas it is estimated the country as of

1 Report prepared by American Petroleum Institute as of December 30, 1960, Volume 15.

January 1, 1960, had a potential productive capacity of 10,585,000 barrels of crude oil and 1,799,600 barrels of natural gas liquids per day under maximum efficiency operation.[2] At the end of 1960, the excess of the potential productive capacity over actual production would leave 3,550,000 barrels daily of unused crude oil capacity, including 163,000 of shut-in capacity in the Elk Hill field in California.

As of January 1, 1961, there were 289 operating refineries in the United States with a combined capacity of 9,630,000 barrels per day[3], but runs to stills averaged only 8,067,000 barrels daily[4], leaving an excess refining capacity of 1,563,000 barrels a day. Transportation facilities--pipelines, tank cars, trucks, barges and tankers--were more than adequate to deliver 7,050,000 barrels daily of domestically produced oil to refineries[4], and to distribute refined products processed therefrom to points of consumption. In addition, tankers were available to move another 1,013,000 barrels daily of crude oil produced in foreign countries to U. S. ports for refinery processing, and to deliver 803,500 barrels per day of refined oils, mostly residual fuel oil, for U. S. consumption.[4]

Domestic demands for oil increased from 8,818,000 to 9,661,000 barrels per day during the three years 1957 through 1960, or an average annual rate of 281,000 barrels daily[4] or 3 per cent. The rate of growth during this period, however, was not as precipitous as experienced in the earlier postwar years.

From the foregoing analysis, there appears to be enough surplus capacity in the production, refining and transportation segments of the oil industry to take care of a substantial increase in domestic demands under peacetime operations. However, the situation abroad has created uncertainty about the outlook for the future. If the cold war resulting from the unstable East/West political differences in the world today should suddenly become hot on a major scale, a heavy burden within a short period of time could be placed upon the oil industry to provide the free world with increased military and civilian demands for oils. The emergency could force a change

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2 Report prepared by the National Petroleum Council, May 15, 1961.

3 Bureau of Mines, Information Circular No. 8062, January 1, 1961.

4 Bureau of Mines Monthly Petroleum Statistics.

in the present world crude and products supply pattern.

Under normal peacetime operations there are no major bottlenecks in connection with the transportation of oil. Under war conditions the country's overland transportation capabilities, with the planned pipeline system from the Gulf Coast to the East Coast, will be in a much more favorable position than during World War II.

The importance of pipeline transportation can readily be appreciated when it is realized that this form of moving oil is less vulnerable to enemy attack or adverse weather conditions than any other mode of transportation. Pipelines are underground and unseen. Statistics show that approximately 84 per cent of the domestically produced crude oil reaching refineries is moved by this overland means. In 1960, this meant the movement of more than 2 billion barrels annually, or nearly 6 million barrels per day. In addition, most of the oil imported from Canada reached U. S. refineries via pipelines.

The geographical location of refineries naturally governs the need of crude oil pipelines to serve them. The principal refining centers in the United States are situated in tidewater cities along the eastern seaboard, Gulf Coast and Pacific Coast, and in the Midwest and Midwestern Great Lakes region.

The Southwest region, comprising the States of Texas, Louisiana, New Mexico, Arkansas, Mississippi and Alabama, is the principal source of crude oil supply in the United States, and in 1960 produced 59 per cent of the total domestic supply. Texas alone accounted for 36 per cent of this nation's total production, and thus the tremendous task of providing sufficient pipeline transportation to move about 2,550,000 barrels of crude oil daily within or out of that state alone is apparent. The pipelines of the Southwest region not only extend to Gulf Coast refineries and deep water terminals, but also run northward into the Great Lakes refining areas picking up en route considerable crude oil produced in Mid-Continent fields, and connecting with pipelines bringing oil from the Rocky Mountain region and from the Illinois Basin.

The use of pipelines for the transportation of gasoline and other light products came into existence some thirty years ago. In 1930 there were only 371 miles of such lines. Prior to World War II, there were about 9,000 miles. The development

of product pipelines since the end of World War II has been at a rapid pace. By the end of 1960, it is estimated there were more than 66,000 miles of such lines located in 44 states and the District of Columbia.

A more accurate appraisal of the development of products pipelines can be gained from figures relating to the growth of the volume of the movement of light refined products the past 22 years. In 1938 products pipelines were delivering only 234,000 barrels/daily--all gasoline, whereas in 1960 the volume had increased to 2,865,000 barrels per day, including gasoline, kerosine, distillate, liquefied petroleum gas, and natural gas liquids. Furthermore, in 1938 the products pipelines moved 16.31 per cent of the domestic demands for gasoline, kerosine and distillates, compared with 42.72 per cent in 1960.

This enlarged movement is outstanding when consideration is given to the fact that many of the major refineries are located in close proximity to heavily populated and industrialized cities that can be served more efficiently by tank trucks for shorter haul, and by railroad tank cars for longer haul.

In general, the products pipelines originate at refineries or water terminals and extend to bulk terminals located in or near principal points of consumption. From these bulk terminals distribution is made by tank trucks to cities within a radius of 100 miles, or tank cars and trucks for longer hauls.

The capacity of crude oil lines increased 51 per cent during the past decade, whereas that for products lines due to the tremendous expansion in mileage in the post World War II period, has risen 232 per cent.

Noteworthy in the postwar development of products pipelines has been the expanded use by the military in bringing jet fuels directly to major air bases. This method of delivery of fuels has saved the Government millions of dollars in transportation charges over what it formerly cost by means of tank cars and trucks. Another trend that gives promise of rapid develop ment is the delivery of aviation gasoline and jet fuel direct to principal municipal airports by pipelines.

Many miles of new lines are being built for the exclusive movement of liquefied petroleum gases, principally butane and propane.

In recent years certain railroads and natural gas companies, generally through subsidiaries, have become owners of petroleum pipelines.

From a technological standpoint, the pipeline industry has continued a steady progress in increasing the efficiency of operations. Automation has made outstanding strides. New pump stations being built are generally automatically controlled and equipped with more powerful electrically driven prime movers. The microwave with the large number of circuits has proved an important aid in remotely controlled operations, and has lessened the chance of losing communication in times of attack. Manpower requirements are being reduced. Dispatching practices have benefited from the adoption of electronic analyzing and computing machines. Methods of metering oil have been greatly improved. The trend is definitely towards the construction of larger diameter thin-wall pipelines having wider pump station spacing. With big-inch lines, the savings in power and reduction of construction costs per barrel-mile capacity is substantial. The pipelines are now in their greatest era of improvement, and the future holds much promise of continued betterment.

During periods of past emergencies, such as World Wars I and II, the Korean Conflict, nationalization of Iran and the Suez Crisis, that resulted in abnormal operations in all segments of the oil industry, the petroleum pipelines performed their job to meet and overcome the crisis. They could do it again if called upon because the industry has built-in capabilities of delivering petroleum wherever and whenever needed. The pipelines' place in transportation is well established, and its network will continue to grow to whatever extent is necessary to meet this nation's needs. The following paragraphs give certain salient facts applicable to the five separate regions of the United States.

PAD DISTRICT I - (EAST COAST REGION)

District I comprises the 17 States of Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Delaware, Pennsylvania, West Virginia, Maryland, Virginia, North Carolina, South Carolina, Georgia and Florida, and the District of Columbia.

Crude Pipelines

This region is divided into two general areas, namely East Coast and Appalachian.

Estimated proven reserves of crude oil and natural gas liquids in District I (East Coast region) as of December 31, 1960, amounted to only 238 million barrels, or less than one per cent of the U. S. total, and were located principally in the States of Pennsylvania and West Virginia. During the year 1960, the entire region produced only 29,000 barrels per day of crude oil, practically all in the Appalachian area. With the exception of a small quantity in Florida, production along the East Coast was nil. It is estimated that District I as a whole, can produce 39,200 barrels of crude and natural gas liquids daily under maximum efficiency operations. At present there is no unused crude oil capacity.

Located in District I are 36 operating refineries with a combined capacity of 1,538,190 barrels, or 15.97 per cent of the U. S. total. There are 23 refineries in the East Coast area with a combined capacity of 1,422,350 barrels, and 13 in the Appalachian area with a capacity of 115,840 barrels. By far, the greatest concentration of refineries is in New Jersey and Pennsylvania. The largest refineries are located on deep water at Philadelphia, Pennsylvania; Linden, Perth Amboy, Paulsboro, Westville, and Sewaren, New Jersey; Delaware City, Delaware; Buffalo and Brooklyn, New York; Everett (Boston), Massachusetts; Baltimore, Maryland; and Goodwin Neck, Virginia. During the year 1960, crude runs to stills in District I averaged 1,217,000 barrels per day, 1,120,600 of which was at East Coast and 96,400 at Appalachian refineries. Of the runs at the former 59.5 per cent was foreign produced crude oil.

The East Coast region is heavily populated and industrialized and consequently demands for refined oils greatly exceeds any other area of the country.

Pipelines play only a minor role in the movement of crude oil to refineries in this region. The few existing lines are located in Western New York, Western Pennsylvania and West Virginia. The Northern Pipe Line and the New York Transit (Buckeye system) comprise a connecting link between District I and II at the Ohio Pennsylvania line that permits the delivery of crude oil to Buffalo and intermediate refineries. The capacity between the two districts is 72,000 barrels per day.

The Portland Pipe Line Corporation system extends from South Portland, Maine, and runs northwesterly through New Hampshire and Vermont to a connection with the Montreal Pipe Line at the United States/Canadian border near North Troy. These two lines form a through route for the possible delivery of 266,000 barrels per day of foreign crude oil received by tanker at South Portland, Maine, to refineries at Montreal, Quebec, Canada.

The eastern seaboard refineries have deep water terminals and receive all their crude oil supplies by tankers from the Gulf Coast, California, or from foreign countries. During the year 1960 such receipts averaged:

From Gulf Coast	438,500	Barrels Daily
" California	5,800	" "
" Foreign Countries	667,200	" "

Products Pipelines

Products pipelines in District I fall into three main groups. The Northern group consists of pipelines in New England that extend from the Coast to large inland cities such as Worcester and Springfield, Massachusetts; Hartford, Connecticut; and Bangor, Maine. The central group distributes products generally westward throughout an area bounded on the north by Buffalo, Rochester and Syracuse, New York; on the west by Pittsburg, Pennsylvania; and Cleveland, Ohio; on the south by Baltimore, Maryland, and Washington, D. C.., and on the east by Bayonne, Linden and Newark, New Jersey. The central group, serving most of the important cities of eastern United States, consists of Laurel, Buckeye, Atlantic, Mobil and Sun pipeline companies. The central group pipelines originate at two principal refining centers; the New York area, and the Philadelphia complex. Two pipelines run from the Philadelphia area to the New York area--the Harbor system

and Sun Pipe Line Company. The southern group consists of the Plantation Pipe Line which originates at Baton Rouge, Louisiana in District III, and the Southeastern Pipe Line, the latter supplied by barges from District III. These 2 lines serve generally, Georgia, South Carolina, North Carolina and eastern part of Tennessee in District II. The principal movements are westward across Pennsylvania from refineries located in the Philadelphia and Linden areas.

The capacity of inter-district pipeline movements are as follows:

Inter-District	I	from	District	II	20,000	Barrels	Daily
"	"	I	"	"	III	272,000	"	"
"	"	II	"	"	I	188,700	"	"

Several new products pipelines are in various stages of planning and construction operation. The Dixie Pipe Line has placed in operation a 1,100-mile 6 to 12-inch LPG line from Mont Belvieu (Houston area), Texas, to Raleigh, North Carolina. The Colonial Pipe Line Company expects to build a 1,600-mile 36 to 30-inch products line from Houston, Texas to Linden, New Jersey (New York area).

There is insufficient refinery capacity in District I to meet the enormous demands for refined products in the East Coast region. As a result, much reliance must be placed on supplies of refined products brought in from the Gulf Coast, California, and foreign countries by tankers. During the year 1960 such receipts averaged:

From Gulf Coast	1,459,000	Barrels	Daily
" California	27,000	"	"
" Foreign Countries	708,000	"	"

During World War II, when the transportation of petroleum into District I by tanker was severely curtailed by submarine sinkings, the Government built the Big Inch crude and Little Big Inch products pipelines from Texas to the eastern seaboard. These 2 large diameter lines had a combined capacity of 535,000 barrels per day. After the termination of hostilities both lines were sold to the Texas Eastern Transmission Corporation and converted to natural gas service. In recent years the 20-inch Little Big Inch has been reconverted to products service, but only as far as Lebanon, Ohio.

PAD DISTRICT II - (MID-WEST AND MID-CONTINENT REGION)

District II comprises the fifteen States of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Minnesota, Iowa, Missouri, Wisconsin, Michigan, Illinois, Indiana, Ohio, Kentucky, and Tennessee.

Crude Oil Pipelines

This region covers a wide area of the central portion of the United States that extends from the Oklahoma/Texas border on the south to the United States/Canadian border on the north, and states east of the Mississippi River and its tributaries generally along the Great Lakes that extend east as far as the Ohio/Pennsylvania line. This area is likewise heavily populated and industrialized. Demands for refined oils in this region are large, but not of the magnitude of those required in the East Coast states.

Estimated proven reserves of crude oil and natural gas liquids in this entire region as of December 31, 1960, amounted to 4.8 billion barrels, or 12.5 per cent of the U. S. total, and were located principally in the States of Oklahoma, Kansas, Illinois and North Dakota. During the year 1960, the entire region produced an average of 1,324,000 barrels per day of crude oil, or 18.8 per cent of the U. S. total. Production was largely in the States of Oklahoma, Kansas and Illinois. It is estimated that the region as a whole, can produce 1,555,000 barrels of crude oil and 162,600 barrels of natural gas liquids daily under maximum efficiency operations. At the end of 1960, there appeared to be 231,000 barrels daily of unused crude oil capacity.

Located in District II are 93 operating refineries with a combined capacity of 2,784,361 barrels, or 28.9 per cent of the U. S. total. Of the total refineries in the entire region, 52 with a capacity of 1,227,796 barrels are located in the three States of Indiana, Illinois and Kentucky, while 30 with a capacity of 811,180 barrels are situated in Oklahoma and Kansas. By far, the greatest concentration of refineries is in the Great Lakes area. The capacity of those located in the States of Illinois, Indiana and Ohio alone aggregate 1,543,332 barrels, or 55 per cent of the District's total. The largest refineries are located in the Chicago, St. Louis, Toledo, Kansas City, Cleveland, Tulsa, Catlettsburg, and Detroit areas. During the year 1960, crude runs to stills in District II as a whole, averaged 2,415,000 barrels per day,

or 29.9 per cent of the U. S. total. The refineries in Indiana-Illinois-Ohio accounted for approximately 61 per cent of total District II runs. About 97 per cent of crude oil processed was produced in the United States and the balance imported from foreign countries.

Production of crude oil within District II is insufficient to meet refining requirements, consequently there is a large dependence on oil brought in from other regions. For instance, District III provided 754,000 barrels daily of the crude processed at region refineries, and District IV 323,000 barrels daily. Pipelines were the principal means of transporting this crude oil from outside areas.

There are 12 pipelines with a combined capacity of 1,221,800 barrels per day that moved crude oil from District III into District II. These lines moved oil produced principally in Texas, New Mexico and Louisiana.

There are 5 pipelines with a combined capacity of 436,500 barrels per day that moved crude oil from District IV into District II. These lines moved oil produced in Wyoming, Colorado, Utah and Montana.

A small volume of oil produced in Canada is imported into the Great Lakes area via the Interprovincial-Lakehead Pipe Line system, and a connecting carrier, the Minnesota Pipe Line, which delivers crude into the Minneapolis-St. Paul area.

The 10 lines that supply the District II areas east of the Mississippi River have a combined capacity of 1,596,300 barrels daily.

The only means of crude supply by pipeline between District II and District I, are two sections of the Buckeye system, one of which connects with the Northern Pipe Line at the Ohio/Pennsylvania state line, having a capacity of 68,000 barrels per day; the other being a 4,200 barrel per day line for delivery to the Eureka Pipe Line at the Ohio/West Virginia state line.

On the other hand, there are 2 pipelines with an aggregate capacity of 138,000 barrels daily for delivery of crude oil from District II southward into District III. These are the Sinclair and Magnolia Lines extending from Oklahoma into Texas.

There are also 2 lines with a total capacity of 52,600 barrels per day that move crude oil from District II into District IV. These Lines are the Araphoe and Sterling that move oil from Gurley, Nebraska to Merino, Colorado that ultimately comes back to District II.

Products Pipelines

Perhaps the greatest concentration of products pipelines is found in the midwestern states. The more important lines extend between the Chicago, St. Louis, Kansas City and Tulsa-Ponca City refinery areas and serve most of the important cities throughout the entire territory. The most extensive systems are those owned by the American Oil Company, Great Lakes Pipe Line Company, Wabash Pipe Line Company, Cherokee Pipe Line Company, Phillips Pipe Line Company, Shell Oil Company, Texas Eastern Transmission Corporation, Buckeye Pipe Line Company, and Sinclair Pipe Line Company. The Plantation and Southeastern Pipe Line companies which serve the southeastern states project into Tennessee, serving Chattanooga and Knoxville.

The heavy demands for refined products in District II make it necessary to move supplies into the region from outside sources. There are 7 pipelines with an aggregate capacity of 331,300 barrels daily that move refined products from District III into District II. There are also 7 pipelines with a combined capacity of 188,700 barrels per day that move supplies from District I into District II. The Wyoming-Nebraska Pipe Line Company has a 9,600 barrel per day pipeline, and the Cenex Pipeline Company has a 15,000 barrels per day line that move supplies from District IV into District II.

On the other hand, the Oklahoma-Mississippi River products pipeline has a 60,000 barrel per day line extending from District II to the Mississippi River at West Memphis, Arkansas, District III. From this water terminal, products are transshipped in barges. Bell has a line moving products from District II to III with a 5,500 barrel/daily capacity.

A recent important addition to products pipelines was the 2,184-mile Mid-American pipeline extending from Hobbs, New Mexico and West Texas points to Minneapolis, Minnesota and Madison, Wisconsin. This line was constructed to move LPG exclusively and has a capacity of 52,000 barrels per day out of Hobbs. In addition, Cherokee Pipe Line Company recently

completed a 127-mile extension from Oklahoma City, Oklahoma to Wichita Falls, Texas, which has a capacity of 20,000 barrels per day out of Ponca City, Oklahoma.

Now under construction and expected to be completed shortly is the West Shore Pipe Line Company's[1] 285-mile line from East Chicago, Indiana, to Green Bay, Wisconsin. Other lines contemplated to be built in the near future include Buckeye Pipe Line Company's 42-mile line from Flint to Bay City[2], Michigan; Mid-America Pipeline Company's 107-mile line from Whiting, Iowa to Ogden, Iowa; and the Northern Gas Products Companys' 353-mile line from Bushton, Kansas, to Des Moines, Iowa. The last two lines will be used for the movement of LPG exclusively. The Buckeye Pipe Line also contemplates making extensive changes to its system in the Great Lakes area.

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1 Now complete except for stations.

2 Now under construction.

PAD DISTRICT III - (GULF COAST REGION)

District III comprises the six States of Texas, New Mexico, Louisiana, Arkansas, Mississippi and Alabama.

From an over-all oil industry operating standpoint, this region is the nation's principal source of petroleum supply. Its proven reserves of crude oil and natural gas liquids, production, and refinery capacity, exceeds any other region in the United States. Transportation is also an important factor, both intrastate and interstate. The Gulf Coast areas of Louisiana and Texas have great potential for finding offshore oil.

Crude Oil Pipelines

Estimated proven reserves of crude oil and natural gas liquids in this region as of December 31, 1960, amounted to nearly 27 billion barrels, or 70.12 per cent of the U. S. total, and were located principally in the States of Texas and Louisiana. During the year 1960, the entire region produced an average of 4,164,000 barrels per day of crude oil, or 59.18 per cent of the U. S. total. Production was largely in West Texas and the Gulf Coast of Louisiana. It is estimated that the region as a whole, can produce 7,331,000 barrels of crude oil, and 1,501,800 barrels of natural gas liquids daily under maximum efficiency operations. At the end of 1960, there appeared to be 3,167,000 barrels/daily of unused crude oil producing capacity, or 89.21 per cent of the U. S. total.

Located in District III are 87 operating refineries with a combined capacity of 3,458,915 barrels, or 35.92 per cent of the U. S. total. Of the total refineries in the entire region, 57 with a capacity of 2,521,590 barrels are located in Texas, while 12 with a capacity of 779,750 barrels are situated in Louisiana. By far, the greatest concentration of refineries is along the Texas and Louisiana Gulf Coast area. The largest refineries are located at Port Arthur, Houston, Baytown, Texas City, Corpus Christi, Beaumont, Baton Rouge, Lake Charles and Norco. During the year 1960, crude runs to stills in District III as a whole, averaged 2,984,000 barrels per day, or 36.98 per cent of the U. S. total. The refineries along the Texas and Louisiana Gulf Coast accounted for nearly 86 per cent of the total District III runs. More than 99.8 per cent of the crude oil processed was produced in the United States, and the small balance imported from foreign countries. Only a small

amount of the oil processed was produced in states outside of District III.

Production of crude oil in District III is in excess of refinery requirements, consequently there is a heavy movement to Districts I and II to meet demands in those regions. For instance, coastal tanker movements of crude oil from Gulf Coast water terminals to East Coast seaboard refineries in 1960 averaged 438,519 barrels per day, while 12 pipelines with a combined capacity of 1,221,800 barrels per day, were available for moving crude oil from District III into District II.

There are 2 pipelines with a capacity of 138,000 barrels daily for moving crude oil south from Oklahoma, District II, into District III. The Texas-New Mexico Pipe Line Company has a line with a capacity of 75,000 barrels per day for movement of crude oil produced in Utah (Four Corners area), District IV, to Jal, New Mexico, District III.

A considerable amount of crude oil reaching Gulf Coast refineries is moved in barges operated along the intracoastal waterways. Transportation is an important factor in the Gulf Coast region. However, production in the Permian Basin of West Texas and Southeastern New Mexico exceeds that of other areas of District III. Many pipelines radiate from the Permian Basin, bringing the crude oil to Gulf Coast refineries and to deep water terminals for transshipment to the eastern seaboard or north across the Texas/Oklahoma border for movement to District II refineries. There are also pipelines that move crude oil locally from North and West Central Texas, Texas Panhandle, East Texas, North Louisiana, Arkansas and Mississippi, South and Southwest Texas, South and Southwest Louisiana, and Alabama, to refineries or deep water terminals. Capacities of pipelines into Gulf Coast refineries and deep water terminals are as follows:

Into	Beaumont, Texas area	1,548,500	Barrels	Daily
"	Corpus Christi, Texas area	609,800	"	"
"	Brownsville-Port Isabel area	34,900	"	"
"	Houston-Texas City, Texas area	1,197,900	"	"
"	El Paso area	94,000	"	"
"	Borger-Amarillo, Texas area	93,800	"	"
"	Miscellaneous Texas water terminals	81,200	"	"
"	Baton Rouge, Louisiana area	486,000	"	"

Into	New Orleans, Louisiana area	95,000	Barrels Daily
"	Lake Charles, Louisiana area	178,800	" "
"	Miscellaneous Louisiana water terminals	252,700	" "
"	Mobile, Alabama area	62,000	" "
"	El Dorado, Arkansas	76,000	" "

As previously pointed out, the East Coast would face difficulty in meeting oil requirements should tankers be eliminated by submarines during another world war. One recalls the crisis this country experienced during the early stages of World War II, when the movement of petroleum to the eastern seaboard in tankers was practically eliminated, and it was necessary to develop as rapidly as possible a substitute system of overland transportation. This resulted in building the "Big Inch" and "Little Big Inch" Government-owned war emergency pipelines, and their availability made a worthwhile contribution towards winning the war. These 2 lines were sold after the termination of hostilities for the transmission of natural gas. The "Little Big Inch" was subsequently reconverted to refined products service from Texas to Lebanon, Ohio, but beyond that point to the New York area it is still in natural gas service. The capacity of the 24-inch crude line was 300,000 barrels/daily, while the 20-inch refined products line had a capacity of 235,000 barrels/daily. Oil and products demands have increased appreciably in the postwar years, and pipelines of greater capacity are either now available or planned to meet civilian and military requirements in the event of another national emergency.

No important crude oil pipelines are scheduled for construction in District III during the next two years.

Products Pipelines

Products pipelines in District III may be divided into two categories, namely those that distribute refined oils consumed within the Gulf Coast region, and those moving refined oils consumed in other districts. There are many natural gasoline and petrochemical plants in the Gulf Coast region, and the movement of natural gasoline and liquefied petroleum gases through pipelines is quite extensive.

In general, the products pipelines originate at refineries. The more important lines run from refineries located in the Houston, Beaumont, Baton Rouge, Amarillo, El Paso,

New Orleans and El Dorado areas, serving such principal cities as Dallas, Ft. Worth, San Antonio, Waco and Austin. Three lines terminate on the Mississippi River at Arkansas City, Helena and West Memphis, Arkansas, from which points products are transshipped in barges.

The more important pipelines are those owned by the Texas Eastern Transmission Corporation extending from Houston to Lebanon, Ohio, and Chicago, Illinois; Phillips Pipe Line Company extending from Borger to Chicago, Illinois via St. Louis, Missouri; Borger to Denver, Colorado, and Odessa to Sweeney; Sinclair Pipe Line Company extending from Houston to Chicago; Magnolia and Texas Pipe Line companies from Houston to Dallas and Ft. Worth, and the Southern Pacific Pipe Lines extending from El Paso to Phoenix, Arizona. One of the largest products systems in the United States is that owned by the Plantation Pipe Line Company extending from Baton Rouge, Louisiana, to Greensboro, North Carolina. This line has a capacity of 332,000 barrels/daily out of Baton Rouge, and is fed by the Bayou and Evangeline systems running out of the Houston area to Baton Rouge.

The Plantation Pipe Line has a capacity of 272,000 barrels per day for moving products from District III into District I.

There are 7 pipelines with a combined capacity of 331,300 barrels/daily for moving products from District III into District II.

Phillips Petroleum Company, and Shamrock Oil and Gas Corporation, jointly own a line with a capacity of 15,000 barrels per day for moving products from Borger, Texas, District II to Denver, Colorado, District IV.

The Southern Pacific Pipe Lines has a line with a capacity of 33,000 barrels/daily for moving products from El Paso, Texas, District III, to Phoenix, Arizona, District V.

Tanker movements of refined products from the Gulf Coast deep water terminals to the eastern seaboard, District I, averaged 1,459,000 barrels per day during the year 1960. Tankers also moved a small amount of refined oils from the Gulf Coast to California, District V, while barge movement up the Mississippi River was quite extensive.

Several new products pipelines, originating in District III and terminating in District I, are in various stages of planning, construction, and completion. Late in 1961, Dixie Pipe Line Company[1] put in operation a 1,100-mile 6 to 12-inch LPG line from Mont Belvieu (Houston area), Texas, to Raleigh, North Carolina. The Colonial Pipeline Company expects to lay a 1,600-mile 36 to 30-inch products line from Houston, Texas, to Linden, New Jersey (New York area). This line, which is scheduled to begin construction work in June, 1962 and commence operations in the fall of 1963, will be the largest products line in the United States, and will have a capacity of 600,000 barrels per day out of the Gulf Coast area. Other important products lines to be built are Humble Pipe Line Company's[2] 258-mile, 6 to 10-inch line from Baytown to San Antonio and Austin, Texas; American Petrofina Company's[2] 136-mile 6-inch line from Mt. Pleasant to Grapevine, Texas, and Texas Eastman Company's[2] 275-mile 6-inch LPG line from Sweeny to Longview, Texas.

1 Now complete
2 Now under construction

PAD DISTRICT IV - (ROCKY MOUNTAIN REGION)

District IV comprises the five States of Colorado, Utah, Wyoming, Montana and Idaho.

This region is more than self-sufficient insofar as balance between crude oil production and refining capacity is concerned. Therefore, in addition to providing crude oil to local refineries, it is able to partly supply the requirements in District II and V.

Crude Oil Pipelines

Estimated proven reserves of crude oil and natural gas liquids in this region, as of December 31, 1960, amounted to 2,449 million barrels, or 6.37 per cent of the U. S. total, and were located principally in Wyoming. During the year 1960, the entire region produced an average of 684,000 barrels per day of crude oil and natural gas liquids, or 9.72 per cent of the U. S. total. Production was largely in Wyoming, with smaller amounts in Colorado, Montana, and Utah. There was no production in Idaho. It is estimated that the region as a whole, can produce 664,000 barrels of crude oil and 37,000 barrels of natural gas liquids daily under maximum efficiency operations. At the end of 1960 there appeared to be no unused crude oil capacity.

Located in District IV are 29 operating refineries with an aggregate capacity of 332,367 barrels, or 3.45 per cent of the U. S. total. Of the total refineries in the entire region, 10 with a capacity of 110,155 barrels are located in Wyoming, 4 with a capacity of 101,000 barrels are located in Utah, 12 with a capacity of 81,712 barrels are in Montana, and 7 with a capacity of 39,500 barrels are in Colorado. The largest refineries are located at Salt Lake City, Casper, Billings and Denver. During the year 1960, crude runs to stills in District IV as a whole, averaged 285,000 barrels per day, or only 3.53 per cent of the U. S. total. All of the crude oil processed was produced in states within the region.

Arapahoe, Platte, and Service pipelines have a combined capacity of 436,500 barrels/daily for moving crude oil from District IV into District II.

The Texas-New Mexico pipeline extending from Aneth, Utah, District IV to Jal, New Mexico, District III, has a capacity of 75,000 barrels per day.

The Four Corners Pipe Line Company owns a 79,800 barrel per day line extending from Aneth, Utah, District IV, to Los Angeles, California, District V.

The Arapahoe Pipeline and the Sterling Pipe Line have lines with a combined capacity of 52,600 barrels/daily for movement of crude oil from District II to District IV. However, most of this crude ultimately comes back to District II.

There are a number of smaller pipelines that serve local refineries or serve as feeder lines to the inter-district pipelines.

The most important new construction which has been completed is a 550-mile 6 to 10-inch line with a capacity of 50,000 barrels/daily, extending from the United States/Canadian border, near Piegen, Montana, via Cut Bank, Montana, to Byron, Wyoming, with a lateral from Roundup to oil fields in Central Montana. This new line is known as the Glacier Pipe Line.

Products Pipelines

There are products pipelines extending from District IV refineries located at Casper, Cheyenne, Sinclair, Laurel, Billings and Salt Lake City.

The Salt Lake and Yellowstone Pipe Line companies own pipelines with an aggregate capacity of 61,300 barrels/daily for moving refined products from Salt Lake City and Billings, District IV respectively, to Spokane, Washington, District V.

The Wyoming-Nebraska Pipe Line Company owns a line with a capacity of 9,600 barrels per day that moves refined products from Cheyenne, Wyoming, District IV, to North Platte, Nebraska, District II, while the Cenex Pipeline Company has a 15,000 barrel per day line to Minot, North Dakota, connecting these two districts.

Phillips Petroleum Company and Shamrock Oil and Gas Corporation jointly own a line with a capacity of 15,000 barrels/daily from McKee near Amarillo, Texas, District III, to Denver, Colorado, District IV.

There are no new products pipelines scheduled to be constructed in District IV within the next two years.

PAD DISTRICT V - (PACIFIC COAST REGION)

District V comprises the States of Arizona, California, Nevada, Oregon, and Washington, as well as the new States of Alaska and Hawaii.

The Pacific Coast region is dependent chiefly upon petroleum produced and refined in California, supplemented by oil imported from foreign countries or brought in from the Rocky Mountain region. In recent years, important refineries have been built in the Puget Sound area, and these, plus the two refined products pipelines that bring supplies into Spokane, Washington, from Billings and Salt Lake City, have greatly aided in meeting demands in the Pacific Northwest.

Oil demands are quite heavy in District V due to the rapidly expanding population and industrial activity.

Crude Oil Pipelines

Estimated proven reserves of crude oil and natural gas liquids in this region as of December 31, 1960, amounted to 3,972 million barrels, or 10.34 per cent of the U. S. total, and were practically all located in California. Reserves in Arizona, Nevada, Washington, and Alaska were considered infinitesimal. During the year 1960, the entire region produced an average of 833,000 barrels per day of crude oil, or 11.85 per cent of the U. S. total. California production alone amounted to 99.78 of the total, with small amounts in Arizona, Nevada, Washington and Alaska. There was no production in Oregon and Hawaii. It is estimated that the region as a whole, can produce 1,006,000 barrels of crude oil including 163,000 of shut-in capacity in the Elk Hills field in California, and 88,000 barrels of natural gas liquids daily under maximum efficiency operations. At the end of 1960 there appeared to be 173,000 barrels of unused crude oil capacity including Elk Hills. Production is principally in the San Joaquin Valley, Coastal and Southern California areas.

Located in District V are 44 operating refineries with a combined capacity of 1,515,852 barrels, or 15.74 per cent of the U. S. total. Of the total refineries in the entire region, 37 with a capacity of 1,320,352 barrels are located in California, 5 with a capacity of 156,500 barrels are located in Washington, 1 in Oregon with a capacity of 7,000 barrels, and 1 in Hawaii with a capacity of 32,000 barrels. The largest

refineries are located in the Los Angeles, San Francisco and Bakersfield areas of California and at Anacortes and Ferndale, Washington. There is a 32,000 barrel per day refinery at Honolulu, and a 7,000 barrel plant at Portland, Oregon. During the year 1960, crude runs to stills in District V as a whole, averaged 1,166,000 barrels per day, or 14.46 per cent of the U. S. total. Of the total crude oil processed 76.4 per cent was domestically produced principally in California, while 23.6 per cent was imported from foreign countries.

The intrastate movement of crude oil in California predominates the transportation situation. There are 4 pipelines with a combined capacity of 299,000 barrels daily extending from the San Joaquin Valley area to the San Francisco Bay refineries; 2 pipelines with an aggregate capacity of 145,000 barrels from the San Joaquin Valley area to Los Angeles refineries, and 2 pipelines with a total capacity of 102,800 barrels from the San Joaquin Valley area to deep water marine terminals at Estero Bay. There are 3 pipelines with a combined capacity of 118,000 barrels per day extending from coastal fields to the Los Angeles Basin; 1 line with a capacity of 30,000 barrels per day from coastal fields to a line connecting the San Joaquin Valley to Los Angeles, and 3 lines with a total capacity of 203,000 barrels/ daily running from coastal fields to marine terminals. All of the major oil companies have pipelines extending from southern California fields to Los Angeles Basin refineries, the aggregate capacity amounting to 770,000 barrels per day. These local lines are now used only to a limited extent because of decline in production.

The Four Corners Pipe Line Corporation has a pipeline with a capacity of 79,800 barrels per day for moving oil from Aneth, Utah, District IV, to Los Angeles, California, District V.

The Kenai Pipe Line Company has a 22-mile line with a capacity of 10,000 barrels/daily from Swanson Field, Kenai Peninsula to Nikeski on Cooke Inlet, Alaska, from which point crude oil is shipped in tankers to California.

During the year 1960 crude oil imports into District V averaged 276,000 barrels per day, of which 49,000 barrels were received from Canada via the Trans Mountain Pipe Line extending from Edmonton, Alberta. This pipeline has a capacity

of 200,000 barrels per day, but is used largely for supplying refineries at Vancouver, British Columbia. Other imports were received by tankers, principally from Sumatra, Venezuela and the Middle East.

There are no new crude oil pipelines scheduled to be constructed in District V during the next two years.

Products Pipelines

Because refineries are located in close proximity to tidewater, as well as at points of greatest consumption, there are no major products pipelines serving California exclusively except Southern Pacific Pipe Lines. Distribution is largely by means of tank cars, trucks, barges and tankers. Only a few local lines connect refineries with nearby marketing outlets in the San Francisco and Los Angeles areas. All refineries have extensive pipelines to tidewater terminals for loading refined products aboard tankers and barges. There are several pipelines for moving natural gasoline from the oil fields and marine terminals.

The Southern Pacific Pipe Lines has a line with a capacity of 65,000 barrels/daily extending from Los Angeles to Phoenix, with branches serving several military bases. It also has a 30,000 barrel per day line from Richmond, San Francisco Bay area, to Fallon, via Reno, Nevada.

The Southern Pacific Pipe Lines also has a line with a capacity of 33,000 barrels per day extending from El Paso, Texas, District III, to Tucson and Phoenix, Arizona, District V.

The Salt Lake Pipe Line Company has a line with a capacity of 32,500 barrels daily extending from Salt Lake City, Utah, District IV, to Spokane, Washington, District V.

The Yellowstone Pipe Line Company has a line with a capacity of 30,500 barrels per day extending from Billings, Montana, District IV, to Spokane, Washington, District V.

Standard Oil Company of California owns a twin 20-mile products line extending from its recently built 35,000 barrel/daily Hawaiian refinery to Honolulu.

The more important products pipelines completed in 1961 or scheduled to be constructed in the near future, includes

the 248-mile line with a capacity of 18,500 barrels/daily of the Calnev Pipe Line Corporation[1], extending from a connection with the Southern Pacific Pipe Line at Colton, California to Las Vegas, Nevada. The U. S. Navy also built a 96-mile jet fuel line from Estero Bay to Lemoore, California, Naval Air Station. Southern Pacific Pipe Lines completed in 1961, a 70-mile extension to its northern California pipeline from Stockton to the Castle Air Force Base near Atwater, California, and a 30-mile extension from Roseville to Beale Air Force Base. It also is planning construction of a 120-mile products line from Portland to Albany and Eugene, Oregon, to be completed in 1962. Plans are well advanced by the Olympic Pipe Line Company for constructing a 324-mile products line from Ferndale, Washington, via Seattle, Tacoma and Olympia, to Portland, Oregon. The Santa Fe Pipeline Company contemplates building a 124-mile 10-inch line from near Dominguez (Los Angeles) to the port area of San Diego, California.

Maps of pipeline capacities summarizing information heretofore mentioned are attached hereto, together with supporting statements.

1 Completed in June, 1961

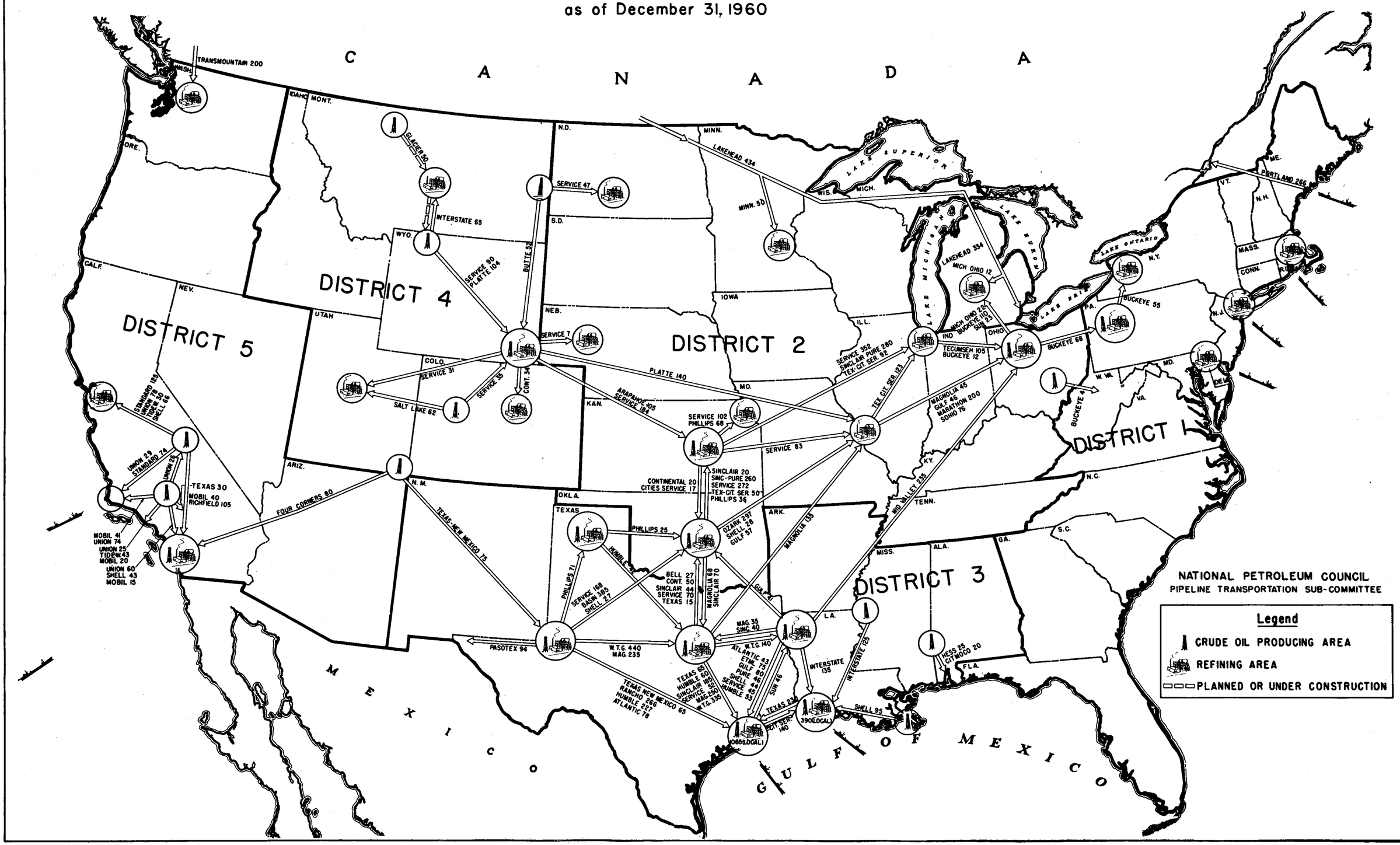
PART III

MAPS AND STATISTICAL TABLES SUPPORTING PART II

CRUDE OIL PIPELINE CAPACITIES

(THOUSANDS OF BARRELS DAILY)

as of December 31, 1960



NATIONAL PETROLEUM COUNCIL

PIPELINE TRANSPORTATION SUB-COMMITTEE

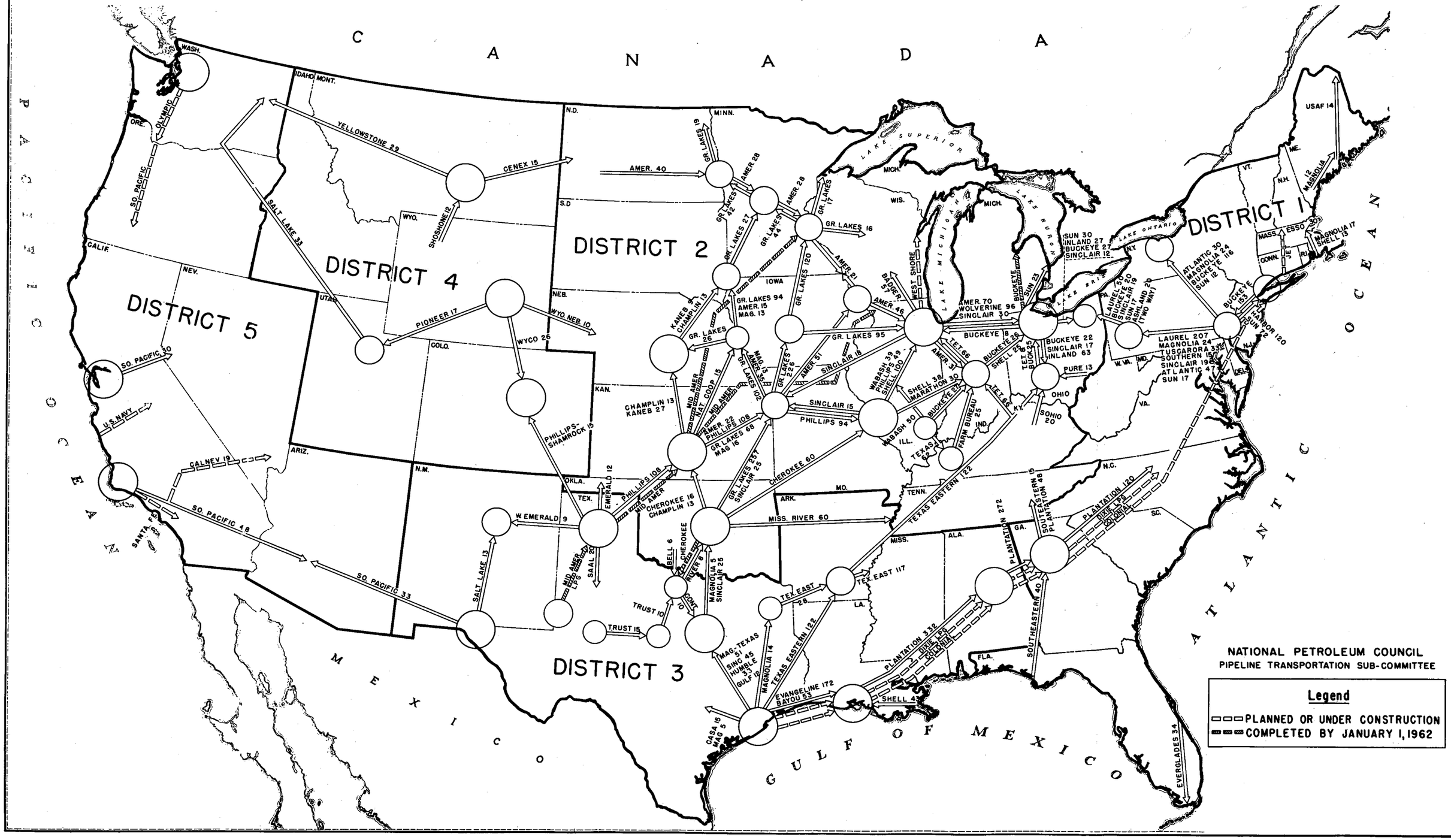
Legend

- CRUDE OIL PRODUCING AREA
- REFINING AREA
- PLANNED OR UNDER CONSTRUCTION

PRODUCT PIPELINE CAPACITIES

(THOUSANDS OF BARRELS DAILY)

as of December 31, 1960



NATIONAL PETROLEUM COUNCIL

PIPELINE TRANSPORTATION SUB-COMMITTEE

Legend

▭▭▭ PLANNED OR UNDER CONSTRUCTION

▬▬▬ COMPLETED BY JANUARY 1, 1962

TABLE 1

PRINCIPAL CHANGES IN CRUDE OIL PIPELINE NETWORK
SINCE LAST STUDY MADE AS OF SEPTEMBER 30, 1957
P R I N C I P A L C R U D E O I L P I P E L I N E S C O N S T R U C T E D
1 9 5 7 - 1 9 6 0

OWNER	LOCATION	MILES	DIAMETER (INCHES)	CAPACITY B/D
	YEAR 1957			
Humble Pipe Line Company	Ector Station, near Odessa, to Kemper Station, near Big Lake, Texas	93	18	120,000
Union Oil Company of California	San Joaquin Valley to Oleum (San Francisco Bay) California	225	12 & 16	80,000
Pasttex Pipe Line Company	Between Wink and El Paso, Texas	128	20	+39,000
Tecumseh Pipe Line Company	Griffith (East Chicago), Indiana to Cygnet, Ohio	201	20	100,000
Catco Group (Continental, Atlantic, Tidewater and Cities Service)	Blocks 40 and 47 Fields to Grand Island, Louisiana Terminal (Offshore Line)	28	6, 8 & 12	31,000
Lakehead Pipe Line Company	Between Clearbrook, Minnesota and Superior, Wisconsin (Loops)	78	26	+109,000
Muskegon Pipe Line Corporation (now Marathon)	Griffith, Indiana to Muskegon, Michigan	168	10	26,000
Salt Lake Pipe Line Company	Between Rangely, Colorado and Salt Lake City, Utah (Loops)	92	10	+14,000
Forest Pipeline Corporation	Grieve Field, Natrona County, to Casper, Wyoming	35	8	10,000
Magnolia Pipe Line Company	Between Midland and Corsicana, Texas (Loops)	238	12, 16 & 20	+75,000
Skelly Oil Company	Cunningham to Burton, Kansas	50	12	-
Wilshire Oil Company	Huntington Beach to Norwalk, California	21	12	-
	Total	1,357		
	YEAR 1958			
Humble Pipe Line Company	Hawley to Comyn, Texas (Replaces 8")	93	16	+37,000
Texas-New Mexico Pipe Line Company	Aneth, Utah, to Jal, New Mexico	512	16	50,000
Magnolia Pipe Line Company	Beaumont to Hull, Texas	40	16	50,000
Magnolia Pipe Line Company	Cameron Meadows, Louisiana to Beaumont, Texas	42	6	-
Sinclair Pipe Line Company	Mexia near Teague, to Houston, Texas	149	20	130,000
Sinclair Pipe Line Company	Wichita Falls to Jacksboro-Houston, Texas line	60	12	43,000
Magnolia Petroleum Company	West Cameron Area off Coast of Louisiana to shore	33	16	-
Service Pipe Line Company	Casper to Ft. Laramie, Wyoming (Replaces 12")	76	20	+39,000
Four Corners Pipe Line Company	Aneth, Utah and Bisti, New Mexico to Los Angeles California	703	12 & 16	70,000
Jayhawk Pipe Line Company	Mead to McPherson and Wichita, Kansas	242	10 & 12	26,000
Jayhawk Pipe Line Company	Mead to Haskell and Morton Counties, Kansas	130	6	-
Shell Pipe Line Corporation	Colorado City to Borden-Garza Counties, Texas	43	8	32,000
Union Oil Company of California	Guijarral Hills to Coalinga Station, California	90	4, 6 & 8	-
	Total	2,213		
	YEAR 1959			
Ashland Oil and Refining Company	Greensburg to Louisville, Kentucky	72	6 & 8	20,000
Service Pipe Line Company	Artesia to Caprock, New Mexico	44	8	10,000
Shell Pipe Line Corporation	Delta Area of South Louisiana to Norco refinery near New Orleans, Louisiana	119	8 - 20	95,000
Wheat Belt Pipe Line (Now Sinclair)	Laverne, Oklahoma to connection with Jayhawk Pipe Line at Harper Ranch, Kansas	45	6 & 8	20,000
Honolulu Oil Company and Others	Fourbear Field to Oregon Basin, Wyoming	28	6 - 10	10,000
Ohio Oil Company	Scipio Field to Samaria, Michigan	60	8	30,000
	Total	368		
	YEAR 1960			
Humble Pipe Line Company	Sacatosa Field, Marverick County to Pearsall, Texas	62	8	-
Buckeye Pipe Line Company	Toledo, Ohio, to Trenton and Detroit, Michigan	51	16 - 22	-
Kenai Pipe Line Company	Swanson Field, Kenai Peninsula, to Nikeski on Cooke Inlet, Alaska	22	8	10,000
Great Northern Pipeline Company	Newburg, Wiley and Glenburn Fields to Tank car loading rack near Minot, North Dakota	50	6 & 10	-
Shell Pipe Line Corporation	Extension of Delta Line from East and West Burrwood Fields in Southern Louisiana	11	6 & 8	10,000
Belle Fourche Pipe Line Company	Donkey Creek Pool to Miller Creek Pool and thence to Zozet Pool, Campbell County, Wyoming	103	8	-
	Total	299		

TABLE 1-A

PRINCIPAL CHANGES IN CRUDE OIL PIPELINE NETWORK
SINCE LAST STUDY MADE AS OF SEPTEMBER 30, 1957
PRINCIPAL CRUDE OIL PIPELINES CONSTRUCTED
1961

OWNER	LOCATION	MILES	DIAMETER (INCHES)	CAPACITY B/D
	YEAR 1961			
Ashland Oil and Refining Company	Blaine to Catlettsburg, Kentucky	24	6	-
Bell Oil and Gas Corporation	Hewitt to Ardmore, Oklahoma	12	8	-
Belle Fourche Pipeline Company	Millers Creek Station, Crook County, to Prairie Creek Oil Field, Oklahoma	13	8	-
	Fiddle Creek to Osage, Wyoming	12	8	20,000
Ben Franklin Refining Company	Healdton to Ardmore, Oklahoma	13	6 & 8	-
Continental Pipe Line Company	Dover and Hennessey areas of Kingfisher County to existing line in Logan County, Oklahoma	32	6	10,000
	Grand Isle to Golden Meadows, Louisiana	21	8	22,000
Four Corners Pipe Line Company	Totah line near Farmington, San Juan County, New Mexico	24	4 & 6	-
Glacier Pipe Line Company	U. S.-Canadian Border, near Piegas, Montana via Cut Bank, Montana to Byron, Wyoming and lateral from Roundup to Fields in Central, Montana	507	4 - 10	50,000
Interstate Oil Pipe Line Company	Merit Field to Martinville, Mississippi	11	4	-
Magnolia Pipe Line Company	Near Beaumont, Texas	35	3 & 4	-
	Franston Field, near Athens, to connection with Magnolia's existing line between Longview and Corsicana	21	4 & 8	-
Mid-Continent Pipe Line Company	Velma to Duncan, Oklahoma	5	10	-
	Burbank to Chief, Oklahoma	7	8	-
	Crider Field to Maysville Station, Oklahoma	9	6	-
	Knox to Velma, Oklahoma	16	6	-
Murphy Corporation	Tule Creek Field, Roosevelt County, to Poplar, Montana	22	4	-
Phillips Pipe Line Company	Camrick Field, Beaver County, Oklahoma to Borger, Texas	153	3 - 12	15,000
Pure Transportation Company	Frankston-Fairway James area to Bullard Station, East Texas	16	6	-
Rock Island Oil and Refining Co.	Red Willow County, Nebraska Fields to Arapahoe Pipe Line's Colby, Kansas Station	60	6 & 7	-
Service Pipe Line Company	Manhattan to Blue Island, Illinois	16	12	13,000
	At Texas City, Texas	5	6	-
	Crossings of Arkansas River in Pawnee and Osage Counties, Oklahoma (Replaces 8, 10 and 12 inch)	3	12 & 16	-
	Elk Basin - Casper, Wyoming Line	20	12	10,000
	Three loops along existing La Plata, Missouri - Wood River, Illinois 250-mile line	60	12	+20,000
	Big Piney Field to Granger, Wyoming (Loop)	60	8	+8,000
	New pump station at La Bonte, Wyoming on Casper - Ft. Laramie Line	-	-	+19,000
	New pump station at Abilene, Kansas on Casper-Freeman Line	-	-	+25,000
Shell Pipe Line Corporation	Conley Field, near Quannah, to South Vernon Junction near Vernon, West Texas (SH Pipe)	23	6	-
	Bryans Mill to Humble's Pittsburg Station, Texas (Will use Humble Pipe Line between Pittsburg and Kilgore)	34	8	-
	Pelican Island to Nairn, Louisiana	12	12	-
Sinclair Pipe Line Company	Stockholm to Shawnee, Oklahoma (also purchase of Wheat Belt Pipe Line from Laverne, Oklahoma to Harper Ranch, Kansas)	170	8	17,500
Teton Pipeline Corporation	Barber Creek and Dead Horse Creek Fields to Sussex, Wyoming	68	6	-
	Osage Field to Osage, Wyoming	10	4	-
	Total	1,494		

TABLE 2

PRINCIPAL CHANGES IN CRUDE OIL PIPELINE NETWORK
SINCE LAST STUDY MADE AS OF SEPTEMBER 30, 1957
PRINCIPAL CRUDE OIL PIPELINES COMPLETED OR
SCHEDULED FOR CONSTRUCTION
1962

OWNER	LOCATION	MILES	DIAMETER (INCHES)	CAPACITY B/D
	YEAR 1962			
Belle Fourche Pipe Line Company	* Pong Creek to Robinson Ranch, Wyoming	6	6	-
California-Kentucky Pipe Line	Ostrica, Louisiana to Pascagoula, Mississippi (Underwater)	100	20	100,000
Continental Pipe Line Company	* Hennessey area, Kingfisher County to Orlando, Oklahoma	29	8	31,000
	Lincoln field to connection with Shell, Cushing to Elk City Oklahoma line	11	6	20,000
Hess Pipeline Company	* McComb to Lumberton, Mississippi	66	10	-
Lakehead Pipe Line Company	U. S. - Canadian Border to Buffalo, New York (Part of a 100-mile 12-inch line from Hamilton, Ontario, Canada)	25	12	20,000
	Two loops between Clearbrook, Minnesota and Superior, Wisconsin, along existing 30-inch line from Superior to Sarnia Ontario including six new pump stations.	38	34	-
Mid-Continent Pipe Line Company	* Muskogee Field to Bald Hill Station Oklahoma	25	4	-
	Velma to Maysville, Oklahoma	33	6 & 10	-
Platte Pipe Line Company	New Station at Whistle Creek, Wyoming, between Byron and Oregon Stations	-	-	-
Portal Pipeline Company	Minot, North Dakota to Clearbrook, Minnesota	373	12 & 16	-
Salt Lake Pipe Line Company	* Red Wash Station to Red Wash Junction, Utah	8	6	-
Shell Pipe Line Corporation	* Pelican-Nairn extension to Delta Pipe Line, Louisiana	12	12	16,000
Skelly Oil Company	* Tobias, Faler, Brehm, Alameda Pools in West Central Kansas	17	3	-
	* Loops in West Central Kansas	7	16	-
Ute Pipe Line Company (Pure)	North Lisbon field to Aneth, Utah	70	10	50,000
	TOTAL	820		

* Already Completed

TABLE 3

PRINCIPAL CHANGES IN PRODUCTS PIPELINE NETWORK
SINCE LAST STUDY MADE AS OF SEPTEMBER 30, 1957
PRINCIPAL PRODUCT PIPELINES CONSTRUCTED
1957 - 1960

OWNER	LOCATION	MILES	DIAMETER (INCHES)	CAPACITY B/D
	YEAR 1957			
Interstate Oil Pipe Line Company	Baton Rouge to Gonzales, Louisiana (LPG)	155	4, 6 & 8	-
Gulf Refining Company	Conversion of 368 miles of 8 and 10" crude oil lines from Midland to Lufkin, Texas to LPG service and construction of the following new lines:	-	-	8,000
	Crane County to Midland, Texas	46	10	-
	Lufkin to Mont Belvieu, near Houston, Texas	116	10	-
	Warren to Midland, Texas	72	6 & 8	-
	Eunice, New Mexico to Midland, Texas	90	6 & 8	-
	Andrews to near Midland, Texas	70	8 & 12	-
	Barbers Hill to Port Arthur, Texas (LPG)	60	8	-
Buckeye Pipe Line Company	Conversion of 116 miles of 8" crude oil line between Huntington and Griffith, Indiana to products service	-	-	18,000
	Conversion of 32 miles of 8" crude oil line between Mantua and Ellsworth, Ohio, to products service	-	-	22,000
Continental Pipe Line Company	Purchase of 102-mile 6" crude oil line from Wichita Falls area to Saginaw, near Ft. Worth, Texas from Gulf Refining Company and conversion to products service	-	-	10,000
	Extension of purchased line from Saginaw to Grapevine, Texas	14	8	10,000
Southern Pacific Pipe Lines, Inc.	Richmond, California to Reno and Fallon, Nevada	312	4 - 10	15,000
	Niland to El Centro, California (LPG)	36	4 & 6	-
Great Lakes Pipe Line Company	Tulsa to Barsdall, Oklahoma (Loop)	34	12	+60,000
	Minneapolis, Minnesota to Cadott, near Chippewa Falls, Wisconsin	90	8	15,500
	Minneapolis to Duluth, Minnesota and Superior, Wisconsin	168	8	16,700
	Middleburg Junction to Chicago, Illinois (Loop)	69	12	+33,000
Texas Eastern Transmission Corporation	Conversion of portion of former Government owned "Little Big Inch" line between Baytown, Texas and Lebanon, Ohio, 1,168 miles 20" from natural gas to products service	-	-	122,000
	Seymour, Indiana to Chicago, Illinois	231	14	65,700
Texaco-Cities Service Pipe Line Company	East Chicago, Indiana to Lowell, Michigan (LPG)	168	6	8,000
Products Pipeline Company	Near George West to Corpus Christi, Texas	65	6	-
Pontiac Eastern Corporation	Pervis refinery to Collins, Mississippi	38	8	-
El Paso Natural Gas Company	Midkiff gasoline plant to Odessa, Texas (LPG)	40	6	15,000
Emerald Pipe Line Corporation	Conversion of 109 mile 6" crude oil line from Sunray, Texas to near Liberal, Kansas to products service	-	-	12,000
Wabash Pipe Line Company	Robinson to Champaign, Illinois	85	12	50,000
Salt Lake Pipe Line Company	Between Boise, Idaho and Spokane, Washington	77	8	+5,000
Trust Pipe Line Company (Cosden)	Abilene to Wichita Falls, Texas	134	6	8,000
	Total	2,170		
	YEAR 1958			
El Paso Natural Gas Products Company	Odessa to El Paso, Texas	250	6	7,500
Clark Oil and Refining Company	Blue Island, Illinois to Hammond, Indiana	15	8	-
Leonard Refineries, Inc.	Alma to Lansing, Michigan	43	6	12,000
Cherokee Pipe Line Company	Ponca City to Tulsa, Oklahoma	84	12	78,000
	Conversion of 394 miles of dual 10-inch crude oil lines between Glenpool (Tusla), Oklahoma and Wood River, Illinois to product service	-	-	-
Buckeye Pipe Line Company	Near Syracuse to Utica, New York	51	10	55,000
Phillips Pipe Line Company	Rocky Station (Borger) to Amarillo, Texas	46	8	20,500
Plantation Pipe Line Company	Between Bremen and La Grange, Georgia (Loop)	48	4	+500
Wabash Pipe Line Company	Wood River, Illinois to Griffith, Indiana	265	12	90,000
West Emerald Pipe Line Corporation	Amarillo, Texas to Albuquerque, New Mexico	297	6	25,000
Laurel Pipe Line Company	Philadelphia, Pennsylvania to Cleveland, Ohio	440	14 - 24	100,000
River Pipeline Company (Cosden)	Wichita Falls, Texas to Duncan, Oklahoma	47	6	10,000
	Total	1,586		

PRINCIPAL CHANGES IN PRODUCTS PIPELINE NETWORK
SINCE LAST STUDY MADE AS OF SEPTEMBER 30, 1957
PRINCIPAL PRODUCT PIPELINES CONSTRUCTED
1957 - 1960

OWNER	LOCATION	MILES	DIAMETER (INCHES)	CAPACITY B/D
	YEAR 1959			
Buckeye Pipe Line Company	Detroit and Trenton to Flint and Owasso, Michigan	115	8	22,000
	Conversion of 79-mile 6-inch crude oil line from Wayne to Cygnet, Ohio to products service	-	-	-
The Everglades Pipe Line Company	Port Everglades to Miami International Airport, Florida	34	10	60,000
Texas Eastern Transmission Corp.	Tyler to Carthage, Texas	61	8	25,000
Continental Pipe Line Company	Artesia, New Mexico to El Paso, Texas	153	6	8,500
Kaneb Pipe Line Company	Phillipsburg, Kansas via Fairmont, Nebraska to Yankton, South Dakota	279	6	11,000
Great Lakes Pipe Line Company	Iowa City, Iowa, to Middleburg Junction, Illinois (Loop)	128	12	-
El Paso Natural Gas Company	Aneth, New Mexico to Chaco Products Line (LPG)	97	6	-
Humble Pipe Line Company	Kingsville to Viola, Texas	43	8	-
Wabash Pipe Line Company	Griffith, Indiana to Lake Calumet (Chicago), Illinois	38	12 & 16	-
	Total	948		
	YEAR 1960			
Humble Pipe Line Company	Baytown to Houston, Texas (Jet Fuel)	27	10	-
Magnolia Pipe Line Company	Hull to Beaumont and Orange, Texas (LPG)	61	6	-
Texas Eastern Transmission Corp.	Lebanon to Lima, Ohio (Joint with Buckeye)	96	10	25,000
Texas Pipe Line and Tidal Pipe Line Companies	New Hope Gasoline Plant to Nettleton, Texas (LPG)	42	6	-
Standard Oil Company of California	New Hawaiian Refinery to Honolulu (Twin lines)	40	8	-
Plantation Pipe Line Company	Helena to Montgomery, Alabama (Replaces 4-inch)	77	8	20,000
Great Lakes Pipe Line Company	Grinnell to Waterloo, Iowa	60	8	19,000
Cenex Pipeline Company	Glendive, Montana to Minot, North Dakota	200	8	15,000
Mid-America Pipeline Company	Eunice, New Mexico to McPherson, Kansas with branches to Minneapolis, Minnesota and Madison, Wisconsin (LPG)	2,184	4 - 10	50,000
Continental Pipe Line Company	Artesia to Walker Air Force Base near Roswell, New Mexico (Jet Fuel)	36	4	8,200
Sibon Pipeline Company	Kaplan to Baton Rouge, Louisiana (LPG)	85	6 & 8	-
Shoshone Pipeline, Ltd. (Husky)	Cody, Wyoming to Billings, Montana	96	6	-
Seadrift Pipe Line Company (Union Carbide)	Seadrift to Ella, Texas	108	8	-
	Seadrift to Bay City, Texas (dual line)	112	6	-
Yellowstone Pipe Line Company	Helena to Great Falls, Montana	82	6	14,400
	Total	3,306		

TABLE 3-A

PRINCIPAL CHANGES IN PRODUCTS PIPELINE NETWORK
SINCE LAST STUDY MADE AS OF SEPTEMBER 30, 1957

PRINCIPAL PRODUCT PIPELINES CONSTRUCTED
1961

OWNER	LOCATION	MILES	DIAMETER (INCHES)	CAPACITY B/D
	YEAR 1961			
American Petrofina Company	Mt. Pleasant to Grapevine, Texas, in the Dallas - Ft. Worth area	136	6	10,000
Astro Corporation	Mountain Home to Mountain Home Air Force Base, Idaho (Jet Fuel)	11	4	-
Buckeye Pipe Line Company	Flint to Bay City, Michigan	42	8	-
Calnev Pipe Line Corporation	Colton, California to Las Vegas, Nevada and Nellis and George Air Force Bases	248	6 & 8	18,500
Cherokee Pipe Line Company	St. Charles, Missouri to Lambert Airport at St. Louis Missouri (Jet Fuel)	12	3	3,000
	Oklahoma City, Oklahoma to Wichita Falls, Texas	127	8	20,000
Dixie Pipeline Company	Mont Belvieu (Houston), Texas to Raleigh, North Carolina (LPG)	1,100	6 - 12	50,000
Dow Chemical Company	Markham to Sheridan, Texas (LPG)	52	6	-
El Paso Natural Gas Products Company	Jal, New Mexico to Odessa, Texas (LPG)	58	6	-
Humble Pipe Line Company	Baytown to Mont Belvieu, Texas (LPG)	11	4	-
	Near Odessa, Texas	13	6	-
	Irving to Amon Carter Air Field near Fort Worth, Texas	7	4	-
Interstate Oil Pipeline Company	Baton Rouge to Dixie Pipe Line near Baker, Louisiana (LPG)	11	6	-
Interstate Storage and Pipeline Co.	Storage Terminal on Delaware River to McGuire Air Force Base near Wrightsville, New Jersey	24	6	-
Jet Lines, Inc.	New Haven, Connecticut to Springfield, Massachusetts with 4-mile 8-inch jet fuel line from Ludlow to Westover, Massachusetts Air Force Base.	87	8 & 12	-
Louisiana Gas Production	Union Parish, Louisiana	25	8 - 16	-
Mid-America Pipeline Company	Whiting to Ogden, Iowa (LPG)	107	6	-
Monsanto Chemical Company	Chocolate Bayou to Stratton Ridge and Texas City Texas	192	3 - 6	-
National Pipe Line Company	Wills near Escanaba, Michigan, to Sawyer Air Force Base	45	6	18,000
Pasotex Pipe Line Company	El Paso to Warfield terminal at Midland - Odessa, Texas area (Conversion of 185-mile 8-inch idle crude oil line between El Paso and Wink, Texas)	70	8	-
Phillips Pipe Line Company	Vicinity of Old Ocean and Sweeney, Texas (Triple line 14 miles of 4, 6 and 10-inch)	42	4 - 10	-
Seadrift Pipeline Corporation (Union Carbide)	Seadrift to Bay City, Texas (Dual LPG Line)	112	6	-
	Near Victoria, Texas (LPG)	18	3 & 4	-
	Markham to Baytown, Texas (Dual LPG Line)	27	6	-
		160	6	-
	Kingsville to Brownsville, Texas	121	6	-
	Near El Campo, Texas	40	6	-
Service Pipe Line Company	Port Acres to Dixie Pipe Line at Beaumont Junction, Orange County, Texas (LPG)	24	4	4,500
Sinclair Pipe Line Company	Patterson terminal to existing line at Paulsboro, New Jersey	3	8	-
Southern Pacific Pipelines, Inc.	Stockton to Castle Air Force Base near Atwater, California (Jet Fuel)	70	6 & 8	12,000
	Roseville to Beale Air Force Base near Marysville, California	36	6 & 8	12,000
Texas Eastern Transmission Corp.	Between Sinclair and Shell refineries at Pasadena, Texas	7	8	-
Texas Eastman Company (Eastman Kodak Company)	Clemens Dome, near Sweeny, to Longview, Texas (LPG)	275	6 - 8	-
Union Texas Natural Gas Corporation	Rayne to Atchafalaya, Louisiana (LPG)	45	4 & 6	-
	St. Martins Parish to near Rayne, Louisiana	24	6	-
U. S. Navy	Estero Bay to Lemoore Naval Air Station, California (Jet Fuel)	96	6	-
West Shore Pipe Line Company	East Chicago, Indiana to Green Bay, Wisconsin (LPG)	285	10 - 16	85,000
	Total	3,763		

TABLE 4

PRINCIPAL CHANGES IN PRODUCTS PIPELINE NETWORK
SINCE LAST STUDY MADE AS OF SEPTEMBER 30, 1957
PRINCIPAL PRODUCTS PIPELINES COMPLETED OR
SCHEDULED FOR CONSTRUCTION
1962

OWNER	LOCATION	MILES	DIAMETER (INCHES)	CAPACITY B/D
	YEAR 1962			
Buckeye Pipe Line Company	Huntington to Clermont (Indianapolis, Indiana)	92	8	-
	Griffith to Huntington, Indiana	82	10	-
	Toledo, Ohio, to Detroit, Michigan (Loops)	32	12	-
	Toledo to Cleveland, Ohio (Along 8-inch line)	60	12	-
California-Kentucky Pipe Line	Pascagoula to Collins, Mississippi	110	12	-
** Colonial Pipe Line Company	Houston, Texas - New York Harbor Area	1,600	30 - 36	600,000
Humble Pipe Line Company	Port Acres to Orange, Texas (LPG)	19	4	-
	* Baytown to San Antonio and Austin, Texas (Will use 12 miles of existing 10-inch line from Baytown to Clearlake)	258	6 & 8	17,000
La Fitte Oil Traders, Inc.	* Lake Charles to connection with Dixie Pipe Line, Louisiana	7	6	-
Mid-America Pipeline Company	New Pump Stations near Abilene, Kansas and Beatrice, Nebraska on existing line from Conway, Kansas to Minneapolis, Minnesota (LPG)	-	-	+8,500
	Ogden City to Charles City, Iowa (LPG)	100	6	-
	Birmingham, Iowa to Farmington, Illinois (LPG)	110	6	-
National Pipe Line Company	Escanaba to Marquette, Michigan	55	6	-
Northern Gas Products Company (Northern Natural Gas Co.)	Bushton, Kansas to Des Moines, Iowa (LPG)	353	8	40,000
Olympic Pipe Line Company	Ferndale, Washington, thru Seattle, Tacoma and Olympia to Portland, Oregon	324	6 - 16	-
Potomac Public Service Corporation (Pennsylvania RR Company)	Baltimore, Maryland to Dulles Airport at Chantilly, Virginia with branches to Friendship Airport and Andrews Air Force Base in Maryland (Jet Fuel)	90	12	-
Santa Fe Pipeline Company	Dominquez (Los Angeles) to San Diego, California	124	10	38,200
Seadrift Pipe Line Company	Matagorda County, Texas	10	4	-
	Near Dickinson, Texas	7	4	-
Southern California Edison Co.	Alamitos Steam Station to Santa Fe Springs, California (Fuel Oil Line)	14	12	-
Southern Pacific Pipelines, Inc.	Portland to Albany and Eugene, Oregon	125	8	18,000
	Marysville to Chico, California	52	8	12,000
	Multnomah, Clackamas, Marion, Linn, and Lane Counties, Oregon	25	8	-
Texas Eastern Transmission Corp.	Mont Belvieu to Baytown, Texas (LPG)	10	12	-
	Todhunter to Cleves, Ohio (LPG)	35	6	-
Wolverine Pipe Line Company	Niles to Holland and Grand Haven, Michigan	94	8	-
Yellowstone Pipe Line Company	Spokane to Moses Lake, Washington and to Larson Air Force Base	86	6	-
	Total	3,874		

* Already Completed
** To be placed in operation in 1963.

TABLE 5

PAD DISTRICT I

CRUDE OIL PIPELINE CAPACITIES

	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
Into International Boundary		
Portland	266,000	From Portland, Maine. Crude oil is received by tanker and moved to Montreal, Canada, through pipeline.
Into Buffalo, New York		
New York Transit	55,000	Connects with Northern Pipe Line at New York-Pennsylvania State Line.
Into Bayonne, New Jersey		
Tidewater	9,500	From Bradford, Pennsylvania area. Idle, except Esso uses this system to move heating oil from Bayway, New Jersey to Changewater, New Jersey.
Into Oil City, Pennsylvania Area		
National Transit	6,000	Into Emlenton, Pennsylvania
	35,000	Into Oil City, Reno, Rouseville and Sugar Creek, Pennsylvania
	15,500	Into Warren, Pennsylvania
	6,000	Into Ashland, Freedom, Pennsylvania
Ashland	5,000	Into Freedom, Pennsylvania
Total	67,500	
Into Falling Rock, West Virginia		
Eureka	14,000	From Illinois, Indiana, and Oklahoma oil fields via Northern Pipe Line to Bear Creek, Pennsylvania, thence, Southwest Pennsylvania-Pipe Line to Pennsylvania-West Virginia line, and Eureka Pipe Line beyond; also, from local fields in West Virginia.
Into St. Mary's, West Virginia		
Eureka	7,200	From Ohio oil fields via Buckeye Pipe Line at Ohio-West Virginia state line; also, from local fields in West Virginia.

PAD DISTRICT II

CRUDE OIL PIPELINE CAPACITIES

	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
Into Chicago Area		
Service	283,300	
Sinclair-Pure	284,000	Pure owns 30% and Sinclair owns 70%, known as Cushing-Chicago Pipe Line System.
Texaco-Cities Service	104,500	LPG and Crude from Patoka and Mid-Continent
" " "	122,500	From Patoka, Illinois
Total	794,300	
Into Lawrenceville, Illinois		
Texas	82,000	From Oklahoma and Illinois
Into Pana, Illinois		
Laudon	5,000	Gathering System
Into Robinson, Illinois		
Marathon	55,000	From Illinois
Into St. Louis, Illinois and Missouri		
Magnolia	40,000	From Patoka
Ozark System	296,500	
Platte	114,000	
Service	82,500	Lateral off East Chicago Area line.
Shell	28,000	
Total	561,000	
Into Coffeyville, Kansas		
Cooperative	33,000	Gathering System in Southern Kansas.
Into Kansas City, Kansas and Missouri		
Phillips	67,500	From Panhandle, Oklahoma and Kansas.
Service	102,500	
Total	170,000	
Into McPherson, Kansas		
Jayhawk	N.A.	Gathering System in Southwest Kansas.
Into Phillisburg, Kansas		
Cooperative	19,500	Gathering System in Kansas
Into Potwin, Kansas		
Vickers	N.A.	Gathering System in Kansas
Araphoe	N.A.	
Into Wichita and El Dorado, Kansas		
American Petrofina	N.A.	From El Dorado Field
Jayhawk	N.A.	Gathering System in Southwest Kansas.
Rock Island	N.A.	Gathering System
Skelly	82,000	Gathering System in Kansas.
Total	82,000	
Into Owensboro and Louisville, Kentucky		
Ashland	57,500	Deliveries to Barges on Ohio River.
Into Alma, Bay City, Carson City, Elsie and Mt. Pleasant, Michigan		
Michigan-Ohio	62,000	From Canada, Mid-Continent and Rocky Mount Areas. From Toledo, 22,000; connection w/Lakehead 12,000; Michigan Area 28,000 E
Bay	-	Terminal connection with Interprovincial fr
Into Detroit, Michigan (Earhart)		
Buckeye	84,500	
Buckeye	25,500	Connects with Michigan-Ohio Pipe Line at Sa
Total	110,000	
Into Muskegon, Michigan		
Kaybee	8,400	Gathering System
Marathon	26,000	From E. Chicago Area
Total	34,400	
Into Minneapolis-St. Paul, Minnesota		
Minnesota	50,000	From Canada - Lakehead P.L. Company

PAD DISTRICT II

CRUDE OIL PIPELINE CAPACITIES

	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
Into Mandan, North Dakota		
Service	47,500	From Williston Basin, North Dakota.
Into Canton (Newark), Ohio		
Marathon	43,000	From Illinois points.
Into Cincinnati, Ohio		
Gulf	31,000	From Patoka (67,500 capacity) to Dublin where line forks to Spencerville Jct. (45,500 capacity) and Cincinnati.
Mid-Valley	28,000	To Gulf refinery at Cleves, Ohio and Standard of Ohio refinery at Latonia, Kentucky.
Total	59,000	
Into Cleveland, Ohio		
Buckeye	64,000	From Cygnet
Into Heath, Ohio		
Marathon	24,000	From Illinois points
Into Lima, Ohio		
Buckeye	52,000	Gulf receipts at Spencerville Junction, thru Buckeye to Adgate, Ohio
Magnolia	45,000	From Patoka Area
Marathon	200,000	From Patoka Area
Mid-Valley	218,000	
Sohio	76,000	
Tecumseh	105,000	From Chicago Area
Total	696,000	
Into Toledo, Ohio (Bayshore)		
Buckeye	300,000	From Lima
Sun	7,500	From Sarnia, Canada
Total	307,500	
Into Ardmore and Grandfield, Oklahoma		
Bell	72,000	Gathering System in North Texas and Southern Oklahoma.
Into Cushing, Oklahoma		
Kerr-McGee	58,000	Gathering System
Midland	15,700	Gathering System
Total	73,700	
Into Duncan, Oklahoma		
Mid-Continent	36,000	
Into Enid, Oklahoma		
Champlin	66,000	Gathering System in Oklahoma.
Into Ponca City, Oklahoma		
Cities Service	18,000	From Oklahoma Area
Cities Service	16,800	From Kansas
Continental	60,000	From Oklahoma City, Oklahoma
Continental	26,000	From Kansas
Total	120,800	
Into Tulsa, Oklahoma		
Mid-Continent	80,800	
Into Wynnewood, Oklahoma		
Kerr-McGee	11,000	Gathering System in Oklahoma.
Into International Boundary (Sarnia, Ontario)		
Lakehead	333,500	Oil also moves to Toronto - Capacity 121,000.
Sun	22,600	Moves both crude and LPG. Duplicated with products line.
Total	356,100	
Into Patoka Area		
Gulf	57,000	From Oklahoma
Magnolia	135,000	
Total	192,000	

TABLE 7

CRUDE OIL PIPELINE CAPACITIES
LINES CONNECTING DISTRICT II WITH ADJACENT DISTRICTS

	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
Into District II from International Boundary		
Lakehead	434,000	Most of the oil from this line goes to Sarnia and Toronto, Canada.
Sun	7,500	From Sarnia, Canada.
Total	441,500	
Into District II from District III		
Basin	385,000	Connects with Ozark System at Cushing, Oklahoma.
Bell	26,500	To Grandfield, Oklahoma.
Continental	49,500	Wichita Falls, Texas to Oklahoma City, Oklahoma.
Gulf	41,000	Chambers, Oklahoma on Gulf System to Tulsa and East.
Magnolia	135,000	To Patoka, Illinois.
Mid-Valley	235,000	Longview, Texas to Lima, Ohio where it connects with Buckeye.
Phillips	25,400	Borger to Yale, Oklahoma, then Kansas City, Kansas.
Service	168,300	Slaughter, W. Texas to Drumright, Oklahoma, thence Whiting, Indiana.
Service	70,200	North Texas to Drumright, Oklahoma.
Shell	27,300	To Wood River, Illinois from McCamey, Texas.
Sinclair	44,000	From Muenster, North Texas areas to Ringling, Oklahoma.
Texas	14,600	Covey, Texas to Seminole, Oklahoma. Connects with Texaco-Cities Service to Chicago.
Total	1,221,800	
Into District II from District IV		
Arapahoe	105,000	Into Kansas - Capacity Schurr to Eumboldt, Kansas 129,000 B/D.
Platte	140,000	Connects with Sinclair at Salisbury, Missouri and delivers into Wood River.
Service	184,000	Into Kansas.
Service	7,500	Into Scotts Bluff, Nebraska.
Sterling	24,000	To Gurley, Nebraska (Connects with Platte).
Total	460,500	
From District II into District I		
Buckeye	4,200	From Ohio to Eureka and Ashland Stations in West Virginia.
Buckeye	68,000	To Northern Pipe Line at Ohio-Pennsylvania state line.
Total	72,200	
From District II into District III		
Magnolia	68,000	From Addington, Oklahoma to Ringgold, Texas.
Sinclair	70,000	From Ringling, Oklahoma to Hensley, Texas.
Total	138,000	
From District II into District IV		
Arapahoe	28,600	To Merino, Colorado and various locations in Kansas from Enders, Nebraska.
Sterling	24,000	From Platte at Gurley to Merino.
Total	52,600	

PAD DISTRICT II

CRUDE OIL PIPELINE CAPACITIES AND MOVEMENTS BETWEEN PRODUCING/REFINING AREAS
(Average Annual Capacity in Thousands of Barrels Per Day - December, 1960)

CAPACITY OUT		TO																	
COMPANY AND AREA	TOTAL	CANADA	CANTON-HEATH	CHICAGO	CLEVELAND	CINCINNATI	DETROIT AREA	KANSAS	KANSAS CITY	LAWRENCEVILLE	LIMA	CENTRAL MICHIGAN	MINNEAPOLIS-ST. PAUL	CENTRAL MISSOURI	MUSKEGON	NORTH TEXAS	OKLAHOMA	TOLEDO	WOOD RIVER-PATOKA AREA
CANADA																			
Michigan-Ohio	12											12							
Minnesota	50												50						
TOTAL	62											12	50						
CHICAGO AREA																			
Buckeye	12										12								
Marathon	26														26				
Tecumseh	105										105								
TOTAL	143										117				26				
KANSAS																			
Cities Service	17																17		
Continental	26																26		
Phillips	68							68											
Service	455							103						352					
Sinclair-Pure	280													280					
Texaco-Cities Service	92			92															
TOTAL	938			92				171						632			43		
LIMA AREA																			
Buckeye	474					64		110										300	
Marathon	59		59																
Michigan-Ohio	22											22							
Sun	23	23																	
TOTAL	578	23	59			64		110				22						300	
CENTRAL MISSOURI																			
Platte	114																		114
Service	366			283															83
Sinclair-Pure	284			284															
TOTAL	764			567															197
OKLAHOMA																			
Gulf	57																		57
Magnolia	68																68		
Ozark	297																		297
Phillips	36							36											
Service	272							272											
Shell	28																		28
Sinclair	90							20									70		
Sinclair-Pure	260							260											
Texaco-Cities Service	50							50											
TOTAL	1,158							638								138			382
ROCKY MOUNTAIN AREA																			
Arapahoe	105							105											
Platte	140													140					
Service	184							184											
TOTAL	429							289						140					
WOOD RIVER - PATOKA AREA																			
Gulf	77						31					46							
Magnolia	45											45							
Marathon	200											200							
Sohio	76											76							
Texas	82							82											
Texaco-Cities Service	136			136															
TOTAL	616			136			31					82	367						

PAD DISTRICT III

CRUDE OIL PIPELINE CAPACITIES
INTO GULF COAST REFINERIES AND DEEP WATER TERMINALS

	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
Into Mobile, Alabama		
Hess	42,000	From Mississippi (Eucutta and Lumberton).
Citmoco	20,000	From Citronelle Field, Alabama.
Total	62,000	
Into Baton Rouge Area		
Interstate	135,000	From North Louisiana, Arkansas and East Texas.
	125,000	From North Louisiana and Mississippi.
	106,000	From Southwest Louisiana.
	120,000	From Southeast Louisiana.
Total	486,000	
Into Louisiana Water Terminals		
Gulf (Ostrica, Louisiana on Mississippi River)	132,000	Gathering system from South Louisiana (Timbalier Bay and adjacent areas).
Pure (Mermantau on Mermentau River)	5,000	Boscoe and Gueydan.
	2,000	From Rollover.
Pure (Chalkey on Intracoastal Canal)	3,000	From Creole.
Service (Hackberry on Calcasieu River)	22,000	From South Louisiana (Hackberry).
Service (Jennings on Mermentau River)	5,700	From South Louisiana (Jennings).
Service (Port Sulphur on Mississippi River)	35,000	From South Louisiana (Lake Washington).
Texas (Pilottown on Mississippi River)	14,500	From Garden Island, (Delta Dock).
Texas (Davant on Mississippi River)	4,000	From DeLacroix.
Texas (Amesville on Mississippi River)	29,500	From Lafitte, Lake Salvador, Lake Washington.
Total	252,700	
Into Lake Charles Area		
Continental	22,000	From Southwest Louisiana (Ville Platte).
	16,800	From Southwest Louisiana (Vinton and Cooley).
Cities Service	140,000	From Houston and Sour Lake. From Houston-capacity 60,000 B/D. Connects with East Texas Main Line System at Sour Lake - Capacity 75,000.
Total	178,800	
Into New Orleans Area		
Shell	95,000	From South Louisiana.
Into Beaumont Area (Jefferson County, Texas)		
Atlantic to Port Arthur (Atreco)	47,000	From New Mexico and West Texas.
	43,000	From Longview, East Texas.
	15,000	From Neal, Louisiana
West Texas Gulf to Port Arthur (Nederland)	335,000	From West Texas and New Mexico. Delivers at Sour Lake and Lucas as well as Nederland.
Magnolia to Beaumont	250,000	From New Mexico, West Texas, East Texas and Oklahoma via Corsicana, Texas.
Magnolia to Beaumont	15,000	Mixed stream via Corsicana, Texas. Line is presently not being utilized.
Magnolia to Beaumont	60,000	From Southwest and South Texas.
Gulf to Lucas and Port Arthur	175,500	From East Texas, Louisiana and South Texas points.
East Texas Main Line System to Port Arthur	75,000	Delivers to Cities Service at Sour Lake.
Texas to Port Arthur	165,000	From S. Houston (New Mexico, West Texas, North Texas, West Central Texas, East Texas, South Texas, and Southwest Texas).
Texas to Port Arthur	230,000	From South Louisiana. South Louisiana system delivers to docks in New Orleans area.
Pure to Port Arthur (Nederland)	46,000	From East Texas.
Sun to Sun Station and/or Sour Lake	48,000	From Seabreeze, South Texas.
Sun to Sun Station and/or Sour Lake	7,000	From Rose City, South Texas.
Sun to Sun Station and/or Sour Lake	37,000	From Conroe and Barbers Hill.
Sun to Mid-Valley at Longview	(46,000)	From Sour Lake (Normally moved North, but could be moved South).
Total	1,548,500	

( ) Indicates lines for which capacities are included in other movements.

PAD DISTRICT III

CRUDE OIL PIPELINE CAPACITIES
INTO GULF COAST REFINERIES AND DEEP WATER TERMINALS

	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
Into Brownsville-Port Isabel Area		
Continental	20,400	From Southwest Texas (Rincon, Texas).
Service	14,500	From Southwest Texas (Willamar).
Total	34,900	
Into Corpus Christi Area		
Humble to Ingleside	60,000	From West Texas and Southwest Texas (Kemper 50,000 Southwest Texas Lytle 60,000).
Humble to Ingleside	75,500	From Southwest Texas (Refugio Area). 247,000 B/D Ingleside to Harbor Island.
Humble to Corpus Christi	102,900	From Southwest Texas-Benavides, Borrecas-75,000 B/D; 31,900-Viola-Ingleside; 40,000-Ingleside to Viola.
Magnolia to Corpus Christi	14,000	From Southwest Texas (Tilden, Texas).
Magnolia to Corpus Christi	30,000	From Southwest Texas (Seelig, Texas).
Texas to Corpus Christi	12,500	From Southwest Texas (Saxet, Texas).
Atlantic to Corpus Christi	78,000	From Southwest Texas, New Mexico, and West Texas.
Sun into Ingleside	40,000	From Southwest Texas.
Republic to Corpus Christi	15,000	From Southwest Texas (Plymouth, Midway and Harvey, San Patricio County; Mud Flat, Aransas County).
Republic to Corpus Christi	8,000	From Southwest Texas (East White Point, San Patricio County).
Republic to Corpus Christi	10,000	From Southwest Texas (Benavides, Magnolia City, Agua Dulce).
Southern to Corpus Christi	28,600	From Southwest Texas (Richard King, F. Stratton-Nueces County).
	28,600	From Southwest Texas (Luby and London Gin, Nueces County).
	21,600	From Southwest Texas (Plymouth, Taft and White Point, San Patricio County).
Suntide to Corpus Christi	40,100	From Southwest Texas (Victoria County, 17,000; Pettus 23,500).
Sinclair to Corpus Christi	25,000	From Southwest Texas.
	10,000	From Southwest Texas (Alice).
	10,000	From Southwest Texas (East White Point, San Patricio County).
Total	609,800	
Into Houston-Texas City Area		
Humble to Baytown	225,000	From Satsuma.
	150,000	From Webster.
	50,600	From Hull, Anahuac and Cedar Point.
Rancho System to Houston	266,000	From New Mexico and West Texas areas.
Texas-New Mexico to Houston	65,000	From New Mexico and West Texas areas.
Sinclair to Houston	185,000	From Oklahoma, North Texas and East Texas.
	22,500	From Corpus Christi.
Shell to Houston.	44,000	From East Texas and South Texas.
	12,000	From South Texas
Service to Houston and Texas City	51,500	From North Central and South Texas. 38,000 B/D Mexia to Hufsmith, 51,500 into Houston.
	49,900	From East and South Texas. 45,200 from East Texas to San Jacinto, 49,900 into Houston.
	38,400	From Genoa Junction, Hastings Field.
Humble to Texas City	38,000	From Webster, Texas.
Total	1,197,900	
Into Miscellaneous Texas Water Terminals		
Service (High Island)	45,000	South Texas (High Island).
Southern (Port Comfort on Lavaca Bay)	9,600	South Texas (Jackson and Calhoun Counties).
Southern (Lamar Terminal-Rockport)	9,600	From South Texas (Aransas County).
Republic (Port Lavaca)	5,000	From South Texas (Heyser, Calhoun County).
Atlantic (Oak Point on Intracoastal Canal)	12,000	From South Texas (Japhet and Jergens, Chambers County).
Total	81,200	

PAD DISTRICT III

CRUDE OIL PIPELINE CAPACITIES
INTO INLAND REFINERIES

	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
Into El Dorado, Arkansas		
Service	45,000	North Louisiana and Arkansas.
Lion	31,000	Gathering System.
Total	76,000	
Into Stephens, Arkansas		
Berry	3,700	Gathering System
Into Waterloo, Arkansas		
Berry	1,600	Gathering System
Into Purvis, Mississippi		
Marathon	9,500	Gathering System
Into Big Spring, Colorado City, Texas		
Cosden	N.A.	Gathering System
Into Borger-Amarillo, Texas Area		
Phillips (Borger)	71,300	From West Texas (Odessa).
Texas (Amarillo)	22,500	From Texas Panhandle (Wheeler, LeFors, Kings Mill).
Total	93,800	
Into El Paso, Texas		
Pasotex	94,000	From New Mexico and West Texas.
Into Fort Worth, Texas		
Premier	8,200	
Into Longview, Texas		
Premier	5,000	
Into Tyler, Texas		
McMurrey	18,000	Gathering System

CRUDE OIL PIPELINE CAPACITIES
OUT OF DISTRICT III AREAS

ORIGIN AND COMPANY	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	DESTINATION	REMARKS
ALABAMA			
Citmoco	20,000	Mobile	
SOUTH LOUISIANA			
Texas	14,500	Pilottown Dock	
"	230,000	Port Neches & Port Arthur	
Atlantic	15,000	Atreco (Port Arthur)	
Pure	7,000	Mermentau River Terminal	5,000 from Gueydon, 2,000 DeLacroix
"	3,000	Chalkey Intracoastal Canal	
Gulf	30,000	Lucas-Port Arthur	From Port Neches, Orange and Vinton
"	132,000	Ostrica Terminal	Gathering System from Timbalier Bay and adjacent areas
Interstate	106,000	Baton Rouge	From Southwest Louisiana
"	120,000	Baton Rouge	From Southeast Louisiana
Continental	22,000	Lake Charles	From Ville Platte
"	16,800	Lake Charles	From Vinton and Cooley
Shell	95,000	Norco	From South Louisiana
Total	791,300		
NORTH LOUISIANA, ARKANSAS & MISSISSIPPI			
Arkansas	25,000	To East Texas Main Line	System connection in East Texas
Hess	42,000	Mobile, Alabama	From Eucutta and Lumberton, Mississippi
Interstate	135,000	Baton Rouge	From SW Arkansas and NW Louisiana
"	125,000	Baton Rouge	From Mississippi
Service	45,000	El Dorado, Arkansas	From N. Louisiana and Arkansas
Total	372,000		
PANHANDLE			
Humble	41,700	Into Comyn	Increases to 75,000 capacity at Hawley
Phillips	25,400	District II	
Total	67,100		
EAST TEXAS			
Arkansas	(25,000)	Longview Area	From Louisiana and Arkansas - Connects with East Texas Main Line System (See North Louisiana and Arkansas)
Atlantic	43,000	Atreco (Port Arthur)	
Gulf	41,000	District II - Chambers, Oklahoma	On Gulf System to Tulsa and East
"	80,000	Gulf Coast - Port Arthur	
Humble	93,000	Shreveport (Interstate P.L.)	
"	18,500	Gulf Coast - Houston	
Magnolia	35,000	Gulf Coast or District II	Into Corsicana
Pure	46,000	Nederland	
Service	49,900	Texas City	
Shell	36,000	Houston	
East Texas Main Line System	75,000	Sour Lake and Port Arthur	
Sinclair	40,000	Houston	Ties into N. Texas-Houston line
Mid-Valley	200,000	District II - Lima	
Total	757,400		
NORTH & WEST CENTRAL TEXAS			
Bell	26,500	District II	Grandfield, Oklahoma
Magnolia	47,000	Beaumont or District II .via Corsicana	Total Oklahoma-N. Texas to Corsicana 115,000 capacity
Service	70,200	District II	70,200 Bowie to Healdton
"	51,500	Texas City	38,000 capacity Mexia south to Hufsmith; 51,500 out of Hufsmith
Sinclair	145,000	Houston	East Texas line comes into this main line with 40,000 capacity at Teague Station, 185,000 capacity below Teague
"	44,000	District II	Ringling, Oklahoma thence North or South
Texas	14,600	District II	From Covey
"	67,000	Port Arthur	From Wichita Falls
Continental	49,500	District II	Into Oklahoma City
Total	515,300		

( ) Indicates lines for which capacities are included in other movements.

CRUDE OIL PIPELINE CAPACITIES
OUT OF DISTRICT III AREAS

ORIGIN AND COMPANY	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	DESTINATION	REMARKS
SOUTH TEXAS			
Atlantic	12,000	Texas City area (Oak Pt.)	Barged to Corpus Christi area
Gulf	35,000	Port Arthur	From Almeda-Lynchburg area
Tidal	17,500	Houston	From Conroe to Texas Company at Humble
Humble	199,000	Baytown	From Fields in South Texas area
"	38,000	Texas City	From Fields in South Texas area
Service	38,400	Texas City	From Hastings
Magnolia	60,000	Beaumont	Includes capacity from S.W. Texas and Luling
Shell	12,000	Houston	From Sheridan area
Texas	99,000	Houston	Into East Houston from West Columbia area. Capacity from East Houston, where N. Texas line comes into Port Arthur 165,000
Texas	22,500	Texas City	From West Columbia area
Sun	7,000	Gladys	From Orange
"	48,000	Gladys	From Seabreeze, Chambers County
"	37,000	Sour Lake	From Conroe-Cotton Lake
"	46,000	District II	Connects w/Mid-Valley at Longview
Republic	5,000	Port Lavaca	
Phillips	20,500	Sweeney	From Little League Field, Galveston area
Total	696,900		
SOUTHWEST TEXAS			
Atlantic	78,000	Harbor Island	
Continental	20,400	Port Isabel	From Rincom
Humble	31,900	Ingleside	From Refugio area
Humble	102,900	Corpus Christi	From Benavides and Borregas. 40,700 Benavides into Viola; 31,900 Viola to Ingleside; 40,000 Ingleside to Viola; 102,900 Viola to Corpus Christi.
Magnolia	(10,000)	Beaumont	Tilden to Luling (See South Texas)
"	14,000	Corpus Christi	From Tilden
"	30,000	Corpus Christi	From Seelig
Republic	15,000	Corpus Christi	From San Patricio County
"	8,000	Corpus Christi	From E. White Point
"	10,000	Corpus Christi	Benavides, Magnolia City & Agua Dulce
Service	14,500	Port Isabel	From Willamar
Sinclair	22,500	Houston via Corpus Christi	
Southern	28,600	Corpus Christi	R. King & F. Stratton-Nueces County
"	28,600	Corpus Christi	Luby and London Gin
"	21,600	Corpus Christi	San Patricio County
Sun	40,000	Ingleside	From Seeligson-Agua Dulce
Suntide	40,100	Corpus Christi	Victoria Co. 17,000, Pottus 23,500
Texas	12,500	Corpus Christi	From Saxet
Total	518,600		
WEST TEXAS AND NEW MEXICO			
Atlantic	45,000	Corpus Christi	
"	47,000	Port Arthur	
Basin	350,000	District II-Cushing area	385,000 capacity out of Wichita Falls
Humble	27,300	Baytown via Comyn	
"	50,000	Ingleside	
"	139,500	Houston via Satsuma	
Magnolia	235,000	Beaumont or District II into Corsicana	
Mesa System and West Texas Gulf	440,000	Port Arthur or District II	335,000 capacity Wortham to Nederland; 140,000 to Mid-Valley at Longview
Pasotex	94,000	El Paso	
Phillips	71,300	Borger	
Rancho	266,000	Houston-Texas City area	
Service	168,300	District II	Into Drumright main line from Slaughter
"	33,200	Texas City or District II	From Cogdell to Bowie
Shell	27,300	District II	Into Cushing area
Texas-New Mexico	65,000	Houston	
Total	2,058,900		

( ) Indicates lines for which capacities are included in other movements.

TABLE 12

CRUDE OIL PIPELINE CAPACITIES
LINES CONNECTING DISTRICT III WITH ADJACENT DISTRICTS

	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
From District III Into District II		
Basin	385,000	Connects with Ozark System at Cushing, Oklahoma.
Bell	26,500	To Grandield, Oklahoma.
Continental	49,500	Wichita Falls, Texas to Oklahoma City, Oklahoma.
Gulf	41,000	Chambers, Oklahoma on Gulf System to Tulsa and East.
Magnolia	135,000	To Patoka, Illinois.
Mid-Valley	235,000	Longview, Texas to Lima, Ohio, where it connects with Buckeye Pipeline Company.
Phillips	25,400	Borger to Yale, Oklahoma then Kansas City, Kansas.
Service	168,300	Slaughter, W. Texas to Drumright, Oklahoma, thence to Whiting, Indiana.
Service	70,200	North Texas to Drumright, Oklahoma.
Shell	27,300	To Wood River, Illinois from McCamey, Texas.
Sinclair	44,000	From Muenster, N. Texas areas to Ringgold, Oklahoma.
Texas	14,600	Covey, Texas to Seminole, Oklahoma. Connects with Texaco-Cities Service to Chicago.
Total	1,221,800	
Into District III From District II		
Magnolia	68,000	From Addington, Oklahoma.
Sinclair	70,000	From Ringling, Oklahoma to Hensley, Texas.
Total	138,000	
Into District III From District IV		
Texas-New Mexico	75,000	From Aneth, Utah to Jal, New Mexico

TABLE 13

CRUDE OIL PIPELINE CAPACITIES
STATE OF NEW MEXICO

COMPANY	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
Atlantic	28,000	Hobbs to Midland, Texas (Includes movements of West Texas crude from Gaines County).
Basin System	(350,000)	Jal into Midland, Texas.
Continental	21,700	Maljamar area to Artesia, New Mexico
Gulf	21,000	Eunice to Wink.
Magnolia	27,000	From Crossroads to Seminole, Texas.
Shell	152,000	Hobbs to Jal, New Mexico (Includes movements of West Texas crude from Wasson).
Texas-New Mexico	64,500	Lea and Eddy Counties into Crane, Texas; Aneth, Utah to Jal, New Mexico.
Total	314,200	

( ) Indicates lines for which capacities are included in other movements.

TABLE 14

PAD DISTRICT III

CRUDE OIL PIPE LINE CAPACITIES AND MOVEMENTS
BETWEEN PRODUCING-REFINING AREAS

AREA AND COMPANY	CAPACITY OUT TOTAL	T O PANHANDLE	WEST TEXAS NEW MEXICO	CORSICANA AREA	CORPUS CHRISTI	OKLAHOMA	E. TEXAS	CENTRAL TEXAS	EL PASO	HOUSTON-PORT ARTHUR	N. TEXAS	NORTH LOUISIANA	PORT ISABEL	PATOKA AREA	LAKE CHARLES	BATON ROUGE	MOBILE ALABAMA	LIMA AREA	NEW ORLEANS
Four Corners																			
Texas-New Mexico	75		75																
West Texas-New Mexico																			
Atlantic	92				45					47									
Basin	350										350								
Humble	200				60					140									
Humble	27							27											
Magnolia	235			235															
Pasotex	94								94										
Phillips	71	71																	
Rancho	266									266									
Service	201				168						33								
Shell	27										27								
Texas-New Mexico	65									65									
West Texas Gulf	440			440															
Total	2,068	71	675	105	168			27	94	518	410								
Panhandle																			
Humble	42							42											
Phillips	25				25														
Total	67				25			42											
Corsicana Area																			
Magnolia	385									250		135							
Service	38									38									
Sinclair	185									185									
Texas	67									67									
West Texas Gulf	475					140				335									
Total	1,150					140				875		135							
North Texas																			
Basin	385				385														
Bell	27				27														
Continental	50				50														
Magnolia	115			115															
Service	104			34	70														
Shell	27				27														
Sinclair	215			145	70														
Texas	82			67	15														
Total	1,005			361	644														
East Texas																			
Atlantic	43									43									
East Texas Main Line	75									75									
Gulf	121				41					80									
Humble	111							18				93							
Magnolia	35			35															
Mid-Valley	200											200							
Pure	46									46									
Service	45									45									
Shell	36									36									
Sinclair	40			40															
Total	752		75		41			18		325		293							
South Texas & Gulf Coast																			
Gulf	35									35									
Humble	259			60						199									
Magnolia	60									60									
Phillips	21									21									
Service	38									38									
Shell	12									12									
Sun	92									92									
Texas	122									122									
Total	639			60						579									
Corpus Christi																			
Sinclair	23									23									
Southwest Texas																			
Atlantic	33			33*															
Continental	20									20									
Humble	10			10*															
Humble	103			103*															
Magnolia	44			44															
Republic	33			33															
Service	15									15									
Southern	79			79															
Sun	40			40															
Suntide	41			41															
Texas	13			13															
Total	431			396						35									
Central Texas																			
Humble	87									87									
Houston-Port Arthur																			
Cities Service	140										140								
Sun	46			46															
Total	186				46						140								
North Louisiana, Arkansas and Mississippi																			
Arkansas	25			25															
Hess	42											42							
Interstate	260										260								
Mid-Valley	235																	235	
Total	562				25						260	42						235	
South Louisiana																			
Atlantic	15									15									
Continental	39										39								
Gulf	30									30									
Interstate	226										226								
Shell	95																	95	
Texas	230									230									
Total	635									275	39	226						95	
Alabama																			
Citmoco	20																20		

*Represents increase in capacity in lines originating in West Texas.

PAD DISTRICT IV

CRUDE OIL PIPELINE CAPACITIES

	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
Into Denver, Colorado		
Continental	34,000	From Cheyenne, Wyoming.
Into Cut Bank, Montana		
Toronto	6,000	
Into Kevin, Montana		
Big West	5,000	From Kevin-Sunburst Field.
Into Laurel and Billings, Montana		
Crude Oil	10,000	From Wyoming - North of Billings. Capacity 10,000 to Billings, 5,000 to Laurel.
Interstate	65,000	From Wyoming. Receives oil from connection with Marathon P L Co. at Silvertip, Montana.
Total	75,000	
Into Sunburst, Montana		
Texas	15,250	From Cutbank and Kevin areas.
Into Salt Lake City, Utah		
Salt Lake	62,000	From Rangely, Colorado.
Service	30,500	From Iles and Rangely, Colorado and La Barge, Wyoming.
Total	92,500	
Into Casper and Glenrock, Wyoming		
Butte	52,200	From Montana and Wyoming.
Continental	12,000	From Lance Creek and Big Muddy, connects with Platte at Glenrock, Wyoming.
Forest	16,000	From Grieve.
Magnolia	6,000	From Cole Creek and Big Muddy, Wyoming - Field Lines.
Platte	104,000	From Big Horn Basin, Wyoming, Wyoming area. 140,000 B/D capacity out of Glenrock. Connects with Service and Sinclair at Casper.
Service	90,000	From Big Horn Basin, Wyoming, Wyoming area.
Sinclair	10,000	From Sand Draw and Bairoil, Wyoming.
Total	290,200	
Into Cheyenne, Wyoming		
Continental	44,000	From Lance Creek and Guernsey, Wyoming.
Into Cody, Wyoming		
Marathon	7,000	
Service	8,000	Line Idle.
Total	15,000	
Into Lovell, Wyoming		
Marathon	2,000	From Byron, Wyoming (disconnected).
Into Newcastle, Wyoming		
Plains	5,500	From Mush Creek-Fiddler Creek-Skull Creek areas and the Clareton Field of Westers County to Lance Creek, Wyoming.
Into Sinclair, Wyoming		
Marathon	500	From Hatfield, Wyoming.
Sinclair	28,000	From Casper-Sand Draw, Wyoming area.
Total	28,500	
Into Thermopolis, Wyoming		
Hamilton	11,000	From Hamilton Dome, Wyoming.

TABLE 16

CRUDE OIL PIPELINE CAPACITIES
LINES CONNECTING DISTRICT IV WITH ADJACENT DISTRICTS

	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
From District IV to District II		
Arapahoe	105,000	Into Kansas - Capacity Schurr to Humboldt, Kansas 129,000 B/D, throughput 122,000 B/D.
Platte	140,000	Into Wood River - Capacity from Casper, Wyoming to Salisbury, Missouri 140,000 B/D. Capacity from Salisbury to Wood River 114,000. Delivers to Sinclair and Pure at Salisbury for delivery to Chicago area. Delivers to Marathon and Sinclair at Wood River.
Service	184,000	Into Laton, Kansas - Capacity Laton, Kansas to Freeman, Missouri, 212,800 throughput 195,800 B/D. Delivers into Drumright, Oklahoma, to Whiting, Indiana Line.
Service	7,500	To Scottsbluff, Nebraska
Sterling	24,000	To Platte at Gurley, Nebraska.
Total	460,500	
From District IV to District III		
Texas-New Mexico	75,000	From Aneth, Utah to Jal, New Mexico
From District IV to District V		
Four Corners Pipe Line Company	79,800	To Los Angeles
Into District IV from District II		
Arapahoe	28,600	To Merino, Colorado from Nebraska gathering system.
Sterling	24,000	From Platte at Gurley to Merino
Total	52,600	

TABLE 17

PAD DISTRICT V

CRUDE OIL PIPELINE CAPACITIES

	DECEMBER, 1960 CAPACITY B/D
FROM SAN JOAQUIN VALLEY FIELDS	
To San Francisco Bay Area	
Shell	66,000
Standard of California	125,000
Tidewater	30,000
Union	78,000
Total	299,000
To Marine Terminals	
Standard of California	74,000
Union	28,800
Total	102,800
To Los Angeles Basin	
Mobil	40,000
Richfield	105,000
Total	145,000
To Shell's San Joaquin Valley - San Francisco Bay Line	
Vailecitas	(20,000)
Total from San Joaquin Valley Fields	546,800
FROM COASTAL FIELDS	
To Los Angeles Basin	
Mobil	15,000
Shell	43,000
Union	60,000
Total	118,000
To Marine Terminals	
Mobil	61,000
Union	99,000
Tidewater	43,000
Total	203,000
To Union's San Joaquin Valley - San Francisco Bay Lines	
Union	25,500
To Richfield's San Joaquin Valley - Los Angeles Basin Line	
Texaco	30,000
Total from Coastal Fields	376,500
FROM SOUTHERN CALIFORNIA FIELDS	
To Los Angeles Basin Refineries	
Mobil	81,000
Richfield	214,000
Shell	102,000
Standard of California	133,000
Texaco	51,400
Tidewater	48,000
Union	52,600
Wilshire	70,000
Golden Eagle	18,000
Total from Southern California Fields	770,000

( ) Indicates lines for which capacities are included in other movements.

CRUDE OIL PIPELINE CAPACITIES TABLE 18

LINES CONNECTING DISTRICT V WITH ADJACENT DISTRICTS

	AVERAGE ANNUAL CAPACITY B/D DECEMBER 1960	REMARKS
Into District V		
From District IV		
Four Corners Pipe Line Corp.	79,800	To Los Angeles.
Into District V		
From International Boundary		
Trans Mountain	200,000	From Canada extension planned to Everett area with same capacity.
From District V		
Into Adjacent Districts		
None		

TABLE 19

CRUDE OIL PIPELINES SUPPLYING AREAS EAST OF THE MISSISSIPPI RIVER

	AVERAGE ANNUAL CAPACITY B/D DECEMBER, 1960	CROSSES RIVER AT	REMARKS
Gulf	57,000	Jefferson County, Missouri	Tulsa to Cincinnati & Lima, Ohio.
Lakehead	(434,000)**		From Gretna, Manitoba to Superior, Wisconsin. Crude is delivered via connecting lines to Upper Michigan and Minneapolis-St. Paul area.
Magnolia	135,000	Chester, Illinois	Corsicana, Texas to Patoka, Illinois.
Mid-Valley	224,000*	Mayersville, Mississippi	East Texas, Arkansas and Louisiana to Lima.
Ozark	296,500	Wood River, Illinois	Cushing, Oklahoma to Wood River, Illinois. (Basin System - Jal to Cushing).
Platte	114,000	Wood River, Illinois	Wyoming to Wood River, Illinois.
Service	283,300	E. Ft. Madison, Illinois	Drumright, Oklahoma to Whiting, Indiana.
Service	82,500	Wood River, Illinois	Drumright, Oklahoma to Wood River, Illinois (Lateral off main line).
Shell	28,000	Wood River, Illinois	Cushing, Oklahoma to Wood River, Illinois.
Sinclair-Pure	284,000	Quincy, Illinois	Cushing, Oklahoma to East Chicago, Indiana.
Texaco-Cities Service	92,000	Hannibal, Missouri	Tulsa, Oklahoma & Wichita, Kansas to E. Chicago.
Total	1,596,300		

* 200,000 from Longview, South Arkansas and North Louisiana, 24,000 from Delhi (N. E. Louisiana).
** Not included in total.

TABLE 20

U. S. CRUDE OIL FLOW
CRUDE OIL PIPELINE CAPACITIES AND MOVEMENTS
BETWEEN PRODUCING-REFINING AREAS

Expressed in Thousands of Barrels per Calendar Day.

	IN December 1960 Capacity	OUT December 1960 Capacity
West Texas-New Mexico		
East Central Texas Area	-	744
Houston-Port Arthur	-	518
Corpus Christi	-	105
North Texas	-	410
Oklahoma	-	193
Total		1,970
East Central Texas		
Louisiana	25	293
West Texas	744	-
North Texas	361	-
Patoka-Wood River	-	135
Oklahoma	-	41
Houston-Port Arthur	46	1,287
Total	1,176	1,756
North Texas		
Oklahoma	138	644
West Texas	410	-
East Central Texas Area	-	361
Total	548	1,005
Lower Gulf Coast (Corpus Christi & Brownsville)		
West Texas	105	-
Houston-Port Arthur Area		
East Central Texas Area	1,287	46
Louisiana	275	140
West Texas-New Mexico	518	-
Total	2,080	186
Louisiana		
Mid-Valley	-	35
Mississippi	125	-
East Central Texas Area	93	-
Houston-Port Arthur	140	275
Total	358	310
Mississippi		
Louisiana	-	125
Oklahoma		
West Texas-New Mexico	193	-
North Texas	644	128
East Central Texas Area	41	-
Kansas	37	638
Patoka-Wood River	-	382
Total	915	1,148

	IN December 1960 Capacity	OUT December 1960 Capacity
Kansas-Missouri		
Oklahoma	638	43
Rocky Mountain Area	289	-
Wood River-Patoka and Chicago Areas	-	724
Total	927	767
Rocky Mountain Area		
Kansas	-	289
Wood River-Patoka Area	-	114
Total		403
Wood River-Patoka Area		
Kansas	83	-
Rocky Mountain Area	114	-
Oklahoma	382	-
East Central Texas Area	135	-
Chicago Area	-	147
Lima	-	367
Lawrenceville	-	82
Total	714	596
Lawrenceville	82	-
Chicago Area		
Kansas	672	-
Wood River-Patoka Area	147	-
Lima	-	117
Total	819	117
Lima Area		
Chicago Area	117	-
Wood River-Patoka Area	367	-
Toledo	-	300
Cleveland	-	64
Detroit Area	-	110
Louisiana-Mississippi Area	235	-
Central Michigan	-	22
Total	719	496
Detroit Area		
Lima Area	110	-
Michigan (Other)		
Lima Area	22	-

PAD DISTRICT I

PETROLEUM PRODUCTS PIPELINE
CAPACITIES AND MOVEMENTS
OUT OF REFINING AREAS AND DEEP WATER TERMINALS
YEAR-END 1960

	AVERAGE ANNUAL CAPACITY B/D	REMARKS
FLORIDA		
Port Everglades		
Everglades	43,000	To Miami International Airport
Port St. Joe		
Southeastern	40,000	To Atlanta, Georgia and Chattanooga, Tennessee
MAINE		
Portland		
Magnolia	11,500	To Bangor, Maine. Capacity to Hallowell 11,500; to Bangor 11,000
Searsport		
U. S. Air Force	14,400	To Limestone, Maine and Dow Air Force Base
MASSACHUSETTS		
Boston		
Massachusetts	30,000	To Waltham and Dracut, Massachusetts
Fall River		
Massachusetts	13,000	To West Boylston and Waltham, Massachusetts
NEW JERSEY		
Linden		
Buckeye	153,000	To Macungie, Pennsylvania and Caledonia (Rochester), New York
Paulsboro		
Magnolia	24,000	To Gibson Point, New Jersey
Magnolia	72,000	To Malvern, Pennsylvania. From Malvern to Midland, Pennsylvania, 24,000; from Malvern to Binghamton, New York, 24,000
	96,000	
NEW YORK		
Buffalo		
Magnolia	17,200	To Rochester, Syracuse and Binghamton, New York. Capacity to Syracuse 11,400; to Rochester 12,700
PENNSYLVANIA		
Freedom		
Ashland	20,000	To Findlay, Ohio (See Canton)
Macungie		
Buckeye	116,000	To Caledonia and Utica, New York. Capacity to Auburn 116,000; to Syracuse 77,000; to Waterloo 69,000
Tuscarora (Connects with Buckeye)	76,800	To Pittsburgh (Sold to Buckeye in 1961)
	192,800	
Philadelphia Area		
Atlantic - Philadelphia	148,000	To Pittsburgh, Pennsylvania, Fullerton (Allentown), Pennsylvania, Kingston (Wilkes-Barre), Pennsylvania and Rochester and Tonawanda, New York.
Harbor System - Woodbury	120,000	To Linden, New Jersey (Sinclair to Bayonne)
Laurel - Philadelphia	207,000	To Cleveland, Ohio and Pittsburgh, Pennsylvania
Sinclair - Marcus Hook	(44,400)	To Chelsea (Connects with Laurel)
Sinclair - Marcus Hook	40,800	To Steubenville, Ohio (Out of Service)
Sinclair - Schaefferstown (From Laurel)	(17,500)	To Baltimore, Maryland and Washington, D. C.
Sun - Marcus Hook	72,100	To Newark, New Jersey
Sun - Marcus Hook	32,100	To Syracuse, New York and Cleveland, Ohio via Icedale, Pennsylvania
	620,000	
Pittsburgh		
Buckeye (Connects with Tuscarora)	20,000	To Rogers Jct., Ohio
National Transit	7,500	To Neville Island, Pennsylvania, (Idle)
	27,500	
RHODE ISLAND		
Providence		
Magnolia	16,800	To Springfield, Massachusetts and Hartford, Connecticut

TABLE 22

PETROLEUM PRODUCTS PIPELINE CAPACITIES
LINES CONNECTING DISTRICT I WITH ADJACENT DISTRICTS

	AVERAGE ANNUAL CAPACITY B/D	REMARKS
Into District I From District II		
Ashland	20,000	To Freedom, Pennsylvania. (Reversible line between Canton and Freedom)
Into District I From District III		
Plantation	272,000	To Bremen, Georgia
From District I Into District II		
Ashland	20,000	To Canton and Findlay, Ohio (Reversible between Canton and Freedom, Pennsylvania)
Buckeye	20,000	To Rogers Jct., Ohio
Laurel	50,000	To Cleveland, Ohio
Plantation	48,000	To Chattanooga and Knoxville, Tennessee
Sinclair	19,200	To Steubenville, Ohio (Out of Service)
Southeastern	15,000	To Chattanooga, Tennessee
Sun	16,500	To Youngstown, Ohio
Total	188,700	

PAD DISTRICT I

PETROLEUM PRODUCTS PIPELINE CAPACITIES INTO DISTRIBUTION TERMINALS
(Expressed in Thousands of Barrels per Calendar Day)

DISTRIBUTION TERMINAL CITY	COUNTY	TOTAL	ATLANTIC	BUCKEYE	HARBOR SYSTEM	LAUREL	MAGNOLIA	NATIONAL TRANSIT	PLANTATION	MASSACHUSETTS	SINCLAIR*	SOUTHEASTERN	SUN	TUSCARORA**
CONNECTICUT														
Hartford	Hartford	13					13							
GEORGIA														
Albany	Dougherty	40										40		
Athens	Clarke	210							210					
Atlanta	Fulton	270							230			40		
Bainbridge	Decatur	40										40		
Bremen	Haralson	272							272					
Columbus	Muscogee	9							9					
Griffin	Spalding	40										40		
Macon	Ribb	47							7			40		
Rome	Floyd	15										15		
MAINE														
Auburn	Androscoggin	12					12							
Bangor	Penobscot	11					11							
Hallowell	Kennebec	12					12							
MARYLAND AND WASHINGTON, D. C.														
Baltimore	Baltimore	18									18			
Washington	D. C.	18									18			
MASSACHUSETTS														
Dracut	Middlesex	8								8				
Springfield	Hampden	14					14							
W. Boylston	Worcester	12								12				
Worcester	Worcester	16					16							
Waltham	Suffolk	30								30				
NEW JERSEY														
Bayonne	Hudson	120			120									
Gibson Point	Glouchester	24					24							
Hillside	Union	72											72	
Linden	Union	120			120									
Newark	Essex	72											72	
NEW YORK														
Big Flats	Chemung	25	25											
Binghamton	Broome	146		116			18							12
Batavia	Genesee	17					17							
Cortland	Cortland	12												12
Elmira	Erie	16					16							
Geneva	Ontario	11					11							
Ithaca	Tompkins	16					16							
Rochester	Monroe	101	40		48		13							
Syracuse	Onondaga	100		77			11							12
Tonawanda	Erie	25	25											
Utica	Oneida	48		48										
Wayland	Steuben	25	25											
Weedsport	Cayuga	11					11							
NORTH CAROLINA														
Charlotte	Mecklenberg	165							165					
Greensboro	Guilford	120							120					
Salisbury	Rowan	120							120					

* Out of Service except to York, Baltimore and Washington.
** Sold to Buckeye in 1961.

PAD DISTRICT I

PETROLEUM PRODUCTS PIPELINE CAPACITIES INTO DISTRIBUTION TERMINALS
(Expressed in Thousands of Barrels per Calendar Day)

DISTRIBUTION TERMINAL CITY	COUNTY	TOTAL	ATLANTIC	BUCKEYE	HARBOR SYSTEM	LAUREL	MAGNOLIA	NATIONAL TRANSIT	PLANTATION	MASSACHUSETTS	SINCLAIR*	SOUTHEASTERN	SUN	TUSCARORA**
PENNSYLVANIA														
Aliquippa	Beaver	163				163								
Allegheny	Allegheny	42	25										17	
Allentown	Lehigh	188	37		116		24						11	
Altoona	Blair	45	27				18							
Barnesville	Schuylkill	12	12											
Beach Haven	Luzerne	7	7											
Cessna	Bedford	17											17	
Chambersburg	Franklin	17											17	
Delmont	Westmoreland	25	25											
Duncansville	Blair	195				176					19			
Dupont	Luzerne	116		116										
East Freedom	Blair	34												34
Exeter	Luzerne	31					19						12	
Exton	Chester	176	135								41			
Greensburg	Westmoreland	17											17	
Harrisburg	Dauphin	37					20						17	
Irwin	Westmoreland	17					17							
Icedale	Chester	41											41	
Indiana	Indiana	34												34
Inglenook	Dauphin	50												50
Johnstown	Cambria	17											17	
Lancaster	Lancaster	60					24				19		17	
Lykins	Dauphin	30	30											
Macungie	Lehigh	153		153										
Malvern	Chester	144					72						72	
Mechanicsburg	Cumberland	273	47			207					19			
Midland	Beaver	50					16							34
Montello	Berks	135	135											
Mt. Union	Huntingdon	64	27				18				19			
Mundy's Corner	Indiana	19									19			
Northumberland	Northumberland	30	30											
Pittsburgh	Allegheny	82	25				16		13					28
Quentin	Lebanon	77	77											
Reading	Berks	35					24						11	
Schafferstown	Lebanon	41									41			
Sinking Springs	Berks	41									41			
Sinclair	Allegheny	19									19			
Tamaqua	Schuylkill	11											11	
Tuckerton	Berks	77												77
Uwchland	Chester	135	135											
Vanport	Beaver	17											17	
Vinco	Cambria	25	25											
Williamsport	Lycoming	30	30											
York	York	36									19		17	
SOUTH CAROLINA														
Belton	Anderson	210							210					
Spartanburg	Spartanburg	210							210					

* Out of Service except to York, Baltimore and Washington.
** Sold to Buckeye in 1961.

PAD DISTRICT II

PETROLEUM PRODUCTS PIPELINE
CAPACITIES AND MOVEMENTS
OUT OF REFINING AREAS AND DEEP WATER TERMINALS
YEAR-END 1960

	AVERAGE ANNUAL CAPACITY B/D	REMARKS
ILLINOIS AND INDIANA		
Chicago Area		
American - Whiting, Indiana	43,000	To Chicago
" " "	31,000	To Indianapolis
" " "	70,300	To River Rouge, Michigan
Badger System - E. Chicago and Lemont	65,800	To Chicago and Madison, Wisconsin (31,100)
Sinclair - East Chicago, Ind.	17,800	To Fort Madison, Iowa and Kansas City
" " " "	30,000	To Detroit, Michigan; Columbus, Cleveland, and Steubenville, Ohio
Wolverine - Hammond, Indiana	96,000	To Detroit, Michigan and Toledo, Ohio
	353,900	
Peru, Illinois		
Badger	31,000	To Rockford, Illinois and Madison, Wisconsin (Connect with Great Lakes at Middlebury)
Wood River Area		
Shell	100,000	To East Chicago, Indiana and Argo, Illinois Water Terminal
"	38,000	To Lima, Ohio
Sinclair - Wood River	14,800	To Kansas City and Fort Madison via Carrollton, Missouri
Phillips - East St. Louis	(48,500)	To East Chicago (Included in capacity out of Borger and Kansas City)
Marathon - Wood River and East St. Louis	31,000	To Clermont, Indiana
Wabash - Wood River	39,000	To East Chicago, Indiana
	222,800	
Lawrenceville, Illinois		
Buckeye - Lawrenceville and Robinson	27,000	To Indianapolis, Indiana, and Ohio and Indiana points via Lima
Texas	61,500	To Mt. Vernon, Indiana
Wabash - Robinson	50,000	To Champaign, Illinois
	138,500	
Mt. Vernon, Indiana		
Indiana Farm Bureau Coop. Association	25,000	To Peru, Illinois
KANSAS		
Kansas City		
Phillips	52,600	To East St. Louis and East Chicago (Total capacity thru Kansas City 94,100)
Great Lakes (Terminal Out)	102,000	To Grand Forks, North Dakota
Great Lakes (Terminal Out)	225,700	To Minneapolis and Chicago via Des Moines, Iowa
Great Lakes (Into Terminal)	(325,100)	
Great Lakes (Net Capacity Out)	2,600	
	55,200	
Southeastern Kansas		
Great Lakes - El Dorado	68,400	To Kansas City
Great Lakes - El Dorado	28,000	To Kansas City via Humboldt
Kaneb - Wichita Area	27,000	To Fairmont, Nebraska (Capacity into El Dorado 42,000 from Wichita and Augusta excluded because of deliveries to Great Lakes at El Dorado.)
American - Neodesha	22,000	To Sugar Creek, Missouri and Wichita, Kansas
Magnolia - Augusta	18,700	To Kansas City, Kansas and Sioux Falls, South Dakota
Mid-America - McPherson (LPG)	30,000	To Madison, Wisconsin
Mid-America - McPherson (LPG)	30,000	To Saint Paul, Minnesota
National Coop. - McPherson	15,000	To Council Bluffs, Iowa
	239,100	

PAD DISTRICT II

PETROLEUM PRODUCTS PIPELINE
CAPACITIES AND MOVEMENTS
OUT OF REFINING AREAS AND DEEP WATER TERMINALS
YEAR-END 1960

	AVERAGE ANNUAL CAPACITY B/D	REMARKS
KENTUCKY		
Latonia		
Sohio Petroleum	20,000	To Cincinnati, Ohio
MISSOURI		
Sugar Creek		
American	35,000	To Sioux Falls, South Dakota & Des Moines, Iowa
American	51,000	To Spring Valley, Minnesota and Chicago, Illinois via Dubuque, Iowa
	86,000	
NORTH DAKOTA		
Mandan (Bismarck)		
American	39,800	To Spring Valley, Minnesota
OHIO		
Toledo		
Inland Corporation	60,000	To Cleveland, Columbus, Dayton & Mogadore, Ohio via Fostoria
Detroit Southern	17,000	To Detroit, Michigan
Sun	22,600	To Sarnia, Canada (Combination Crude and Products Line)
	24,700	To Detroit (River Rouge), Michigan
	37,500	To Cleveland, Ohio (29,900 capacity) via Fostoria, Ohio (Connects with Inland)
Buckeye	49,000	To Cleveland, Lima, and Columbus, Ohio and Huntington, Indiana via Cygnet, Ohio
	210,800	
Lima		
Inland Corporation	30,000	To Cleveland, Toledo and Canton, Ohio via Fostoria
Inland Corporation	62,300	To Columbus and Dayton, Ohio
	92,300	
Canton		
Ashland	20,000	To Findlay, Ohio (Line starts at Freedom, Pennsylvania)
Cleveland		
Standard of Ohio	15,000	To Girard, Ohio (Mahoning Valley Terminal) via Mogadore
Inland Corporation	31,000	To Mogadore, Ohio
	46,000	
Dayton		
Miami Valley	24,000	To Cincinnati, Ohio
Heath		
Pure	12,500	To Dayton, Ohio
OKLAHOMA		
Tulsa Area		
Great Lakes - Cushing, Drumright, Okmulgee & Tulsa	222,000	To Kansas City, Minneapolis, Duluth, Minnesota, Superior, Wisconsin, and Chicago via Barnsdall, Oklahoma
Oklahoma-Miss. River - Tulsa	24,000	To Drumright (Connects with Cherokee and Great Lakes)
	246,000	
Ponce City		
Great Lakes	129,600	To Barnsdall, Oklahoma, thence North
Cherokee	18,000	To Wichita, Kansas. (Connects with Kaneb at Wichita)
Cherokee	15,600	To Oklahoma City
Cherokee	60,000	To Wood River, Illinois. (Delivery at Mt. Vernon and Belle, Missouri)
Continental	9,200	To Hominy, Oklahoma. (Connects with Sinclair)
	232,400	
Duncan		
Oklahoma-Mississippi River	60,000	To West Memphis, Arkansas
Enid		
Champlin	13,000	To Hutchinson, Kansas; Superior, Nebraska; and Rock Rapids, Iowa
Champlin	12,000	To Oklahoma City, Oklahoma
	25,000	
Ardmore		
Bell	35,000	To Sinclair at Ardmore
Grandfield		
Bell	5,500	To Burkburnett, Texas

TABLE 25

PETROLEUM PRODUCTS PIPELINE CAPACITIES
LINES CONNECTING DISTRICT II WITH ADJACENT DISTRICTS
YEAR-END 1960

	AVERAGE ANNUAL CAPACITY B/D	REMARKS
Into District II from District I		
Ashland	20,000	To Canton and Findlay, Ohio (Reversible between Canton & Freedom, Pennsylvania)
Buckeye	20,000	To Rogers Jct., Ohio
Laurel	50,000	To Cleveland, Ohio
Plantation	48,000	To Chattanooga and Knoxville, Tennessee
Sinclair	19,200	To Steubenville, Ohio (Idle)
Southeastern	15,000	To Chattanooga, Tennessee
Sun	16,500	To Youngstown, Ohio
Total	188,700	
Into District II from District III		
Emerald	12,000	To Okan Pipeline Company at Liberal, Kansas
Magnolia	4,600	To Oklahoma City, Oklahoma
Mid-America (LPG)	52,000	To McPherson, Kansas
Phillips	107,700	To Laverne, Oklahoma
River	8,000	To Duncan, Oklahoma
Sinclair	25,000	To Ardmore, Oklahoma
Texas Eastern	122,000	To Cape Girardeau, Missouri
Total	331,300	
Into District II from District IV		
Cenex	15,000	To Minot, North Dakota
Wyoming-Nebraska	9,600	To Sidney, Nebraska
Total	24,600	
Into District II from International Boundary		
Sun	7,500	To Toledo, Ohio (Combination crude and products)
From District II into District I		
Ashland	20,000	To Freedom, Pennsylvania (Reversible between Canton and Freedom)
From District II into District III		
Bell	5,500	To Burkburnett, Texas from Grandfield, Oklahoma
Oklahoma-Mississippi River Products	60,000	To Fort Smith, Arkansas
Total	65,500	
From District II to International Boundary		
Sun	22,600	To Sarnia, Canada (Combination Crude and products line)

PAD DISTRICT II

PETROLEUM PRODUCTS PIPELINE CAPACITIES INTO DISTRIBUTION TERMINALS
YEAR-END 1960
(Expressed in Thousands of Barrels per Calendar Day)

DISTRIBUTION TERMINAL CITY	COUNTY	TOTAL	AMERICAN	APCO	ASHLAND	BADGER	BUCKEYE	CENEX	CHAMPLIN	CHEROKEE	SOUTHERN DETROIT	GREAT LAKES	IND. FARM BUR. CORP.	INLAND CORP.	KANEB	LAUREL	LEONARD	MAGNOLIA	MARATHON	MIAMI VALLEY	MICHIGAN-OHIO	MID-AMERICA	NAT'L PRODUCT	OKAN	PHILLIPS	PLANTATION	PURE	SHELL	SINCLAIR	SOUTHEASTERN	STANDARD OF OHIO	SUN	TEXACO-CITIES SERVICE	TEXAS	TEXAS EASTERN	WABASH	WOLVERINE	WYOMING-NEBRASKA
ILLINOIS																																						
Argo-Barge Terminal	Cook	100																									100										
Chicago	Cook	372	43		66						63																100							66	34		
Champaign	Champaign	89																																	89		
Chillicothe	Peoria	18																										18									
Decatur	Macon	49																									49										
Des Plaines	Cook	66				66																															
East St. Louis	St. Clair	154					60																				94										
Effingham	Effingham	38																										38									
Harristown	Macon	100																									100										
Kankakee	Kankakee	49																									49										
Norris City	White	122																																	122		
Rochelle	Ogle	41	41																																		
Rockford	Winnebago	57				57																															
St. Elmo	Fayette	31																		31																	
INDIANA																																					
Clermont	Marion	31																		31																	
East Chicago	Lake	210	43			18																			49			100									
Huntington	Huntington	22				22																															
Indianapolis	Marion	155	31			27														31															66		
Jolietville	Hamilton	25												25																							
Lafayette	Tippecanoe	31	31																																		
Mt. Vernon	Posey	62																																	62		
Muncie	Delaware	51				26																						25									
New Goshen	Vigo	31																		31																	
Peru	Marion	8												8																							
Princeton	Gibson	122																																	122		
Seymour	Jackson	122																																	122		
South Bend	St. Joseph	100	70																																		
Zionsville	Boone	56																		18								38									
IOWA																																					
Council Bluffs	Pottawatomie	50	35																									15									
Des Moines	Polk	261	35																	226																	
Dubuque	Dubuque	51	51																																		
Fort Madison	Lee	18																										18									
Iowa City	Johnson	125																		95								30									
Mason City	Carro Gord	120																		120																	
Ottumwa	Wapello	51	51																																		
Rock Rapids	Lyon	13				13																															
Sanborn	Obrien	30																										30									
Sioux City	Woodbury	130	15																	102								13									
Waterloo	Blackhawk	19																		19																	
KANSAS																																					
Augusta	Butler	34																		34																	
Coffeyville	Montgomery	25																																	25		
Hutchinson	Reno	13				13																															
Kansas City	Wyandotte	405																		325								16				43			21		
McPherson	McPherson	88																		36								52									
Olathe	Johnson	43																		43																	
Paola	Miami	108																										108									
Rago	Kingman	108																										108									
Salina	Saline	27																		27																	
Topeka	Shawnee	19																		19																	
Wichita	Sedgwick	148	22			18																						108									
MICHIGAN																																					
Bay City	Bay	12																										12									
Colon	St. Joseph	70	70																																		
Dearborn	Wayne	166	70																																96		
Detroit	Wayne	17																																	17		
Flint	Genesee	22				22																															
Hamtramck	Wayne	17																		17																	
Inkster	Wayne	25																																	25		
Jackson	Jackson	166	70																																96		
Lansing	Ingham	15																		15																	
Lowell	Kent	9																																	9		
Marshall	Calhoun	96																																	96		
Niles	Berrien	96																																	96		
Owosso	Shiawassee	20				20																															
River Rouge	Wayne	95	70																																25		

PAD DISTRICT II

PETROLEUM PRODUCTS PIPELINE CAPACITIES INTO DISTRIBUTION TERMINALS
YEAR-END 1960
(Expressed in Thousands of Barrels per Calendar Day)

DISTRIBUTION TERMINAL CITY	COUNTY	TOTAL	AMERICAN	APCO	ASHLAND	BADGER	BUCKEYE	CENEX	CHAMPLIN	CHEROKEE	SOUTHERN DETROIT	GREAT LAKES	IND. FARM BUR. CORP.	INLAND CORP.	KANEB	LAUREL	LEONARD	MAGNOLIA	MARATHON	MIAMI VALLEY	MICHIGAN-OHIO	MID-AMERICA	NAT'L PRODUCT	OKAN	PHILLIPS	PLANTATION	PURE	SHELL	SINCLAIR	SOUTHEASTERN	STANDARD OF OHIO	SUN	TEXACO-CITIES SERVICE	TEXAS	TEXAS EASTERN	WABASH	WOLVERINE	WYOMING-NEBRASKA
MINNESOTA																																						
Alexandria	Douglas	71										71																										
Duluth	St. Louis	17										17																										
Mankato	Blue Earth	19										19																										
Minneapolis	Hennepin	137	28									109																										
Moorhead	Clay	40	40																																			
Sauk Centre	Stearnes	28	28																																			
Spring Valley	Ramsey	28	28																																			
St. Paul	Ramsey	30																				30																
MISSOURI																																						
Cape Girardeau	Scott	122																																122				
Carrollton	Carroll	33																																				
Jefferson City	Cole	94																																				
Mexico	Audrain	15																																				
Mt. Vernon	Lawrence	60																																				
Trenton	Grundy	51	51																																			
NEBRASKA																																						
Columbus	Platte	13						13																														
Doniphan	Hall	26										26																										
Fairmont	Fillmore	38													38																							
Greenwood	Cass	30																				30																
Lincoln AFB		14										14																										
Norfolk	Madison	9													9																							
North Platte	Lincoln	6																																				6
Omaha	Douglas	53										40					13																					
Sidney	Cheyenne	10																																				10
Superior	Nuckolls	13						13																														
NORTH DAKOTA																																						
Fargo	Cass	42										42																										
Grand Forks	Forks	19										19																										
Jamestown	Stutsman	40	40																																			
Minot	Ward	15						15																														
OHIO																																						
Akron	Summit	32										15																						17				
Boardman	Mahoning	17																																				17
Bryan Terminal	Williams	30																																				
Canton	Stark	15										15																										
Cincinnati	Hamilton	20																																20				
Cleveland	Cuyahoga	125						22				31										50												5				17
Clinton	Summit	12																																				
Columbus	Franklin	60						22				21																										
Dayton	Montgomery	79										42										24																
Findlay	Hancock	69						20				49																										
Fostoria	Seneca	202										164																										
Girard	Macoupin	18																																18				
Hartville	Stark	15										15																										
Lebanon	Warren	122																																				122
Lima	Marion	125						100																										25				
Mogadore	Summit	59										27																						15				17
Randolph	Portage	17																																				17
Springfield	Clark	13																																				
Steubenville	Jefferson	15																																15				
Toledo	Lucas	153						27																										30				96
Tiffin	Seneca	27										27																										
Woodland	Mahoning	17																																				17
Worthington	Franklin	13																																				
Youngstown	Mahoning	15																																15				
OKLAHOMA																																						
Ardmore	Carter	25																																25				
Duncan	Stephens	5	5																																			
Enid	Garfield	13																																13				
Lone Grove	Carter	5																																5				
Oklahoma City	Oklahoma	20										16																						4				
Sand Springs	Tulsa	7																																				7
Shawnee	Pottawatomie	25																																25				
SOUTH DAKOTA																																						
Sioux Falls	Minnehaha	122	15									94																						13				
Watertown	Codington	13										13																										
Yankton	Yankton	9										9																										
TENNESSEE																																						
Chattanooga	Hamilton	63																																48				15
Knoxville	Knox	33																																33				
WISCONSIN																																						
Bateman	Chippewa	15										15																										
Madison	Dane	57										57																										
Superior	Douglas	16										16																										

PAD DISTRICT III

PETROLEUM PRODUCTS PIPELINE
DAILY CAPACITIES AND MOVEMENTS
OUT OF REFINING AREAS AND DEEP WATER TERMINALS
YEAR-END 1960

		AVERAGE ANNUAL CAPACITY B/D	REMARKS
ARKANSAS			
El Dorado			
Texas Eastern		57,000	To Helena, Arkansas
" "		60,000	To Arkansas City, Arkansas
	Total	117,000	
LOUISIANA			
Baton Rouge			
Plantation		332,000	To Greensboro, North Carolina
New Orleans			
Shell		43,000	To Baton Rouge, Louisiana
NEW MEXICO			
Artesia			
Continental		8,500	To El Paso, Texas
"		8,200	To Walker Air Force Base
	Total	16,700	
Hobbs			
Mid-America (LPG)		52,000	To McPherson, Kansas
TEXAS			
Corpus Christi			
Casa Products System		15,000	To Luling and San Antonio, Texas
Magnolia		5,400	To Luling and San Antonio, Texas
	Total	20,400	
La Gloria			
Magnolia		6,300	To Corpus Christi, Texas
Houston-Beaumont Area			
Bayou System - Houston and Port Arthur		52,700	To Baton Rouge, Louisiana (Connects with Plantation)
Evangeline System - Port Arthur		172,000	To Baton Rouge, Louisiana (Connects with Plantation)
Gulf - Port Arthur		12,000	To Fort Worth and Eastland, Texas
Humble - Baytown		33,000	To Houston, Waco and Dallas, Texas (Love Field)
Magnolia - Beaumont, Port Arthur		51,000	To Houston & Hearne, Texas (Connects with Texas)
" " " "		14,000	To Center and Waskom, Texas
Sinclair - Houston		45,000	To Waco, Dallas and Fort Worth, thence into Kansas City and East Chicago
Texas Eastern - Texas City, Houston and Beaumont		122,000	To Chicago, Illinois and Lebanon, Ohio
	Total	501,700	
Sweeny			
Brazos-Sheridan, Katy and (DOW) Sweeny (LPG)		32,000	To Freeport, Texas
Phillips		44,000	To Houston, Texas
	Total	76,000	
Wichita Falls			
Continental		10,000	To Dallas and Fort Worth (Grapevine)
River		8,000	To Duncan, Oklahoma
	Total	18,000	
Hearne			
Texas		36,000	To Waco, Dallas and Fort Worth
"		24,000	To Austin and San Antonio
	Total	60,000	
Amarillo Area			
Emerald-McKee		12,000	To Okan Pipe Line Company
Phillips - Borger and McKee		15,000	To Denver, Colorado (Owned with Shamrock)
Phillips - Borger		107,700	To Kansas City, Kansas to East Chicago via East St. Louis
SAAL System - Borger and McKee		19,800	To Abernathy and Lubbock, Texas
ATA System - Borger and McKee		9,000	To Tucumcari and Albuquerque, New Mexico
	Total	163,500	
Big Springs			
Trust		15,300	To Abilene and Wichita Falls, Texas
El Paso			
Salt Lake		12,800	To Albuquerque, New Mexico
Southern Pacific		33,000	To Tuscon and Phoenix, Arizona
	Total	45,800	
Carthage			
Texas Eastern		28,000	To El Dorado, Arkansas via Shreveport, Louisiana

TABLE 28

PETROLEUM PRODUCTS PIPELINE CAPACITIES
LINES CONNECTING DISTRICT III WITH ADJACENT DISTRICTS
YEAR-END 1960

	AVERAGE ANNUAL CAPACITY B/D	REMARKS
Into District III from District II		
Bell	5,500	To Burkburnett, Texas from Grandfield, Oklahoma
Oklahoma-Mississippi River Products	60,000	To Fort Smith, Arkansas
Total	65,500	
From District III into District I		
Plantation	272,000	To Bremen, Georgia
From District III into District II		
Emerald	12,000	To Okan Pipe Line
Magnolia	4,600	To Oklahoma City, Oklahoma
Mid-America (LPG)	52,000	To McPherson, Kansas
Phillips	107,700	To Laverne, Oklahoma
River	8,000	To Duncan, Oklahoma
Sinclair	25,000	To Ardmore, Oklahoma
Texas Eastern	122,000	To Cape Girardeau, Missouri
Total	331,300	
From District III into District IV		
Phillips-Shamrock	15,000	To Denver, Colorado via Boise City, Oklahoma (District II)
From District III into District V		
Southern Pacific	33,000	To Phoenix, Arizona

PAD DISTRICT III

PETROLEUM PRODUCTS PIPELINE CAPACITIES INTO DISTRIBUTION TERMINALS
YEAR-END 1960
(Expressed in Thousands of Barrels per Calendar Day)

DISTRIBUTION TERMINAL CITY	COUNTY	TOTAL	BAYOU SYSTEM	CASA PRODUCTS	CONTINENTAL	EL PASO	EVANGELINE	GULF	HUMBLE	MAGNOLIA	OKLA. - MISS. RIVER PROD.	PHILLIPS	PLANTATION	SALT LAKE	SHAMROCK	SHELL	SINCLAIR	TEXAS	TRUST	TEXAS EASTERN	WEST EMERALD
ALABAMA																					
Birmingham	Jefferson	48											48								
Montgomery	Montgomery	20											20								
Moundville	Hale	332											332								
Oxford	Calhoun	272											272								
ARKANSAS																					
Arkansas City	Desha	60																		60	
Conway	Faulkner	60											60								
El Dorado	Union	170																		170	
Fort Smith	Sebastian	60											60								
Helena	Phillips	57																		57	
N. Little Rock	Pulaski	122																		122	
West Memphis	Crittenden	60											60								
LOUISIANA																					
Arcadia	Bienville	122																		122	
Baton Rouge	E. Baton Rouge	268	53		172											43					
Barksdale AFB	Bossier	6																		6	
Dubberly	Webster	20																		20	
Shreveport	Caddo	28																		28	
MISSISSIPPI																					
Collins (Finney)	Covington	332											332								
Meridian	Lauderdale	332											332								
NEW MEXICO																					
Albuquerque	Bernalilo	21												13							8
Tucumcari	Quay	9																			9
Walker AFB		8			8																
TEXAS																					
Abernathy	Hale	20													20						
Abilene	Taylor	15																		15	
Amarillo	Potter & Randall	20													20						
Austin	Travis	39		15														24			
Beeville	Bee	5						5													
Bryan	Brazos	45															45				
Center	Shelby	14						14													
Dallas	Dallas	65		10			21											4	30		
Dawson	Navarro	12						12													
Eastland	Eastland	12						12													
El Paso	El Paso	17		9		8															
Fort Worth	Tarrant	66		10		12												19	25		
Hearne	Robertson	84						33	51												
Houston	Harris	101						33	24		44										
Kenedy	Karnes	5						5													
Lubbock	Lubbock	14													14						
Luling	Caldwell	17		15				2													
San Antonio	Bexar	31		14				5										12			
Victoria	Victoria	15		15																	
Waco	McLennan	102					21										45	36			
Waskom	Harrison	12						12													
Wichita Falls	Wichita	10																		10	

TABLE 30

PAD DISTRICT IV

PETROLEUM PRODUCTS PIPELINES
DAILY CAPACITIES AND MOVEMENTS
OUT OF REFINING AREAS
YEAR-END 1960

	AVERAGE ANNUAL CAPACITY B/D	REMARKS
MONTANA		
Billings		
Yellowstone	36,000	To Spokane, Washington (Deliveries at Bozeman, Helena and Missoula, Montana with spur to Great Falls - 14,400 capacity)
Laurel		
Cenex	15,600	To Minot, North Dakota
UTAH		
Salt Lake City		
Salt Lake	56,000	To Spokane, Washington
WYOMING		
Casper		
Wyco	25,500	To Cheyenne, Wyoming and Denver, Colorado
Cheyenne		
Wyoming-Nebraska	9,600	To North Platte, Nebraska
Cody		
Shoshone	N.A.	To Billings, Montana
Sinclair		
Pioneer	17,000	To Salt Lake City, Utah

TABLE 31

PETROLEUM PRODUCTS PIPELINE CAPACITIES
LINES CONNECTING DISTRICT IV WITH ADJACENT DISTRICTS
YEAR-END 1960

	AVERAGE ANNUAL CAPACITY B/D	REMARKS
Into District IV		
From District III		
Phillips-Shamrock	15,000	To La Junta and Denver, Colorado via Boise City, Oklahoma (District II)
From District IV		
Into District II		
Cenex	15,000	
Wyoming-Nebraska	9,600	To Sidney, Nebraska
Total	24,600	
From District IV		
Into District V		
Salt Lake	32,500	To Baker, Oregon
Yellowstone	28,800	To Spokane, Washington
Total	61,300	

TABLE 32

PAD DISTRICT IV

PETROLEUM PRODUCTS PIPELINE
CAPACITIES INTO DISTRIBUTION TERMINALS
YEAR-END 1960

DISTRIBUTION TERMINAL CITY	COUNTY	CENEX	PHILLIPS-SHAMROCK	PIONEER	SALT LAKE	YELLOWSTONE	WYCO	TOTAL
COLORADO								
Denver	Denver		15,000				29,800	44,800
La Junta	Otero		15,000					15,000
IDAHO								
Boise	Ada				56,000			56,000
Evans	Cassia				56,000			56,000
Fruitland	Payette				32,500			32,500
Gavin Falls	Twin Falls				56,000			56,000
MONTANA								
Bozeman	Gallatin					36,000		36,000
Glendive	Dawson	15,600						15,600
Helena	Lewis & Clark					34,800		34,800
Missoula	Missoula					30,000		30,000
Great Falls	Cascade					14,400		14,400
UTAH								
Ogden	Weber				56,000			56,000
Salt Lake City	Salt Lake			17,000				17,000
WYOMING								
Cheyenne	Laramie						25,500	25,500

TABLE 33

PAD DISTRICT V

PETROLEUM PRODUCTS PIPELINES
DAILY CAPACITIES AND MOVEMENTS
OUT OF REFINING AREAS AND DEEP WATER TERMINALS
YEAR-END 1960

	AVERAGE ANNUAL CAPACITY B/D	REMARKS
California		
Los Angeles Basin Area		
Southern Pacific	48,000	To Phoenix, Arizona. Capacity to Colton, California - 48,000; from Colton to Phoenix - 30,000.
Mobil	121,000	
Richfield	358,000	
Shell	262,500	
Standard of California	70,500	
Tidewater	21,600	Water terminal. No refinery.
Union	63,200	
Wilshire	53,200	
Total	998,000	
San Francisco Bay Area		
Southern Pacific	30,000	To Fallon, Nevada. Capacity 20,400 from Bradshaw to Reno, 7,900 Reno to Fallon.
Standard of California	30,000	Removed in 1961.
Union	20,000	
Total	80,000	

PETROLEUM PRODUCTS PIPELINE CAPACITIES TABLE 34
LINES CONNECTING DISTRICT V WITH ADJACENT DISTRICTS
YEAR-END 1960

	AVERAGE ANNUAL CAPACITY B/D	REMARKS
Into District V From District III		
Southern Pacific	33,000	From El Paso, Texas to Phoenix, Arizona
Into District V From District IV		
Salt Lake	32,500	From Salt Lake City, Utah to Pasco, Washington via Baker, Oregon
Yellowstone	28,800	From Billings, Montana to Spokane, Washington
Total	61,300	

TABLE 35

PAD DISTRICT V

PETROLEUM PRODUCTS PIPELINE
CAPACITIES INTO DISTRIBUTION TERMINALS
YEAR-END 1960

DISTRIBUTION TERMINAL					
CITY	COUNTY	SALT LAKE	SOUTHERN PACIFIC	YELLOWSTONE	TOTAL
ARIZONA					
Phoenix	Maricopa		52,000		52,000
Tuscon	Pima		42,200		42,200
CALIFORNIA					
Colton	San Bernadino		48,000		48,000
Imperial	Imperial		21,600		21,600
Niland	Imperial		30,000		30,000
Sacramento	Sacramento		30,000		30,000
NEVADA					
Fallon	Churchill		7,900		7,900
Reno	Washoe		20,400		20,400
OREGON					
Adams	Umatilla	32,500			32,500
Baker	Baker	32,500			32,500
WASHINGTON					
Fairchild AFB				21,000	21,000
Geiger AFB				21,000	21,000
Pasco	Franklin	32,500			32,500
Spokane	Spokane	15,500		28,800	44,300

TABLE 36

U. S. CRUDE OIL FLOW
CRUDE OIL CAPACITIES OF REFINERIES
JANUARY 1, 1961

LOCATION	COMPANY		BARRELS PER CALENDAR DAY
P A D D I S T R I C T I			
PENNSYLVANIA, SOUTH NEW JERSEY, MARYLAND, DELAWARE			
Philadelphia Area			923,000
Philadelphia	Atlantic Refining Company	148,000	
	Gulf Oil Corporation	182,000	
Marcus Hook	Sinclair Refining Company	133,000	
	Sun Oil Company	160,000	
Paulsboro, New Jersey	Mobil Oil Company	87,000	
Westville, New Jersey and Claymont, Delaware	Texaco, Inc.	73,000	
Delaware City, Delaware	Tidewater Oil Company	140,000	
Baltimore, Maryland (3)			33,000
Other Pennsylvania (9)			50,800
			1,006,800
NEW YORK, NORTH NEW JERSEY			
Bayonne Area			424,700
Sewaren, New Jersey	Hess Trading & Transport, Inc.	71,200	
Linden, New Jersey	Cities Service Oil Company	15,000	
	Humble Oil & Refining Company	170,000	
Bayonne, New Jersey	Humble Oil & Refining Company	22,500	
Perth Amboy, New Jersey	California Oil Company	115,500	
Brooklyn, New York	Mobil Oil Company	30,500	
Other New York (2)			60,000
			484,700
MASSACHUSETTS, RHODE ISLAND			
Massachusetts, Everett	Esso Standard, Div. of Humble Oil & Refining Company		50,000
Rhode Island (2)			14,700
			64,700
P A D D I S T R I C T II			
ILLINOIS AND INDIANA			
Chicago Area			606,000
Gary, Indiana	Berry Refining Company	16,500	
Blue Island, Illinois	Clark Oil and Refining Corp.	35,000	
East Chicago, Indiana	Cities Service Oil Company	58,000	
	Sinclair Refining Company	114,000	
	Mobil Oil Company	36,000	
Hammond, Indiana	Allby Asphalt & Refining Co.	10,000	
Lemont, Illinois	Pure Oil Company	47,500	
Lockport, Illinois	Texaco, Inc.	67,000	
Whiting, Indiana	American Oil Company	222,000	
Lawrenceville, Illinois	Texaco, Inc.		67,000
Other Illinois			392,500
Hartford	Sinclair Refining Company	29,500	
East St. Louis	Mobil Oil Company	43,500	
Wood River	Shell Oil Company	186,000	
	American Oil Company	75,800	
Robinson	Ohio Oil Company	48,800	
Miscellaneous (5)		8,900	
Other Indiana			51,200
Indianapolis (Rock Island)	Rock Island Refining Company	28,000	
Mount Vernon	Indiana Farm Bureau Cooperative Association, Inc.	12,500	
Miscellaneous (4)		10,700	
			1,116,700
OHIO			231,200
Toledo	Gulf Oil Corporation	44,200	
	Pure Oil Company	38,000	
	Standard Oil Company (Ohio)	54,000	
	Sun Oil Company	95,000	
Cleveland	Standard Oil Company (Ohio)		52,000
Other			155,300
Canton	Ashland Oil & Refining Company	38,000	
Cincinnati	American Bitumuls & Asphalt Co.	12,500	
Cleves	Gulf Oil Corporation	35,300	
Lima	Standard Oil Company (Ohio)	48,000	
Newark (Heath)	Pure Oil Company	21,500	
			438,500

U. S. CRUDE OIL FLOW
CRUDE OIL CAPACITIES OF REFINERIES
JANUARY 1, 1961

LOCATION	COMPANY		BARRELS PER CALENDAR DAY
P A D D I S T R I C T II (CONT'D.)			
MICHIGAN			
Detroit Area			86,000
Detroit	Aurora Gasoline Company	44,000	
Trenton	Mobil Oil Company	35,500	
Flat Rock	Petroleum Specialties, Inc.	6,500	
Other			86,700
			172,700
OKLAHOMA			409,600
KANSAS AND MISSOURI			
Kansas City Area			127,000
Kansas City, Kansas	Phillips Petroleum Company	70,000	
Sugar Creek, Missouri	American Oil Company	57,000	
Other			276,400
			403,400
P A D D I S T R I C T III			
LOUISIANA			
Baton Rouge	Humble Oil & Refining Company		365,000
New Orleans Area			142,000
Chalmette	Bay Petroleum Corporation	40,000	
Norco	Shell Oil Company	102,000	
Lake Charles Area			238,000
Lake Charles	Cities Service Refining Corp.	185,000	
Westlake	Continental Oil Company	53,000	
Other			34,700
			779,700
MISSISSIPPI			25,500
NEW MEXICO			27,600
TEXAS			
Railroad Commission District #1			11,100
San Antonio, Bexar County	Howell Refining Company	3,500	
	Monarch Refining Company	5,000	
Carrizo Springs, Dimmit County	Texstar Petroleum Company	2,600	
Railroad Commission District #2			13,200
Pettus, Bee County	Danaho Refining Company	12,000	
Three Rivers, Live Oak County	Three Rivers Refinery	1,200	
Railroad Commission District #3			1,905,300
Sweeney, Brazoria County	Phillips Petroleum Company	95,000	
Winnie, Chambers County	Texas Gas Corporation	7,500	
Texas City, Galveston County	Plymouth Oil Company	45,000	
	American Oil Company	103,000	
	Texas City Refining, Inc.	35,000	
Baytown, Harris County	Humble Oil & Refining Company	292,300	
	Lion Oil Company	3,000	
Deer Park, Harris County	Shell Oil Company	128,000	
Houston (Pasadena), Harris County	Crown Central Petroleum Corp.	40,000	
Houston, Harris County	Signal Oil and Gas Company	60,000	
	Eddy Refining Company	2,500	
	Sinclair Refining Company	143,000	
Atreco (Port Arthur) Jefferson County	The Atlantic Refining Company	62,000	
Port Arthur, Jefferson County	Gulf Oil Corporation	269,000	
	Texaco, Inc.	280,000	
Port Neches, Jefferson County	Texaco, Inc.	40,000	
Beaumont, Jefferson County	Mobil Oil Company	220,000	
Nederland	Pure Oil Company	80,000	
Railroad Commission District #4			257,500
Brownsville	Premier Oil Refining Co. of Texas	5,000	
Port Isabel, Cameron County	Delhi-Taylor Oil Corporation	11,500	
McAllen, Hidalgo County	Rado Refining Company	1,500	
LaBlanco, Hidalgo County	Permian Corporation	5,000	
Corpus Christi, Nueces County	Howell Refining Company	5,000	
	Delhi-Taylor Oil Corp.	45,000	
	Pontiac Refining Corp.	50,000	
	Sinclair Refining Company	29,500	
	Southwestern Oil & Refining Co.	50,000	
	Suntide Refining Company	55,000	

U. S. CRUDE OIL FLOW
CRUDE OIL CAPACITIES OF REFINERIES
JANUARY 1, 1961

LOCATION	COMPANY		BARRELS PER CALENDAR DAY
P A D D I S T R I C T III (CONT'D.)			
TEXAS (Cont'd.)			
Railroad Commission District #5			11,000
Fort Worth, Tarrant County	Premier Oil Refining Co. of Texas	8,000	
Irving, Dallas County	Great Western Producers, Inc.	3,000	
Railroad Commission District #6			50,100
Longview, Gregg County	Premier Oil Refining Co. of Texas	6,000	
	Skelly Oil Company	4,500	
Tyler, Smith County	LaGloria Oil and Gas Company	16,300	
Mt. Pleasant, Titus County	American Petrofina Co. of Texas	20,000	
Tucker, Anderson County	Anderson Refining Company	1,300	
Waskom, Harrison County	Waskom Natural Gas Corporation	2,000	
Railroad Commission District #7-B			5,900
Baird, Callahan County	Premier Oil Refining Co. of Texas	3,000	
Leuders, Jones County	Petroleum Refining Company	2,200	
Abilene, Taylor County	Debco Corporation	700	
Railroad Commission District #8			127,500
El Paso, El Paso County	Standard Oil Company of Texas	53,000	
	Texaco, Inc.	16,000	
Big Spring, Howard County	Cosden Petroleum Corporation	30,000	
Colorado City, Mitchell County	Col-Tex Refining Company	13,000	
Wickett, Ward County	Wickett Refining Company	2,500	
Odessa, Ector County	El Paso Natural Gas Products Co.	13,000	
Railroad Commission District #9			25,400
Gainesville, Cooke County	The Tydal Company	2,000	
Bryson, Jack County	Bryson Pipe Line & Refining Co.	1,100	
Wichita Falls, Wichita County	Continental Oil Company	11,800	
	American Petrofina Co. of Texas	10,000	
Graham, Young County	Gratex Corporation	500	
Railroad Commission District #10			115,000
Phillips, Hutchinson County	Phillips Petroleum Company	71,000	
Amarillo, Potter County	Texaco, Inc.	19,000	
Sunray, Moore County	Shamrock Oil & Gas Corp.	25,000	
			2,522,000
P A D D I S T R I C T IV			
COLORADO			39,500
MONTANA			81,700
UTAH			101,000
WYOMING			110,200
			332,400
P A D D I S T R I C T V			
CALIFORNIA			
Los Angeles Area			798,500
El Segundo	Standard Oil Co. of California	150,000	
Santa Fe Springs	Wilshire Oil Co. of California	33,000	
Torrance	Mobil Oil Company	125,000	
Watson	Richfield Oil Corporation	165,000	
Wilmington	Shell Oil Company	68,000	
	Texaco, Inc.	60,000	
	Union Oil Co. of California	109,000	
Other (14)		88,500	
Bakersfield Area			80,700
Bakersfield	Mohawk Petroleum Corporation	9,000	
	Standard Oil Co. of California	26,000	
	Douglas Oil Co. of California	8,800	
Other (6)		36,900	
Central Coastal Area			30,200
Arroyo Grande (Santa Maria)	Union Oil Co. of California	21,500	
Santa Maria	Union Oil Co. of California	4,700	
	Douglas Oil Co. of California	4,000	
San Francisco Area			411,000
Avon	Tidewater Oil Company	108,000	
Martinez	Shell Oil Company	55,000	
Richmond	Standard Oil Co. of California	210,000	
Rodeo (Oleum)	Union Oil Co. of California	38,000	
			1,320,400
WASHINGTON			
Anacortes	Texaco, Inc.		45,000
	Shell Oil Company		55,000
Edmonds	Union Oil Co. of California		4,000
Ferndale	Mobil Oil Company		40,000
Tacoma	U. S. Oil Refining Company		12,500
			156,500

CRUDE OIL DELIVERED TO UNITED STATES REFINERIES
(Thousands of Barrels)

YEAR	BY BOAT* VOLUME	%	BY PIPELINE VOLUME	%	BY TANK CAR & TRUCK VOLUME	%	TOTAL
1938	283,000	24.3	854,400	73.2	29,700	2.5	1,167,100
1939	294,400	23.8	901,800	72.9	40,400	3.3	1,236,600
1940	320,300	24.7	939,900	72.3	38,800	3.0	1,299,000
1941	319,600	22.7	1,042,000	73.9	48,500	3.4	1,410,100
1942	131,700	10.0	1,061,700	80.0	134,300	10.0	1,327,700
1943	103,400	7.2	1,178,900	82.1	153,900	10.7	1,436,200
1944	165,100	9.9	1,390,400	83.3	113,000	6.8	1,668,500
1945	281,700	16.3	1,367,900	79.4	74,300	4.3	1,723,900
1946	409,000	23.5	1,290,300	74.3	37,900	2.2	1,737,200
1947	447,116	24.1	1,362,526	73.4	45,958	2.5	1,855,600
1948	515,083	25.2	1,474,655	72.0	56,866	2.8	2,046,604
1949	478,059	24.6	1,433,678	73.7	33,837	1.7	1,945,574
1950	527,268	25.1	1,541,321	73.4	31,541	1.5	2,100,130
1951	573,805	24.2	1,756,209	74.0	42,015	1.8	2,372,029
1952	621,509	25.4	1,795,150	73.4	30,694	1.2	2,447,353
1953	637,236	24.9	1,889,196	73.7	37,547	1.4	2,563,979
1954	603,507	23.8	1,896,258	74.8	36,796	1.4	2,536,561
1955	626,159	22.9	2,068,748	75.7	37,010	1.4	2,731,917
1956	691,617	23.7	2,185,646	75.1	34,982	1.2	2,912,245
1957	723,874	25.0	2,135,186	73.6	39,946	1.4	2,899,006
1958	688,457	24.9	2,047,060	73.8	36,795	1.3	2,772,312
1959	693,595	23.8	2,184,648	74.8	41,083	1.4	2,919,326
1960	717,553	24.3	2,189,510	74.2	44,020	1.5	2,951,083

* Includes Foreign

Source: Monthly Petroleum Statement, Table 20, Bureau of Mines, Department of the Interior. Figures tabulated and summarized in this statement by Association of Oil Pipe Lines, Washington, D. C., March 16, 1961.

TABLE 38

DELIVERY OF PRODUCTS BY PIPELINES
(Thousands of Barrels)

YEAR	GASOLINE	KEROSENE	DISTILLATE	NATURAL GAS LIQUIDS	TOTAL	B/D
1938	85,297	*	*	*	85,297	234
1939	94,708	*	*	*	94,708	259
1940	96,657	*	*	*	96,657	264
1941	111,077	*	*	*	111,077	304
1942	125,341	*	*	*	125,341	343
1943	151,015	*	*	*	151,015	414
1944	208,858	12,512	43,537	*	264,907	724
1945	223,701	12,334	31,867	*	267,902	734
1946	178,700	11,352	26,102	*	216,154	592
1947	198,912	14,563	37,352	*	250,827	687
1948	243,151	17,655	47,758	*	308,564	843
1949	277,998	17,666	49,097	*	344,761	945
1950	306,415	20,315	66,380	*	393,110	1,077
1951	343,509	22,358	88,017	2,091	455,975	1,249
1952	378,687	25,511	101,588	2,293	508,079	1,388
1953	419,086	28,426	112,583	3,602	563,697	1,544
1954	483,762	33,747	137,802	5,299	660,610	1,810
1955	550,805	35,771	165,103	6,378	758,057	2,077
1956	604,222	37,292	190,061	11,661	843,236	2,304
1957	644,661	37,648	200,017	16,506	898,832	2,463
1958	658,645	45,036	204,628	33,426	941,735	2,580
1959	708,218	47,692	225,557	40,240	1,021,707	2,799
1960	711,956	53,182	232,853	50,704	1,048,695	2,865

* Figures not available.

Source: Monthly Petroleum Statement, Table 14, Bureau of Mines, Department of the Interior. Figures tabulated and summarized in this table by Association of Oil Pipe Lines, Washington, D. C., March 16, 1961.

DELIVERY OF PRODUCTS BY PIPELINES VS.
TOTAL DEMAND FOR LIGHT PRODUCTS
(Exclusive of Natural Gas Liquids)

THOUSANDS OF BARRELS

YEAR	DOMESTIC DEMAND				PIPELINE DELIVERY	B/D	% OF DOMESTIC DEMAND
	GASOLINE	KEROSENE	DISTILLATE	TOTAL			
1938	523,003	56,360	117,449	696,812	85,297*	234*	16.31*
1939	555,509	60,503	134,973	750,985	94,708*	259*	17.05*
1940	589,490	68,776	160,851	819,117	96,657*	264*	16.40*
1941	667,505	69,469	172,824	909,798	111,077*	304*	16.64*
1942	589,110	69,767	185,661	844,538	125,341*	343*	21.28*
1943	568,238	68,598	208,110	844,946	151,015*	414*	26.58*
1944	632,482	71,812	209,320	913,614	264,907	724	29.00
1945	696,333	75,573	226,084	997,990	267,902	734	26.84
1946	735,417	89,088	242,894	1,067,399	216,154	592	20.25
1947	795,015	102,519	298,273	1,195,807	250,827	687	20.98
1948	871,270	112,220	340,576	1,324,066	308,562	843	23.30
1949	913,713	102,672	329,278	1,345,663	344,761	945	25.62
1950	994,290	117,844	394,885	1,507,019	393,110	1,077	26.09
1951	1,089,566	123,241	447,278	1,660,085	453,884	1,244	27.34
1952	1,142,987	121,253	476,986	1,741,226	505,786	1,382	29.05
1953	1,205,775	114,467	488,075	1,808,317	560,095	1,535	30.97
1954	1,230,595	118,311	526,347	1,875,253	655,311	1,795	34.95
1955	1,334,205	116,808	581,128	2,032,141	751,679	2,059	36.99
1956	1,373,079	117,324	615,856	2,106,259	831,575	2,272	39.48
1957	1,392,953	107,701	616,090	2,116,744	882,326	2,417	41.70
1958	1,435,897	113,279	653,426	2,202,602	908,309	2,489	41.24
1959	1,485,277	109,919	659,983	2,255,179	981,467	2,689	43.52
1960	1,517,407	132,519	685,976	2,335,902	997,991	2,727	42.72

* Movement of gasoline only. Figures for Kerosene and Distillate not available.

Source: Monthly Petroleum Statement, Table 14, Bureau of Mines, Department of the Interior. Figures tabulated and summarized in this table by Association of Oil Pipe Lines, Washington, D. C., March 16, 1961.

TABLE 40

SUMMARY OF PETROLEUM BARGE SHIPMENTS FROM TEXAS, LOUISIANA, ARKANSAS AND MISSISSIPPI (GULF COAST) PORTS TO SOUTH ATLANTIC AND MISSISSIPPI RIVER PORTS

YEAR	CRUDE OIL		REFINED PRODUCTS		TOTAL	
	BARRELS	B/D	BARRELS	B/D	BARRELS	B/D
1947	17,354,832	47,548	49,694,893	136,150	67,049,725	183,698
1948	21,983,662	60,064	57,330,889	156,642	79,314,551	216,706
1949	14,079,306	38,573	61,411,034	168,250	75,490,340	206,823
1950	11,880,224	32,549	77,696,120	212,866	89,576,344	245,415
1951	6,969,600	19,095	84,593,972	231,764	91,563,572	250,859
1952	8,899,903	24,317	60,720,026	165,901	69,619,929	190,218
1953	8,157,946	22,350	56,355,928	154,400	64,513,874	176,750
1954	5,605,899	15,359	62,714,768	171,821	68,320,667	187,180
1955	5,137,545	14,075	76,283,768	208,997	81,421,313	223,072
1956	2,979,254	8,140	87,477,393	239,009	90,456,647	247,149
1957	572,035	1,567	92,992,039	254,773	93,564,074	256,340
1958	3,552,423	9,733	87,178,415	238,845	90,730,838	248,578
1959	14,298,821	39,175	98,945,382	271,083	113,244,203	310,258
1960	17,606,004	48,104	88,671,118	242,271	106,277,122	290,375

Source: Monthly Summaries of Tanker and Barge Commercial Shipments (OCR-1) Geological Survey, Conservation Division, Department of the Interior.

Figures summarized and tabulated in this statement by Association of Oil Pipe Lines, Washington, D. C., March 1, 1961.

TABLE 41

MOVEMENTS OF CRUDE OIL AND REFINED PRODUCTS BY WATER
GULF COAST TO EAST COAST PORTS IN THE U. S.
(Thousands of Barrels)

	CRUDE OIL		REFINED PRODUCTS								CRUDE & REFINED	
YEAR	TOTAL	B/D	GASOLINE	KEROSENE	DISTILLATE FUEL OIL	RESIDUAL FUEL OIL	LUBRICATING OILS	MISC. OILS	TOTAL	B/D	TOTAL	B/D
1940	162,063	442.8	119,142	27,262	44,429	67,346	7,463	616	266,258	727.5	428,321	1,170.3
1941	147,288	403.5	130,534	25,300	42,620	75,923	8,148	956	283,481	776.7	430,769	1,180.2
1942	30,803	84.4	33,752	9,000	20,341	27,149	2,130	639	93,011	254.8	123,814	339.2
1943	4,988	13.7	22,431	5,116	14,832	13,046	3	851	56,279	154.2	61,627	167.9
1944	14,248	38.9	23,133	5,185	13,123	20,453	-	194	62,088	169.6	76,336	208.5
1945	73,502	201.4	48,793	13,228	28,175	37,192	1,024	2,177	130,589	357.8	204,091	559.2
1946	189,961	520.4	123,967	34,335	68,851	55,186	6,600	2,790	291,729	799.3	481,690	1,319.7
1947	197,322	540.6	132,630	34,222	80,533	61,189	7,289	3,271	319,134	874.3	516,456	1,414.9
1948	196,763	537.6	145,790	40,020	104,609	68,662	7,657	4,524	371,262	1,014.4	568,025	1,552.0
1949	143,023	391.9	155,590	35,045	102,147	67,425	7,288	4,343	371,838	1,018.7	514,861	1,410.6
1950	163,743	448.6	166,696	41,746	115,328	59,292	6,817	5,978	395,857	1,084.5	559,600	1,533.1
1951	194,913	534.0	180,126	43,516	129,953	60,379	9,879	10,921	434,774	1,191.1	629,687	1,725.1
1952	179,718	491.0	177,798	41,783	137,654	59,122	7,755	10,417	434,529	1,187.2	614,247	1,678.2
1953	176,791	484.3	189,019	38,930	131,733	63,876	7,903	12,665	444,126	1,216.8	620,917	1,701.1
1954	162,280	444.6	195,472	41,447	145,513	57,869	7,984	13,033	461,318	1,263.9	623,598	1,708.5
1955	159,492	437.0	219,410	43,845	169,397	51,844	9,704	8,857	503,057	1,378.2	662,549	1,815.2
1956	168,793	461.2	227,938	45,623	191,706	55,728	8,749	12,230	541,974	1,480.8	710,767	1,942.0
1957	191,127	523.6	225,020	39,593	166,919	49,067	7,920	10,177	498,696	1,366.3	689,823	1,889.9
1958	164,209	449.9	224,063	41,490	167,153	47,527	7,777	9,653	497,663	1,363.4	661,872	1,813.3
1959	166,787	457.0	229,228	42,157	167,819	43,430	7,911	10,323	500,868	1,372.2	667,655	1,829.2
1960	160,498	438.5	244,727	44,086	173,510	50,073	7,784	13,693	533,873	1,458.7	694,371	1,897.2

Source: Monthly Petroleum Statement. Table 16, Bureau of Mines, Department of the Interior. Figures tabulated and summarized in this statement by Association of Oil Pipe Lines, Washington, D. C., March 16, 1961.

TABLE 42

MOVEMENT OF CRUDE OIL AND REFINED PRODUCTS BY WATER
CALIFORNIA TO EAST COAST PORTS IN THE U. S.
(Thousands of Barrels)

	CRUDE OIL		REFINED PRODUCTS								CRUDE & REFINED	
YEAR	TOTAL	B/D	GASOLINE	KEROSENE	DISTILLATE FUEL OIL	RESIDUAL FUEL OIL	LUBRICAT-ING OILS	MISCL. OILS	TOTAL	B/D	TOTAL	B/D
1940	678	1.9	3,966	94	721	566	-	724	6,071	16.6	6,749	18.5
1941												
1942												
1943			Data not available for									
1944			1941 - 1945									
1945												
1946	-	-	551	-	-	-	189	-	740	2.0	740	2.0
1947	-	-	587	-	161	1	196	-	945	2.6	945	2.6
1948	-	-	652	-	1,177	97	162	-	2,088	5.7	2,088	5.7
1949	-	-	742	-	66	6,419	273	66	7,566	20.7	7,566	20.7
1950	-	-	5,938	-	1,554	15,429	379	150	23,450	64.2	23,450	64.2
1951	-	-	-	-	34	140	333	70	577	1.6	577	1.6
1952	-	-	-	-	6	-	275	291	572	1.6	572	1.6
1953	-	-	-	-	6	-	367	360	733	2.0	733	2.0
1954	-	-	154	-	-	1,638	240	464	2,496	6.8	2,496	6.8
1955	514	1.4	-	-	113	11,464	322	662	12,561	34.4	13,075	35.8
1956	-	-	-	-	-	182	414	565	1,161	3.2	1,161	3.2
1957	-	-	-	-	-	-	428	551	979	2.7	979	2.7
1958	1,243	3.4	280	-	1,987	3,162	395	534	6,571	18.0*	7,814	21.4*
1959	3,440	9.4	1,132	-	2,370	5,194	457	2,202	11,355	31.1	14,795	40.5
1960	2,12?	5.8	1,235	-	1,687	5,824	621	661	10,028	27.4	12,150	33.2

* Includes 213 of unfinished oil.