

PETROLEUM STORAGE CAPACITY

**A REPORT OF
THE NATIONAL PETROLEUM COUNCIL
1963**

NATIONAL PETROLEUM COUNCIL
REPORT OF THE COMMITTEE ON
PETROLEUM STORAGE CAPACITY (1962)

MARCH 22, 1963

R. L. MILLIGAN
CHAIRMAN OF THE COMMITTEE

NATIONAL PETROLEUM COUNCIL

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Vincent M. Brown
Secretary-Treasurer

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

C
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November 20, 1961

Dear Mr. Hallanan:

The National Petroleum Council prepared reports on petroleum storage capacity including information on usable and non-usable inventories in 1948, 1950, 1952 and 1957. This information is extremely valuable to the Government for use in mobilization planning. As it has been approximately five years since the last report of this type, it is desirable that the Government again have a comprehensive study indicating the relationship between usable inventory and storage capacity of crude oil, natural gas liquids and major petroleum products.

It is requested that the National Petroleum Council bring up to date its report of October 1957, together with making any recommendations or comments as are considered appropriate. The Office of Oil and Gas will supply further information as desired on the scope and details of the requested study.

Sincerely yours,

/S/ JOHN M. KELLY

Assistant Secretary of
the Interior

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

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PETROLEUM STORAGE CAPACITY (1962)

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Vincent M. Brown
National Petroleum Council

NATIONAL PETROLEUM COUNCIL
REPORT OF THE COMMITTEE ON
PETROLEUM STORAGE CAPACITY (1962)

Members of the National Petroleum Council:

Gentlemen:

This report is in response to recommendations of the Agenda Committee dated November 28, 1961, and adopted by the Council wherein it was agreed to undertake a study in response to the request, received November 20, 1961, from Hon. John M. Kelly, Assistant Secretary of the Interior, that the National Petroleum Council bring up to date its report of October 1957 pertaining to the above ground storage capacity in the United States for crude oil and the principal petroleum products, - gasoline, kerosine, distillate fuel oils and residual fuel oils, as well as a reappraisal of the portion of these products reported in inventory but unavailable. Information concerning natural gas liquids was also included in the request which heretofore had not been a part of the previous reports.

In accord with this action your Committee on Petroleum Storage Capacity was formed and requested to develop the present situation in the industry with respect to these items.

These surveys are the only ones of this kind that have been developed for the industry as a whole.

The relatively long delay between the date of the Council's request to our Committee and that of this report was occasioned by the temporary suspension of committee activities pending clarification of the Council's status under the conflict of interest statutes, which clarification was obtained in August, 1962.

In order to be able to use a date as of which the information in this report was gathered as near as possible to the date of this report it was necessary to use September 30, 1962. All five previous storage capacity reports (1948, 1950, 1952, 1954 and 1957) were at March 31, except that for 1950, which was as of June 30. While there are some advantages in respect of comparability from the use of the same date in each report, it is our opinion that the desirability of more current information should be determining.

In view of this change in the reporting date it is necessary to consider the seasonal factor when comparing this analysis with previous reports. The seasonal factor is of particular significance in respect of clean products, i.e.: gasoline, kerosine and distillates.

This report includes operations within the States of Alaska and Hawaii for the first time. They are included as a part of West Coast, District V, and are also shown separately in the tabular data appended to this report as Exhibit 1 to 5 inclusive. This report also reflects the change in the Bureau of Mines method of reporting gasoline inventories, effective as of January 1, 1962, as a result of which unfinished gasolines have been omitted from the gasoline inventory category in this report, but are included as unfinished oils in the Bureau of Mines reports.

Questionnaires were sent, along with the necessary map showing district outlines, definitions, and other explanations, to all holders of crude oil, natural gas liquids, and principal petroleum products inventories at refineries, pipelines, tank farms, and bulk terminals. No data in respect of inventories or storage capacity, if any, in the hands and control of the military was requested or included in this report.

Your Committee appreciates the extremely gratifying response shown by the industry and takes this opportunity to thank all of those who participated in this survey and so promptly returned the information requested.

In comparison with inventories reported by the Bureau of Mines as of September 30, 1962, the crude oil section of

this report represents 97.2 percent of the refinery, pipeline and tank farm stocks, and crude oil in transit. The gasoline figures reported to the survey total 98.0 percent of all of that product reported in inventory; while kerosine covered 97.5 percent; distillate fuel oil 98.2 percent; and residual fuel oil 96.5 percent.

These inventories were reported as either available or unavailable. Unavailable inventories include tank bottoms, pipeline fill, in transit, operating stocks, etc. The available inventories include both those that could be shipped currently for immediate consumption, and those that have been accumulated against normal seasonal requirements.

Attached to this report, as Exhibits 1 through 5, are copies of the questionnaire forms on which all reported data have been summarized.

CRUDE OIL

The following is a summary of the returns of the crude oil section.

TABLE I

CRUDE OIL INVENTORIES, STORAGE CAPACITY AND UNAVAILABLES
(EXCLUDING PRODUCERS' LEASE STOCKS)

SEPTEMBER 30, 1962 - (Thousands of Barrels)

(1) <u>Total Inventories:</u>	
Reported by Bureau of Mines	223,939
Reported to Survey	217,626
Survey Represents (Percent)	97.2
(2) <u>Total Unavailable:</u>	159,407
Percent of Reported Inventories	73.2
(3) <u>Available For Use or Shipment:</u>	58,219
Percent of Reported Inventories	26.8
(4) <u>Storage Capacity *</u>	395,255
(5) <u>Amount in Tanks:</u>	162,747
Percent Full	41.2

* - Includes about 7,300,000 barrels of reservoir storage in West Coast (California).

The following Table II shows the crude oil information by the five Bureau of Mines major supply and demand districts.

TABLE II

ANALYSIS OF ACTUAL AND UNAVAILABLE CRUDE OIL INVENTORIES AND STORAGE CAPACITY

SEPTEMBER 30, 1962 - (Thousands of Barrels)

<u>DISTRICT</u>	<u>ACTUAL</u>	<u>QUESTIONNAIRES</u>		<u>UNAVAILABLE</u>		<u>STORAGE SEPT. 30, 1962.</u>	
	<u>B. OF M.</u>	<u>RETURNED</u>		<u>IN COLUMN 2</u>		<u>CAPACITY</u>	<u>AMOUNT</u>
	<u>SEPT. 30, 1962</u>	<u>TOTAL</u>	<u>PERCENT</u>	<u>TOTAL</u>	<u>PERCENT</u>	<u>REPORTED*</u>	<u>IN TANKS (a)</u>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<u>INVENTORIES AT REFINERIES, IN PIPELINE AND TANK FARM AND IN TRANSIT THERETO:</u>						
I	18,460	16,685	90.4	11,588	69.5	30,270	14,476
II	64,539	60,936	94.4	45,306	74.3	105,419	40,875
III	103,038	104,350	101.3	77,047	73.8	178,665	79,471
IV	10,890	11,395	104.6	8,512	74.7	19,726	6,330
V	<u>27,012</u>	<u>24,260</u>	<u>89.8</u>	<u>16,954</u>	<u>69.9</u>	<u>61,175</u>	<u>21,595</u>
TOTAL U. S.	223,939	217,626	97.2	159,407	73.2	395,255	162,747 (a)
	<u>PRODUCERS' LEASE STOCKS - NO ANALYSIS REQUESTED - CONSIDERED OPERATING STOCKS</u>						
	(Shown as Reported by U. S. Bureau of Mines)						
TOTAL U. S.	20,287	20,287	100.0	20,287	100.0	NOT AVAILABLE	20,287
	<u>TOTAL ALL CRUDE OIL STOCKS</u>						
UNITED STATES	244,226	237,913	97.4	179,694	75.5	NOT AVAILABLE	183,034

* - Includes about 7,300,000 barrels of reservoir storage in District V.

(a) Total Crude Stocks Excluding Producers' Lease Stocks, In Transit and Pipeline Fill.

This sixth study of petroleum storage capacity affords an opportunity for analysis of trends over a fourteen year period. The more significant trends with respect to crude oil are shown in Table III.

COMMENTS

1. Total crude oil stocks have increased only 4 million barrels during the fourteen year period. This is an increase of only 2 percent during a time period when total crude runs to refineries have increased by 49 percent. However, the available crude stocks have dropped by 22 million barrels.

This reduction in available crude oil inventories has been possible because of the present ready availability of crude oil to refineries resulting from reserve producing capacity and increased transportation efficiency.

2. The increased quantity of inventory tied up in pipeline fill amounts to 21 million barrels. An additional increase of 7 million barrels was unavailable as the minimum required in refinery pipelines and amounts required to assure continuous operations. These two items are the primary explanation of the increased unavailable quantities of crude oil.

TABLE III

ANALYSIS OF CRUDE OIL STOCKS

(EXCLUDING PRODUCERS' LEASE STOCKS AND CARGOES
IN TRANSIT FROM FOREIGN COUNTRIES)

(Thousands of Barrels)

	<u>MARCH 31,</u> <u>1948</u>	<u>JUNE 30,</u> <u>1950</u>	<u>MARCH 31,</u> <u>1952</u>	<u>MARCH 31,</u> <u>1954</u>	<u>MARCH 31,</u> <u>1957</u>	<u>SEPT. 30,</u> <u>1962</u>
Total Stocks Held by Reporting Companies	213,224	224,948	238,413	243,692	225,516	217,626
<u>Unavailable Stocks</u>						
Contents of Tank Bottoms, in Refinery Pipelines and minimum quantity required to assure con- tinuous processing, handling and blending various grades of Crude Oil	34,067	38,031	39,364	41,423	41,277	41,431
Pipeline Fill	30,579	36,618	41,028	44,341	47,036	51,722
Other Unavailable	<u>68,279</u>	<u>67,790</u>	<u>70,514</u>	<u>80,884</u>	<u>69,269</u>	<u>66,254</u>
Total Unavailable	132,925	142,439	150,906	166,648	157,582	159,407
Unavailable Percent of Total Reported	<u>62.3%</u>	<u>63.3%</u>	<u>63.3%</u>	<u>68.4%</u>	<u>69.9%</u>	<u>73.2%</u>
Total Available	<u>80,299</u>	<u>82,509</u>	<u>87,507</u>	<u>77,044</u>	<u>67,934</u>	<u>58,219</u>

CLEAN PRODUCTS

In previous Council surveys of storage capacity until that in 1957 only "clean" products as a group were shown. This was thought desirable because of the great degree of interchangeability of storage as between and among these products. For this reason comparison of total "clean" products is continued. However, since 1957 we have been obtaining information for gasoline, kerosine and distillate fuel oil separately as shown in Table IV on the following page.

1. Gasoline inventories at September 30, 1962, as reported in this survey are 23 million barrels below those reported at March 31, 1957. This difference reflects three factors:

- a. The seasonal factor whereby clean product stocks are high in the spring to satisfy heating oil requirements which automatically increase gasoline stocks. On the other hand in the late summer and fall increased gasoline demand decreases gasoline stocks. In comparing inventories for March 31, 1962 with September 30, 1962 the seasonal difference can be calculated from Bureau of Mines figures to be 26 million barrels.

TABLE IV

CLEAN PRODUCTS
INVENTORIES, STORAGE CAPACITY AND UNAVAILABLES
 (Thousands of Barrels)

	<u>GASOLINE</u>		<u>KEROSINE</u>		<u>DISTILLATE FUEL OIL</u>		<u>TOTAL CLEAN PRODUCTS</u>	
	<u>MAR. 31,</u> <u>1957</u>	<u>SEPT. 30,</u> <u>1962</u>	<u>MAR. 31,</u> <u>1957</u>	<u>SEPT. 30,</u> <u>1962</u>	<u>MAR. 31,</u> <u>1957</u>	<u>SEPT. 30,</u> <u>1962</u>	<u>MAR. 31,</u> <u>1957</u>	<u>SEPT. 30,</u> <u>1962</u>
(1) <u>Total Inventories:</u>								
Reported by Bureau of Mines	206,716	179,896	20,223	36,682	76,245	177,030	303,184	393,608
Reported to Survey	199,064	176,222	19,712	35,776	75,351	173,842	294,127	385,840
Survey Represents (Percent)	96.3	98.0	97.5	97.5	98.8	98.2	97.0	98.0
(2) <u>Total Unavailable:</u>	71,287	60,493	6,471	8,092	25,781	30,561	103,539	99,146
Percent of Reported Inventories	35.8	34.3	32.8	22.6	34.2	17.6	35.2	25.7
(3) <u>Available for Current Shipment, or Held as Seasonal Requirements:</u>	127,777	115,729	13,241	27,684	49,570	143,281	190,588	286,694
Percent of Reported Inventories	64.2	65.7	67.2	77.4	65.8	82.4	64.8	74.3
(4) <u>Storage Capacity Assigned:</u>	331,413	341,979	45,868	61,922	182,534	252,146	559,815	656,047
(5) <u>Amount in Tanks:</u>	182,802	159,534	18,665	34,402	69,131	166,956	270,598	360,892
Percent Full	55.2	46.7	40.7	55.6	37.9	66.2	48.3	55.0

- b. A change in method of reporting inventories to the Bureau of Mines (effective January 1, 1962) wherein unfinished gasoline stocks have been eliminated from the gasoline category. This accounts for 10 million barrels of the difference between 1957 and 1962.
- c. After eliminating unfinished gasoline from the reported gasoline totals, finished gasoline stocks have increased about 13 million barrels between 1957 and 1962. A significant part of this buildup is to accomodate the larger volume of business now being transacted.

The difference in unavailable stocks is accounted for by the elimination of unfinished inventories in the current method of reporting stocks to the Bureau of Mines. Considering the change in reporting, no significant percentage change in unavailable stocks has occurred between March 31, 1957 and September 30, 1962.

2. Kerosine and distillate fuel oils reflect the industry buildup for the heating season. In comparing September 30, 1962, with March 31, 1957, the present survey shows kerosine stocks up 16 million barrels, with available stocks up 14 million barrels, and distillate fuel oil stocks up 99 million barrels with available stocks up 94 million barrels.

The increase of 115 million barrels in kerosine and distillate stocks is in line with the seasonal inventory buildup between March 31, 1962 and September 30, 1962 reported by the Bureau of Mines. On the other hand, unavailable inventories increased only 6 million barrels. Thus the effective inventory level has changed little over the five year period. The large changes in percentages of available and unavailable inventories are almost totally due to the seasonal factor.

Tables V, VI, and VII which follow, show the details of Table IV by Bureau of Mines Refining Districts, for gasoline, kerosine and distillate fuel oil individually.

The analysis of "Clean Products" inventories shown in Table VIII indicates that total stocks over the fourteen year period have increased by 236 million barrels, of which 212 million barrels was in available stocks and only an increase of 24 million barrels in unavailable stocks. However, after eliminating unfinished stocks at refineries from the figure prior to 1962, previously referred to, unavailable stocks show an aggregate increase of 33 million barrels.

For a review of the indicated increase in available stocks reference is made to the notes to Table IV.

TABLE V
ANALYSIS OF ACTUAL AND UNAVAILABLE INVENTORIES AND STORAGE CAPACITY
AS OF SEPTEMBER 30, 1962 - FOR GASOLINE
(Thousands of Barrels)

<u>B. OF M. REFINING DISTRICTS</u>	<u>ACTUAL B. OF M. SEPT. 30, 1962</u>	<u>QUESTIONNAIRES RETURNED</u>		<u>UNAVAILABLE IN COLUMN 2</u>		<u>STORAGE SEPT. 30, 1962</u>	
		<u>TOTAL</u>	<u>PERCENT</u>	<u>TOTAL</u>	<u>PERCENT</u>	<u>REPORTED CAPACITY</u>	<u>AMOUNT IN TANKS</u>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>INCLUDES INVENTORIES AT REFINERIES, TERMINALS, PIPELINES AND IN TRANSIT THERETO:</u>							
<u>EXCLUDES GASOLINE COMPONENT OF JET FUELS</u>							
EAST COAST	45,289	45,124	99.6	15,379	34.1	79,767	40,734
<u>APPALACHIAN</u>							
District I	5,213	4,998	95.9	1,391	27.8	9,497	4,278
District II	3,110	3,125	100.5	674	21.6	6,047	2,905
IND. ILL. KY.	30,702	29,884	97.3	11,443	38.3	60,025	26,662
MINN. WISC. N. & S. DAK.	6,093	6,101	100.1	2,217	36.3	12,284	5,278
OKLA. KANS. MO.	15,392	15,597	101.3	6,201	39.8	29,820	12,748
TEXAS INLAND	6,545	6,376	97.4	2,228	34.9	13,137	5,638
TEXAS GULF	22,125	20,943	94.7	6,015	28.7	44,867	20,273
LOUISIANA GULF	10,868	10,816	99.5	2,150	19.9	19,878	10,200
NORTH LA.-ARK.	6,269	6,481	103.4	1,714	26.4	9,511	5,443
NEW MEXICO	803	559	69.6	173	30.9	780	440
OTHER ROCKY MOUNTAIN	<u>4,205</u>	<u>4,049</u>	96.3	<u>1,797</u>	44.4	<u>9,903</u>	<u>3,461</u>
TOTAL U.S. EXCLUDING WEST COAST - ALASKA & HAWAII	156,614	154,053	98.4	51,382	33.4	295,516	138,060
WEST COAST - ALASKA AND HAWAII	<u>23,282</u>	<u>22,169</u>	95.2	<u>9,111</u>	41.1	<u>46,463</u>	<u>21,474</u>
TOTAL U. S.	179,896	176,222	98.0	60,493	34.3	341,979	159,534

TABLE VI
ANALYSIS OF ACTUAL AND UNAVAILABLE INVENTORIES AND STORAGE CAPACITY

AS OF SEPTEMBER 30, 1962 - FOR KEROSENE
(Thousands of Barrels)

<u>B. OF M.</u> <u>REFINING</u> <u>DISTRICTS</u>	<u>ACTUAL</u>	<u>QUESTIONNAIRES</u>		<u>UNAVAILABLE</u>		<u>STORAGE SEPT. 30, 1962</u>	
	<u>B. OF M.</u> <u>SEPT. 30, 1962</u>	<u>TOTAL</u>	<u>PERCENT</u>	<u>IN COLUMN 2</u>	<u>PERCENT</u>	<u>CAPACITY</u>	<u>AMOUNT</u>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<u>INCLUDES INVENTORIES AT REFINERIES, TERMINALS, PIPELINES AND IN TRANSIT THERETO:</u>						
	<u>EXCLUDES KEROSENE COMPONENT OF JET FUELS</u>						
EAST COAST	14,273	13,939	97.7	3,371	24.2	23,307	13,141
<u>APPALACHIAN</u>							
District I	881	797	90.5	143	17.9	1,401	757
District II	451	452	100.2	77	17.0	1,091	448
IND. ILL. KY.	7,229	6,613	91.5	1,671	25.3	11,006	6,380
MINN. WISC. N. & S. DAK.	1,732	1,961	113.2	418	21.3	3,266	1,936
OKLA. KANS. MO.	1,637	1,680	102.6	381	22.7	3,471	1,650
TEXAS INLAND	671	624	93.0	137	22.0	1,337	608
TEXAS GULF	4,293	4,305	100.3	645	15.0	7,247	4,203
LOUISIANA GULF	2,236	2,236	100.0	237	10.6	3,600	2,233
NORTH LA.-ARK.	658	658	100.0	140	21.3	1,119	579
NEW MEXICO	72	38	52.8	4	10.5	63	38
OTHER ROCKY MOUNTAIN	<u>701</u>	<u>624</u>	89.0	<u>114</u>	18.3	<u>944</u>	<u>620</u>
TOTAL U.S. EXCLUDING WEST COAST - ALASKA & HAWAII	34,834	33,927	97.4	7,338	21.6	57,852	32,593
WEST COAST - ALASKA AND HAWAII	<u>1,848</u>	<u>1,849</u>	100.1	<u>754</u>	40.8	<u>4,070</u>	<u>1,809</u>
TOTAL U. S.	36,682	35,776	97.5	8,092	22.6	61,922	34,402

TABLE VII
ANALYSIS OF ACTUAL AND UNAVAILABLE INVENTORIES AND STORAGE CAPACITY
AS OF SEPTEMBER 30, 1962 - FOR DISTILLATE FUEL OILS
(Thousands of Barrels)

<u>B. OF M.</u> <u>REFINING</u> <u>DISTRICTS</u>	<u>ACTUAL</u>	<u>QUESTIONNAIRES</u>		<u>UNAVAILABLE</u>		<u>STORAGE SEPT. 30, 1962</u>	
	<u>B. OF M.</u> <u>SEPT. 30, 1962</u>	<u>TOTAL</u>	<u>PERCENT</u>	<u>TOTAL</u>	<u>PERCENT</u>	<u>REPORTED</u>	<u>AMOUNT</u>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>INCLUDES INVENTORIES AT REFINERIES, TERMINALS, PIPELINES AND IN TRANSIT THERETO:</u>							
<u>EXCLUDES DISTILLATE COMPONENT OF JET FUELS, AND MIDDLE DISTILLATE CRACKING STOCK:</u>							
<u>THE LATTER IS CLASSIFIED BY THE BUREAU OF MINES AS AN UNFINISHED OIL</u>							
EAST COAST	68,344	65,546	95.9	11,575	17.7	90,975	63,255
<u>APPALACHIAN</u>							
District I	4,332	4,199	96.9	477	11.4	6,123	4,031
District II	2,167	2,168	100.0	305	14.1	3,235	2,095
IND. ILL. KY.	27,539	27,276	99.0	4,504	16.5	41,301	26,418
MINN. WISC.							
N. & S. DAK.	8,325	8,287	99.5	1,239	15.0	12,189	7,927
OKLA. KANS. MO.	13,760	14,015	101.9	3,342	23.8	19,204	12,155
TEXAS INLAND	1,740	1,605	92.2	601	37.4	3,853	1,564
TEXAS GULF	21,882	22,792	104.2	2,596	11.4	29,866	22,537
LOUISIANA GULF	8,328	8,313	99.8	844	10.2	11,168	8,260
NORTH LA.-ARK.	2,642	2,408	91.1	417	17.3	3,362	2,163
NEW MEXICO	149	113	75.8	14	12.4	201	113
OTHER ROCKY MOUNTAIN	<u>3,236</u>	<u>3,064</u>	94.7	<u>671</u>	21.9	<u>4,846</u>	<u>2,862</u>
TOTAL U.S. EXCLUDING WEST COAST - ALASKA & HAWAII	162,444	159,786	98.4	26,585	16.6	226,323	153,380
WEST COAST - ALASKA AND HAWAII	<u>14,586</u>	<u>14,056</u>	96.4	<u>3,976</u>	28.3	<u>25,823</u>	<u>13,576</u>
TOTAL U. S.	177,030	173,842	98.2	30,561	17.6	252,146	166,956

TABLE VIII

ANALYSIS OF CLEAN PRODUCTS STOCKS
(Thousands of Barrels)

	<u>MARCH 31,</u> <u>1948</u>	<u>JUNE 30,</u> <u>1950</u>	<u>MARCH 31,</u> <u>1952</u>	<u>MARCH 31,</u> <u>1954</u>	<u>MARCH 31,</u> <u>1957</u>	<u>SEPT. 30,</u> <u>1962</u>
Total Stocks Held by Reporting Companies	149,903	180,595	220,283	251,450	294,127	385,840
<u>Unavailable Stocks</u>						
Tank Bottoms	22,262	24,176	26,128	28,865	27,834	32,648
Unfinished at Refineries*	8,957	9,403	10,739	7,234	11,520	--- *
Refinery Lines and Operating Equipment	1,524	1,641	1,768	1,772	1,802	7,190
One-Half Average Size Water Cargo Receipt	9,993	10,077	13,083	13,417	14,856	15,682
Other Unavailable Stocks	14,776	11,877	14,648	12,557	12,836	8,977
Pipeline Fill	4,813	4,046	8,202	12,747	14,816	17,022
Pipeline Operating Requirements	6,446	6,702	4,158	7,963	11,162	9,701
In Transit-Truck, Tank Car, Barge and Tanker from Domestic Source	<u>6,462</u>	<u>6,030</u>	<u>8,265</u>	<u>7,239</u>	<u>8,713</u>	<u>7,926</u>
Total Unavailable	75,233	73,952	86,991	91,794	103,539	99,146
Unavailable Percent of Total Reported	<u>50.2%</u>	<u>41.0%</u>	<u>39.5%</u>	<u>36.5%</u>	<u>35.2%</u>	<u>25.7%</u>
Total Available	<u>74,670</u>	<u>106,643</u>	<u>133,292</u>	<u>159,656</u>	<u>190,588</u>	<u>286,694</u>

* - Unfinished at refineries, has been omitted because of a change in Bureau of Mines method of reporting, effective January 1, 1962.

RESIDUAL FUEL OIL

The following comparisons represent the United States totals for the items indicated for residual fuel oil.

TABLE IX

RESIDUAL FUEL OIL
INVENTORIES, STORAGE CAPACITY AND UNAVAILABLES

SEPTEMBER 30, 1962 - (Thousands of Barrels)

(1) <u>Total Inventories:</u>	
Reported by Bureau of Mines	55,675
Reported to Survey	53,722 (a)
Survey Represents (Percent)	96.5
(2) <u>Total Unavailable:</u>	12,800
Percent of Reported Inventories	23.8
(3) <u>Available for Current Shipment or Held</u> <u>as Seasonal Requirements:</u>	40,922
Percent of Reported Inventories	76.2
(4) <u>Storage Capacity Assigned:</u> <u>(As of September 30, 1962)</u>	97,870 (b)
(5) <u>Amount in Tanks:</u>	52,959
Percent Full	54.1
(a) - Includes about 2,151,000 barrels of "pitch" held in reservoir storage.	
(b) - Includes about 26,500,000 barrels of reservoir storage on the West Coast (California).	

Table X which follows, shows all of the above information by Bureau of Mines Refining Districts.

TABLE X
ANALYSIS OF ACTUAL AND UNAVAILABLE INVENTORIES AND STORAGE CAPACITY
AS OF SEPTEMBER 30, 1962 - FOR RESIDUAL FUEL OIL
(Thousands of Barrels)

<u>B. OF M.</u> <u>REFINING</u> <u>DISTRICTS</u>	<u>ACTUAL</u>	<u>QUESTIONNAIRES</u>		<u>UNAVAILABLE</u>		<u>STORAGE SEPT. 30, 1962</u>	
	<u>B. OF M.</u> <u>SEPT. 30, 1962</u> (1)	<u>TOTAL</u> (2)	<u>PERCENT</u> (3)	<u>IN COLUMN 2</u>		<u>CAPACITY</u> <u>REPORTED (a)</u> (6)	<u>AMOUNT</u> <u>IN TANKS</u> (7)
<u>INCLUDES INVENTORIES AT REFINERIES, TERMINALS, PIPELINES AND IN TRANSIT THERETO:</u> <u>EXCLUDES HEAVY RESIDUAL CRACKING STOCK, THAT THE BUREAU OF MINES CLASSIFIES AS AN</u> <u>UNFINISHED OIL</u>							
EAST COAST	14,029	12,659	90.2	4,323	34.1	21,703	11,976
<u>APPALACHIAN</u>							
District I	565	396	70.1	60	15.2	690	396
District II	267	267	100.0	20	7.5	515	264
IND. ILL. KY.	6,892	6,577	95.4	1,104	16.8	10,014	6,572
MINN. WISC. N. & S. DAK.	767	785	102.3	59	7.5	2,078	785
OKLA. KANS. MO.	859	816	95.0	93	11.4	1,836	816
TEXAS INLAND	2,588	2,553 (b)	98.6	2,230 (b)	87.3	927	2,553
TEXAS GULF	4,329	4,329	100.0	637	14.7	8,254	4,329
LOUISIANA GULF	1,280	1,283	100.2	212	16.5	2,449	1,278
NORTH LA.-ARK.	138	73	52.9	40	54.8	620	72
NEW MEXICO	27	-	-	-	-	-	-
OTHER ROCKY MOUNTAIN	<u>1,201</u>	<u>1,092</u>	90.9	<u>122</u>	11.2	<u>1,465</u>	<u>1,092</u>
TOTAL U.S. EXCLUDING WEST COAST - ALASKA & HAWAII	32,942	30,830	93.6	8,900	28.9	50,551	30,133
WEST COAST - ALASKA AND HAWAII	<u>22,733</u>	<u>22,892</u>	100.7	<u>3,900</u>	17.0	<u>47,319</u>	<u>22,826</u>
TOTAL U. S.	55,675	53,722	96.5	12,800	23.8	97,870	52,959

(a) Includes about 26,500,000 barrels of reservoir storage on the West Coast (California).

(b) About 2,151,000 barrels of "pitch" held in reservoir storage, is included to conform with Bureau of Mines basis of reporting.

Trend comparisons for residual fuel oil are provided in Table XI, which appears on the following page.

Total stocks of residual fuel oil increased 17 million barrels between March 31, 1957 and September 30, 1962. It is interesting to note that the increases between March 31 and September 30, of 1957 and 1962, respectively, were approximately the same.

NATURAL GAS LIQUIDS

With respect to natural gas liquids, data gathered in the present survey indicates that approximately 90% of the stocks of products, reported as Liquefied Petroleum Gas and Liquefied Refinery Gas by the Bureau of Mines, is available inventory. In addition, this survey indicates that 80% of the inventories of products, reported by the Bureau of Mines on various forms as natural gasoline, plant condensate and other natural gas liquids, is also available inventory. Because the data in respect of these products, gathered for the first time in this 1962 survey, is not as complete as the Committee desires, further study of it is being made. If the amended results show materially different figures for these products a supplemental report will be made to the Council.

TABLE XI

ANALYSIS OF RESIDUAL FUEL OIL STOCKS
(Thousands of Barrels)

	<u>MARCH 31,</u> <u>1948</u>	<u>JUNE 30,</u> <u>1950</u>	<u>MARCH 31,</u> <u>1952</u>	<u>MARCH 31,</u> <u>1954</u>	<u>MARCH 31,</u> <u>1957</u>	<u>SEPT. 30,</u> <u>1962</u>
Total Stocks Held by Reporting Companies	41,297	40,570	37,856	42,705	36,764	53,722
<u>Unavailable Stocks</u>						
Tank Bottoms	6,965	6,252	5,715	5,261	4,259	3,555
Unfinished at Refineries	4,112	1,148	1,515	1,529	1,365	--
Refinery Lines and Operating Equipment	602	534	603	569	382	1,076
One-Half Average Size Water Cargo Receipt	2,532	2,491	2,875	2,582	2,519	2,923
Other Unavailable Stocks	3,225	3,155	3,577	3,294	4,464	4,197
Pipeline Fill	123	121	108	94	74	44
Pipeline Operating Requirements	2,008	1,313	569	573	302	285
In Transit-Truck, Tank Car, Barge and Tanker from Domestic Source	<u>1,235</u>	<u>1,218</u>	<u>875</u>	<u>500</u>	<u>580</u>	<u>720</u>
Total Unavailable	20,802	16,232	15,837	14,402	13,945(a)	12,800(b)
Unavailable Percent of Total Reported	<u>50.4%</u>	<u>40.0%</u>	<u>41.8%</u>	<u>33.7%</u>	<u>37.9%(a)</u>	<u>23.8%(b)</u>
Total Available	<u>20,495</u>	<u>24,338</u>	<u>22,019</u>	<u>28,303</u>	<u>22,819</u>	<u>40,922</u>

(a) Includes 1,200,000 barrels of "pitch" not available to market Inland Texas.

(b) Includes 2,151,000 barrels of "pitch" not available to market Inland Texas.

GENERAL

This Committee finds that of necessity the industry must have a very large petroleum storage capacity to maintain normal flexibility in its operations. The attached Table XII shows storage capacity by Bureau of Mines Refining Districts.

Based on fourteen years experience, covered by this report, the industry has found it necessary to maintain a total storage capacity of at least two barrels for each barrel of actual inventory in tanks, as shown in the following tabulation:

<u>Survey of</u>	<u>Ratio Capacity to Actual Inventory</u>
March 31, 1948	2.4 to 1
June 30, 1950	2.2 to 1
March 31, 1952	2.2 to 1
March 31, 1954	2.1 to 1
March 31, 1957	2.2 to 1
Sept. 30, 1962	2.0 to 1

The Committee wishes to emphasize the point that this relationship is necessary to maintain operating flexibility and to provide for seasonal variations in demand. In no sense can the difference between actual inventories and capacities herein shown be taken as an indication of available storage space.

The attached Table XIII summarizes unavailable inventories - those in pipelines, in transit, in operating equipment and as a reserve against transportation or manufacturing breakdowns. This shows the very large portion of the total reported inventories that are required if the industry is to operate efficiently and supply the ever-increasing demand for its products.

Respectfully submitted

FOR THE COMMITTEE ON PETROLEUM
STORAGE CAPACITY

/S/ R. L. Milligan

R. L. Milligan, Chairman

TABLE XII

COMPARISON OF STORAGE CAPACITY FROM 1948 THROUGH 1962

(THESE REPORTS WERE AS OF MARCH 31 OF EACH YEAR, EXCEPT 1950 WHEN IT WAS FOR JUNE 30 AND 1962 AS OF SEPTI
(Thousands of Barrels)

DISTRICT	CRUDE OIL (INCLUDES ALL CRUDE CATEGORIES EXCEPT PRODUCERS' STORAGE)						CLEAN PRODUCTS (GASOLINE, KEROSENE AND DISTILLATE FUELS)					
	1948	1950	1952	1954	1957	1962	1948	1950	1952	1954	1957	1962
EAST COAST	21,587	23,194	24,491	26,799	28,843	26,764	74,364	85,001	120,179	136,024	165,412	194,049
<u>APPALACHIAN:</u>												
DISTRICT I	5,277	7,002	5,999	5,703	5,331	3,506	5,060	5,336	8,908	10,637	13,677	17,021
DISTRICT II	3,121	2,628	1,955	1,834	1,739	1,795	3,148	3,971	5,471	6,265	7,231	10,373
IND. ILL. KY.	37,356	44,322	46,045	44,200	42,142	43,896	60,275	69,118	85,114	98,330	94,188	112,332
MINN. WISC. N. & S. DAK.	NOT AVAILABLE SEPARATELY 1948 - 1954				2,040	2,765	NOT AVAILABLE SEPARATELY 1948 - 1954				22,704	27,739
OKLA. KANS. MO.	80,142	75,683	69,625	71,588	63,132	56,963	24,501	28,526	38,474	44,279	46,051	52,495
TEXAS INLAND	82,393	82,344	80,541	84,522	77,681	73,229	7,387	8,604	12,253	13,105	16,122	18,327
TEXAS GULF	79,787	83,922	83,526	76,314	79,098	78,917	54,285	56,797	61,458	54,426	68,589	81,980
LOUISIANA GULF	16,196	15,937	16,012	18,957	19,091	17,284	16,673	17,811	20,574	23,227	28,874	34,646
NORTH LA. - ARKANSAS	10,581	11,288	9,620	6,682	6,159	6,129	5,685	5,005	8,127	8,767	11,090	13,992
NEW MEXICO	2,167	2,604	2,764	2,950	2,670	3,107	197	333	308	550	496	1,044
OTHER ROCKY MOUNTAIN	18,525	18,482	18,448	18,538	20,797	19,726	7,669	11,036	11,373	14,290	15,307	15,693
TOTAL U. S. EXCLUDING WEST COAST - ALASKA & HAWAII	357,132	367,406	359,026	358,087	348,723	334,081	259,244	291,538	372,239	409,900	489,741	579,691
WEST COAST - ALASKA & HAWAII	59,595 (a)	64,912 (a)	70,325 (a)	66,774 (a)	66,699 (a)	61,174 (a)*	60,515	56,526	53,221	57,104	70,074	76,356 *
TOTAL U. S.	416,727	432,318	429,351	424,861	415,422	395,255	319,759	348,064	425,460	467,004	559,815	656,047

(a) Includes reservoir storage assigned to heavy crude oil as follows:
2,525 11,733 13,912 9,945 8,900 7,338

(b) Includes residual reservoir storage as follows:

* Includes Alaska and Hawaii.

Note: The 1952 relationship with prior years is somewhat overstated in Clean Products and to a lesser extent in Residual Fuel because of the broadened definition of a bulk terminal which became effective January 1, 1951. Also, 1954 is somewhat understated in comparison with 1952 because of the exclusion in 1954 of the storage capacity assigned to jet fuel, the component parts of which in 1952 were being included in the over-all inventories of each clean product.

RESIDUAL FUEL
(RESIDUAL FUEL OILS ONLY)

<u>1948</u>	<u>1950</u>	<u>1952</u>	<u>1954</u>	<u>1957</u>	<u>1962</u>
14,575	17,602	20,471	17,765	20,349	21,703
455	378	933	1,357	971	690
383	372	635	685	703	515
8,814	8,611	9,536	9,431	8,221	10,014
NOT AVAILABLE SEPARATELY 1948 - 1954				996	2,078
4,034	3,831	3,267	2,805	2,579	1,836
1,705	1,969	1,868	1,731	1,143	927
10,715	10,317	11,675	10,136	10,850	8,254
3,726	3,457	3,208	2,467	2,582	2,444
431	308	340	258	345	625
62	99	95	76	53	-
1,888	1,942	2,057	1,836	1,533	1,465
46,788	48,886	54,085	48,547	50,325	50,551
76,592 (b)	57,172 (b)	49,522 (b)	50,348 (b)	46,527 (b)	47,319 (b)*
123,380	106,058	103,607	98,895	96,852	97,870
41,574	34,751	31,447	31,938	28,750	26,500

TABLE XIII

COMPARISON OF UNAVAILABLE INVENTORY REPORTS FROM 1948 THROUGH 1962

(THESE REPORTS WERE AS OF MARCH 31 OF EACH YEAR, EXCEPT 1950 WHEN IT WAS FOR JUNE 30 AND 1962 AS OF SEPTEMBER 30)
(Thousands of Barrels)

DISTRICT	CRUDE OIL (INCLUDES ALL CRUDE CATEGORIES EXCEPT PRODUCERS' STORAGE)						CLEAN PRODUCTS (GASOLINE, KEROSENE AND DISTILLATE FUELS)					
	1948	1950	1952	1954	1957	1962	1948	1950	1952	1954	1957	1962
EAST COAST	9,975	10,220	11,055	11,870	13,670	10,452	20,289	21,465	27,226	27,566	30,797	30,325
<u>APPALACHIAN:</u>												
DISTRICT I	1,159	2,006	1,848	2,065	1,544	1,136	954	1,030	1,691	2,056	2,047	2,011
DISTRICT II	1,246	971	1,161	1,086	836	876	545	665	827	1,369	1,538	1,056
IND. ILL. KY.	15,662	18,783	22,129	20,598	19,151	20,837	12,483	13,434	14,790	16,729	17,866	17,618
MINN. WISC. N. & S. DAK.	NOT AVAILABLE SEPARATELY 1948 - 1954				1,095	1,242	NOT AVAILABLE SEPARATELY 1948 - 1954				3,104	3,874
OKLA. KANS. MO.	21,467	21,490	23,399	28,362	25,668	22,351	6,165	5,141	8,098	9,009	11,262	9,924
TEXAS INLAND	25,663	32,009	31,950	39,682	34,904	35,485	2,049	2,239	2,310	2,635	2,733	2,966
TEXAS GULF	29,301	27,152	29,595	30,514	25,346	27,490	10,329	10,764	10,984	9,628	10,744	9,256
LOUISIANA GULF	3,104	4,240	4,579	5,410	6,204	7,278	3,399	3,307	3,254	3,489	2,768	3,231
NORTH LA. - ARK.	2,791	3,580	2,593	2,484	1,798	3,978	1,452	739	1,999	2,776	2,912	2,271
NEW MEXICO	1,037	1,067	1,039	1,061	1,336	2,816	21	81	29	72	159	191
OTHER ROCKY MOUNTAIN	3,520	3,697	4,397	5,424	7,727	8,512	1,201	1,670	2,066	2,855	2,791	2,582
TOTAL U. S. EXCLUDING WEST COAST - ALASKA & HAWAII	114,925	125,215	133,745	148,556	139,279	142,453	58,887	60,535	73,274	78,184	88,721	85,305
WEST COAST - ALASKA & HAWAII	18,000	17,224	17,161	18,092	18,303	16,954 (c)	16,346	13,417	13,717	13,610	14,818	13,841 (c)
TOTAL U. S.	132,925	142,439	150,906	166,648	157,582	159,407	75,233	73,952	86,991	91,794	103,539	99,146
UNAVAILABLE PORTION OF REPORTED INVENTORY	62.3%	63.3%	63.3%	68.4%	69.9%	73.2%	50.2%	41.0%	39.5%	36.5%	35.2%	25.7%

- (a) Includes 1,200,000 barrels of "pitch" not available to market.
(b) Includes 2,151,000 barrels of "pitch" not available to market.
(c) Includes Alaska and Hawaii.
(d) See Texas Inland note.

Note: Crude oil percentage unavailable calculated on basis of all categories except Producers' Stocks on which above district break-up not reported.

The 1952 relationship with prior years is somewhat overstated in Clean Products and to a lesser extent in Residual Fuel because of the broadened definition of a bulk terminal which became effective January 1, 1951.

RESIDUAL FUEL

(RESIDUAL FUEL OILS ONLY)

<u>1948</u>	<u>1950</u>	<u>1952</u>	<u>1954</u>	<u>1957</u>	<u>1962</u>
4,351	4,737	4,510	3,867	4,099	4,323
72	83	142	125	58	60
67	53	66	80	45	20
1,240	1,131	1,007	1,055	1,281	1,104
NOT AVAILABLE SEPARATELY 1948 - 1954				36	59
520	526	280	410	184	93
314	245	169	168	1,308 (a)	2,230 (b)
1,808	1,398	1,195	1,117	1,300	637
349	413	373	240	208	212
35	20	28	18	16	40
5	17	7	7	4	-
204	236	215	190	165	122
8,965	8,859	7,992	7,277	8,704	8,900
11,838	7,373	7,845	7,125	5,241	3,900 (c)
20,803	16,232	15,837	14,402	13,945	12,800
50.4%	40.0%	41.8%	33.7%	37.9% (d)	23.8% (d)

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NATIONAL PETROLEUM COUNCIL'S SURVEY OF PETROLEUM STORAGE CAPACITY AND INVENTORY AVAILABILITY

EXHIBIT #1

Questionnaire Form #1 U.S. Excluding West Coast, Alaska and Hawaii—Total Fixed Unavailable Stocks of Crude Oil, Gasoline, Kerosine, Distillate Fuel Oil and Residual Fuel Oil as of September 30, 1962, by Bureau of Mines Refining Districts.

NOTE: Figures should be shown in Barrels of 42 U.S. Gallons by location in Bureau of Mines refining districts and should include only those categories of stocks regularly reported to the Bureau. Include foreign oil actually in storage but not crude or products in transit from foreign sources.

	East Coast	Appalachian		Indiana Illinois Kentucky	Minn., Wisc., No. Dak. and So. Dak.	Oklahoma Kansas Missouri	Texas Inland	Texas Gulf	Louisiana Gulf	Arkansas Louisiana Inland	New Mexico	Other Rocky Mountain	Total U. S. Excluding West Coast Alaska & Hawaii
		District I	District II										
CRUDE OIL													
Report all figures in Barrels													
1. Fill in here amount of crude oil stocks you reported to B. of M. as of September 30, 1962 as at Refineries or in transit thereto from domestic sources—Section A, Form 6-1311-M.	14,372,475	607,653	182,247	8,821,724	1,121,000	3,541,670	1,259,682	15,442,242	4,514,345	762,873	103,000	1,633,710	52,362,621
(a) Of the above quantity, how much was unavailable—such as oil content of tank bottoms, in refinery pine lines, and the minimum quantity required to assure continuous processing, handling and blending various grades of crude.	8,795,500	263,605	159,978	6,106,667	534,000	1,456,669	556,735	11,335,606	3,362,000	238,346	10,000	757,092	33,576,198
(b) As In Transit to refineries by truck, tank car, barge or tanker from Domestic Sources.	1,652,679			621,018	29,000	4,024		298,348	14,857	1,480			2,621,406
Total Unavailable Refinery (Sum of (a) and (b) above)	10,448,179	263,605	159,978	6,727,685	563,000	1,460,693	556,735	11,633,954	3,376,857	239,826	10,000	757,092	36,197,604
Total Available Refinery	3,924,296	344,048	22,269	2,094,039	558,000	2,080,977	702,947	3,808,288	1,137,488	523,047	93,000	876,618	16,165,017
2. Fill in here amount you reported to B. of M. as Pipe Line and Tank Farm Stocks of Crude. Section B, Form 6-1311-M, as of September 30, 1962.	124,000	1,580,755	863,594	19,533,395	1,169,629	25,703,336	43,096,983	25,695,582	5,783,866	4,144,328	3,546,748	9,761,361	141,003,577
(a) Of the above quantity, how much was unavailable as pipe line fill.	1,041	555,193	346,100	6,461,803	528,669	12,071,027	15,883,732	3,088,054	1,485,588	2,393,741	1,713,174	5,064,622	49,592,744
(b) As minimum required in tankage to assure continuous operation of pipe lines (this should reflect the absolute minimum below which you would get into operating difficulties).	2,700	287,618	370,000	7,637,916	89,420	8,447,282	18,601,454	11,865,512	2,390,800	1,329,100	1,071,110	2,331,828	54,424,740
(c) Oil content of bottoms of tank farm tanks if you include same in your reports to the B. of M.		30,188		9,200	61,500	371,656	442,880	902,392	24,400	15,586	22,000	358,245	2,238,047
Total Unavailable Pipe Line-Tank Farm Crude Oil. (Sum of (a), (b) and (c) above)	3,741	872,999	716,100	14,108,919	679,589	20,889,965	34,928,066	15,855,958	3,900,788	3,738,427	2,806,284	7,754,695	106,255,531
Total Available Pipe Line-Tank Farm	120,259	707,756	147,494	5,424,476	490,040	4,813,371	8,168,917	9,839,624	1,883,078	406,901	740,464	2,006,666	34,748,046
NOTE: For the purpose of this survey Producers' Lease Stocks, Section C, Form 6-1311-M will be considered as completely unavailable.													
GASOLINE													
(Deal only with those inventories regularly reported on B. of M. Forms 6-1300-M; 6-1302-M and 6-1303-M)													
Report all figures in Barrels													
1. Fill in here aggregate amount of stocks you reported to B. of M. as at Refineries, at Bulk Terminals, or in Pipe Lines or In Transit thereto as of September 30, 1962 on Forms 6-1300-M; 6-1302-M; 6-1303-M.	45,123,535	4,998,123	3,125,232	29,884,172	6,101,500	15,596,870	6,375,881	20,942,890	10,815,522	6,480,782	558,812	4,049,463	154,052,782
2. Memo: Total Capacity all tankage in Gasoline Service (Copy from Questionnaire #2).	79,766,693	9,497,104	6,046,883	60,024,859	12,284,433	29,819,605	13,137,108	44,867,427	19,877,811	9,511,154	780,200	9,902,766	295,516,043
3. Analysis of Unavailable Stocks included in Item 1 above:													
(a) Credit tank bottoms as you carry them in your own inventory statements	3,953,669	421,226	230,820	3,279,822	541,677	1,521,276	785,454	2,428,140	1,158,536	281,359	35,970	513,433	15,151,382
(b) In Refinery Lines and Refinery Operating Equipment	520,175	12,961	2,723	1,638,114	561,965	560,150	15,000	896,287	29,500	236,350	4,000	462,362	4,939,587
(c) One-Half of Average Size Water Cargo Receipt. (Total of each individual grade calculated separately.) (See explanation.)	5,647,299	123,826	35,000	704,623	175,400	162,528		166,000	138,621	63,914			7,217,211
(d) Other Unavailable Stocks. (Include Filter House Naphtha and Unavailable Unblended Finished.) (See explanation.)	384,000	38,894	9,931	292,310	5,000	94,550	148,700	1,196,043	62,000	3,800	14,000	112,200	2,361,428
(e) Pipe Line Fill	1,670,230	498,406	219,059	2,564,894	703,107	2,746,793	737,999	670,069	365,635	876,683	119,000	587,184	11,759,059
(f) Pipe Line Operating Requirements	484,000	74,000	176,000	2,306,000	110,205	1,013,000	541,000	658,000	146,000	90,170		120,790	5,719,165
(g) Unavailable In Transit by truck, tank car, barge or tanker from Domestic Sources (include only if you report these to B. of M.)	2,719,070	221,305	676	657,645	120,000	102,500		190	249,665	161,683		1,407	4,234,141
Total Unavailable Gasoline. (Sum of (a) to (g) above.)	15,378,443	1,390,618	674,209	11,443,408	2,217,354	6,200,797	2,228,153	6,014,729	2,149,957	1,713,959	172,970	1,797,376	51,381,973
Total Available Gasoline	29,745,092	3,607,505	2,451,023	18,440,764	3,884,146	9,396,073	4,147,728	14,928,161	8,665,565	4,766,823	385,842	2,252,087	102,670,809
Comparable Unavailable Gasoline, March 31, 1962	15,231,471	1,457,140	732,808	11,868,319	2,671,526	6,779,404	2,218,339	6,088,448	2,138,982	1,590,639	146,970	1,869,279	52,793,325
KEROSENE													
(Deal only with those inventories regularly reported on B. of M. Forms 6-1300-M; 6-1302-M and 6-1303-M)													
Report all figures in Barrels													
1. Fill in here aggregate amount of stocks you reported to B. of M. as at Refineries, at Bulk Terminals, or in Pipe Lines or In Transit thereto as of September 30, 1962 on Forms 6-1300-M; 6-1302-M; 6-1303-M.	13,938,806	796,779	451,912	6,613,687	1,960,714	1,680,091	623,831	4,304,887	2,236,119	658,346	37,899	624,068	33,927,138
2. Memo: Total Capacity all tankage in Kerosine Service (Copy from Questionnaire #2).	23,306,912	1,400,608	1,090,815	11,005,765	3,265,678	3,471,367	1,337,248	7,246,897	3,600,274	1,118,882	63,200	944,600	57,852,246
3. Analysis of Unavailable Stocks included in Item 1 above:													
(a) Credit tank bottoms as you carry them in your own inventory statements	1,100,104	61,070	45,703	507,931	95,222	118,293	72,077	351,969	163,248	23,692	2,760	27,420	2,569,489
(b) In Refinery Lines and Refinery Operating Equipment	33,682	525	1,000	192,589	110,876	80,750	2,100	56,200	3,400	26,000		44,700	551,822
(c) One-Half of Average Size Water Cargo Receipt. (Total of each individual grade calculated separately.) (See explanation.)	1,368,638	34,468	7,000	153,173	85,418	50,800		25,000	21,308	6,413			1,752,218
(d) Other Unavailable Stocks. (Include Unavailable Unblended Finished.) (See explanation.)	3,000	3,245	4,133	31,263	65,700	71,000			25,000		1,000	1,000	205,341
(e) Pipe Line Fill	120,618	18,200	3,669	218,194	25,000	30,402	16,274	101,079	3,326	79,192		4,000	619,954
(f) Pipe Line Operating Requirements	68,000	4,000	15,000	552,000	36,000	30,000	46,000	110,768	21,000	5,000		37,000	924,768
(g) Unavailable In Transit by truck, tank car, barge or tanker from Domestic Sources (include only if you report these to B. of M.)	676,542	21,389		15,659				297					713,887
Total Unavailable Kerosine. (Sum of (a) to (g) above.)	3,370,584	142,897	76,505	1,670,809	418,216	381,245	136,451	645,313	237,282	140,297	3,760	114,120	7,337,479
Total Available Kerosine	10,568,221	653,882	375,407	4,942,878	1,542,498	1,298,946	487,380	3,659,574	1,998,837	518,049	34,139	509,948	26,589,659
Comparable Unavailable Kerosine, March 31, 1962	3,224,768	204,603	70,583	1,716,899	389,663	434,296	139,757	574,855	261,767	141,876	7,760	109,090	7,257,917

**NATIONAL PETROLEUM COUNCIL'S SURVEY OF PETROLEUM
STORAGE CAPACITY AND INVENTORY AVAILABILITY**

EXHIBIT #2

Questionnaire Form #1 (Continued) U.S. Excluding West Coast, Alaska and Hawaii—Total Fixed Unavailable Stocks of Crude Oil, Gasoline, Kerosine, Distillate Fuel Oil and Residual Fuel Oil as of September 30, 1962, by Bureau of Mines Refining Districts.

NOTE: Figures should be shown in Barrels of 42 U.S. Gallons by location in Bureau of Mines refining districts and should include only those categories of stocks regularly reported to the Bureau. Include foreign oil actually in storage but not crude or products in transit from foreign sources.

	East Coast	Appalachian		Indiana Illinois Kentucky	Minn., Wisc., No. Dak. and So. Dak.	Oklahoma Kansas Missouri	Texas Inland	Texas Gulf	Louisiana Gulf	Arkansas Louisiana Inland	New Mexico	Other Rocky Mountain	Total U. S. Excluding West Coast Alaska & Hawaii
		District I	District II										
DISTILLATE FUEL OIL													
(Deal only with those inventories regularly reported on B. of M. Forms 6-1300-M; 6-1302-M and 6-1303-M)													
Report all figures in Barrels													
1. Fill in here aggregate amount of stocks you reported to B. of M. as at Refineries, at Bulk Terminals, or in Pipe Lines or In Transit thereto as of September 30, 1962 on Forms 6-1300-M; 6-1302-M; 6-1303-M.	65,545,929	4,198,832	2,168,086	27,276,413	8,286,949	14,015,122	1,605,416	22,792,011	8,313,233	2,407,892	112,812	3,063,977	159,786,672
2. Memo: Total Capacity all tankage in Distillate Fuel Oil Service (Copy from Questionnaire #2).	90,975,122	6,122,542	3,235,069	41,300,501	12,188,512	19,204,283	3,853,123	29,865,976	11,168,450	3,362,380	201,200	4,846,801	226,322,979
3. Analysis of Unavailable Stocks included in Item 1 above:													
(a) Credit tank bottoms as you carry them in your own inventory statements	4,387,273	244,654	141,517	1,878,389	514,854	887,423	243,003	1,277,756	592,515	65,851	10,450	223,946	10,467,631
(b) In Refinery Lines and Refinery Operating Equipment	192,335	11,084	1,580	431,886	136,384	210,310	3,300	251,000	16,820	69,030	1,000	108,111	1,432,840
(c) One-Half of Average Size Water Cargo Receipt. (Total of each individual grade calculated separately.) (See explanation.)	4,031,588	25,385	20,000	328,413	166,698	72,427		196,000	79,049	26,630			4,946,190
(d) Other Unavailable Stocks. (Include Unavailable Unblended Finished.) (See explanation.)	407,000	23,303	12,243	14,207		62,000	148,500	330,000	70,000		3,000	50,100	1,120,353
(e) Pipe Line Fill	544,184	138,481	64,880	733,535	289,935	1,842,135	41,272	120,013		221,860		201,933	4,198,228
(f) Pipe Line Operating Requirements	266,000	5,000	56,000	992,000	60,644	250,000	165,000	286,451	32,500	11,160		87,080	2,211,835
(g) Unavailable In Transit by truck, tank car, barge or tanker from Domestic Sources (include only if you report these to B. of M.)	1,746,465	29,348	8,246	125,189	70,000	18,000		135,000	53,366	22,774			2,208,388
Total Unavailable Distillate Fuel Oil. (Sum of (a) to (g) above.)	11,574,845	477,255	304,466	4,503,619	1,238,515	3,342,295	601,075	2,596,220	844,250	417,305	14,450	671,170	26,586,465
Total Available Distillate Fuel Oil	53,971,084	3,721,577	1,863,620	22,772,794	7,048,434	10,672,827	1,004,341	20,195,791	7,468,983	1,990,587	98,362	2,392,807	133,201,207
Comparable Unavailable Distillate Fuel Oil, March 31, 1962	11,263,396	653,274	248,751	4,744,351	1,174,379	3,068,672	557,008	2,087,202	707,866	343,806	26,450	621,458	25,496,613
RESIDUAL FUEL OIL													
(Deal only with those inventories regularly reported on B. of M. Forms 6-1300-M and 6-1302-M)													
Report all figures in Barrels													
1. Fill in here aggregate amount of stocks you reported to B. of M. as at Refineries, at Bulk Terminals, or in Pipe Lines or In Transit thereto as of September 30, 1962 on Forms 6-1300-M; 6-1302-M.	12,658,559	396,492	266,607	6,577,383	784,961	816,251	(a) 2,553,078	4,328,576	1,283,399	72,893		1,092,469	30,830,668
2. Memo: Total Capacity all tankage in Residual Fuel Oil Service (Copy from Questionnaire #2).	21,702,815	690,154	514,853	10,013,819	2,077,962	1,835,697	927,436	8,253,576	2,449,500	619,587		1,465,630	50,551,029
3. Analysis of Unavailable Stocks included in Item 1 above:													
(a) Credit tank bottoms as you carry them in your own inventory statements	1,079,869	20,094	16,038	380,921	56,748	59,380	62,944	477,016	111,907	7,975		64,771	2,337,663
(b) In Refinery Lines and Refinery Operating Equipment	45,560	627		588,307	1,900	13,000	1,600	67,700	1,600	24,000		30,189	774,483
(c) One-Half of Average Size Water Cargo Receipt. (Total of each individual grade calculated separately.) (See explanation.)	2,224,105	5,000		22,000				21,000	79,500				2,351,605
(d) Other Unavailable Stocks. (Include Unavailable Unblended Finished.) (See explanation.)	290,005	33,933	1,987	92,973		20,312	(a) 2,166,100	68,838	13,200	7,213		25,951	2,720,512
(e) Pipe Line Fill			700						1,000	600			2,300
(f) Pipe Line Operating Requirements				14,000				3,000				736	17,736
(g) Unavailable In Transit by truck, tank car, barge or tanker from Domestic Sources (include only if you report these to B. of M.)	683,155	490	1,605	6,000					4,399				695,649
Total Unavailable Residual Fuel Oil. (Sum of (a) to (g) above.)	4,322,694	60,144	20,330	1,104,201	58,648	92,692	2,230,644	637,554	211,606	39,788		121,647	8,899,948
Total Available Residual Fuel Oil	8,335,865	336,348	246,277	5,473,182	726,313	723,559	322,434	3,691,022	1,071,793	33,105		970,822	21,930,720
Comparable Unavailable Residual Fuel Oil, March 31, 1962	4,631,365	59,521	23,689	1,309,513	83,048	96,601	(b) 2,248,790	668,011	224,500	37,316		98,701	9,481,055

(a) About 2,151,000 barrels of "pitch" held in reservoir storage, is included to conform with Bureau of Mines basis of reporting.

(b) Includes about 2,173,000 barrels of "pitch" held in reservoir storage.

**NATIONAL PETROLEUM COUNCIL'S SURVEY OF PETROLEUM
STORAGE CAPACITY AND INVENTORY AVAILABILITY**

EXHIBIT #3

**QUESTIONNAIRE FORM #2 U.S. EXCLUDING WEST COAST, ALASKA AND HAWAII—CAPACITY OF CRUDE OIL, GASOLINE, KEROSENE, DISTILLATE FUEL OIL AND RESIDUAL FUEL OIL TANKAGE
AS OF SEPTEMBER 30, 1962, BY BUREAU OF MINES REFINING DISTRICTS**

NOTE: Express figures in Barrels of 42 U.S. Gallons by Bureau of Mines refining districts and report all tankage available for storing Crude Oil, Gasoline, Kerosene, Distillate Fuel Oil and Residual Fuel Oil, as shown below, but deal only with the tankage that is located at the points (Refineries, Pipe Lines, Tank Farms and Terminals) included in the stock figures you regularly report to the Bureau of Mines on Forms 6-1311-M Crude (except Producers' Lease Stocks), and Product Forms 6-1300-M, 6-1302-M and 6-1303-M. Do not include tankage at bulk plants, service stations, etc., the inventories in which you do not report to the Bureau of Mines.

SEE NOTE (A)

	East Coast	Appalachian		Indiana Illinois Kentucky	Minn., Wisc., No. Dak. and So. Dak.	Oklahoma Kansas Missouri	Texas Inland	Texas Gulf	Louisiana Gulf	Arkansas Louisiana Inland	New Mexico	Other Rocky Mountain	Total U. S. Excluding West Coast Alaska & Hawaii
		District I	District II										
CRUDE OIL TANKAGE Report all figures in Barrels													
1. Capacity of Tankage at Refineries—Section A Form 6-1311-M — September 30, 1962	26,322,349	958,650	253,829	14,833,526	2,110,256	8,478,800	2,480,721	28,863,086	8,062,000	1,542,340	210,000	2,817,190	96,930,747
2. Capacity of Tankage along Pipe Lines and on Tank Farms—Section B Form 6-1311-M	441,600	2,549,715	1,541,223	29,061,944	655,000	48,484,312	70,747,921	50,053,520	9,222,100	4,586,868	2,896,644	16,908,950	237,149,797
3. Total Crude Oil Tankage Capacity (1) and (2) above	26,763,949	3,508,365	1,795,052	43,895,470	2,765,256	56,963,112	73,228,642	78,916,606	17,284,100	6,129,208	3,106,644	19,726,140	334,080,544
NOTE: Do not report tankage involved in Producers' (Lease) Stocks—Section C Form 6-1311-M													
GASOLINE (Deal only with the tankage at the locations of inventories you regularly report to the Bureau of Mines) Report all figures in Barrels													
1. Capacity of Tankage at Refineries—Form 6-1300-M — September 30, 1962	20,558,431	2,184,718	1,219,210	34,374,567	3,056,002	17,136,025	8,169,150	39,564,416	16,249,000	1,695,287	263,000	7,396,431	151,866,237
2. Capacity of Tankage along Pipe Lines and on Tank Farms (if any)—Form 6-1303-M	4,446,768	497,500	1,222,469	2,380,235	391,100	3,091,451	1,326,538	3,009,575	1,669,000	2,891,000		658,085	21,583,721
3. Capacity of Tankage at Bulk Terminals—Form 6-1302-M	54,761,494	6,814,886	3,605,204	23,270,057	8,837,331	9,592,129	3,641,420	2,293,436	1,959,811	4,924,867	517,200	1,848,250	122,066,085
4. Total Gasoline Tankage Capacity—(1), (2) and (3) above	79,766,693	9,497,104	6,046,883	60,024,859	12,284,433	29,819,605	13,137,108	44,867,427	19,877,811	9,511,154	780,200	9,902,766	295,516,043
KEROSENE (Deal only with the tankage at the locations of inventories you regularly report to the Bureau of Mines) Report all figures in Barrels													
1. Capacity of Tankage at Refineries—Form 6-1300-M — September 30, 1962	4,506,120	317,219	327,397	5,461,034	1,013,673	2,179,155	566,782	6,462,936	2,884,000	371,096	21,000	687,000	24,797,412
2. Capacity of Tankage along Pipe Lines and on Tank Farms (if any)—Form 6-1303-M	926,287	82,000	285,676	293,336		194,300	192,587	480,411	486,000	418,000			3,358,597
3. Capacity of Tankage at Bulk Terminals—Form 6-1302-M	17,874,505	1,001,389	477,742	5,251,395	2,252,005	1,097,912	577,879	303,550	230,274	329,786	42,200	257,600	29,696,237
4. Total Kerosene Tankage Capacity—(1), (2) and (3) above	23,306,912	1,400,608	1,090,815	11,005,765	3,265,678	3,471,367	1,337,248	7,246,897	3,600,274	1,118,882	63,200	944,600	57,852,246
DISTILLATE FUEL OIL (Deal only with the tankage at the locations of inventories you regularly report to the Bureau of Mines) Report all figures in Barrels													
1. Capacity of Tankage at Refineries—Form 6-1300-M — September 30, 1962	23,278,035	1,570,175	630,378	22,482,478	1,682,131	10,150,861	2,758,993	26,902,308	9,615,500	1,045,783	66,000	3,315,255	103,497,897
2. Capacity of Tankage along Pipe Lines and on Tank Farms (if any)—Form 6-1303-M	2,409,394	423,500	983,654	1,455,264	290,000	2,478,832	464,637	775,112	757,000	1,266,000		462,820	11,766,213
3. Capacity of Tankage at Bulk Terminals—Form 6-1302-M	65,287,693	4,128,887	1,621,057	17,362,759	10,216,381	6,574,590	629,493	2,188,556	795,950	1,050,597	135,200	1,067,726	111,058,869
4. Total Distillate Fuel Oil Tankage Capacity—(1), (2) and (3) above	90,975,122	6,122,542	3,235,089	41,300,501	12,188,512	19,204,283	3,853,123	29,865,976	11,168,450	3,362,380	201,200	4,845,801	226,322,979
RESIDUAL FUEL OIL (Deal only with the tankage at the locations of inventories you regularly report to the Bureau of Mines) Report all figures in Barrels													
1. Capacity of Tankage at Refineries—Form 6-1300-M — September 30, 1962	7,087,877	518,554	447,810	8,848,890	1,787,660	1,814,697	927,436	8,115,576	1,741,500	619,587		1,465,630	33,375,217
2. Capacity of Tankage along Pipe Lines and on Tank Farms (if any)—Form 6-1303-M									156,000				156,000
3. Capacity of Tankage at Bulk Terminals—Form 6-1302-M	14,614,938	171,600	67,043	1,164,929	290,302	21,000		138,000	552,000				17,019,812
4. Total Residual Fuel Oil Tankage Capacity—(1), (2) and (3) above	21,702,815	690,154	514,853	10,013,819	2,077,962	1,835,697	927,436	8,253,576	2,449,500	619,587		1,465,630	50,551,029

NOTE (A) The figures to be shown here are NOT the actual stocks previously reported as of September 30, 1962, but the TOTAL CAPACITY OF THE TANKAGE assigned to those stocks and corresponding to the actual categories reported in the columns indicated. Exclude tankage for marketing stocks and unfinished refinery stocks in order to correspond to Questionnaire #1.

**NATIONAL PETROLEUM COUNCIL'S SURVEY OF PETROLEUM
STORAGE CAPACITY AND INVENTORY AVAILABILITY**

EXHIBIT #4

**QUESTIONNAIRE FORM #1—TOTAL FIXED UNAVAILABLE STOCKS OF CRUDE OIL, GASOLINE, KEROSENE, DISTILLATE FUEL OIL AND RESIDUAL FUEL OIL AS OF SEPTEMBER 30, 1962
DISTRICT 5—WEST COAST, ALASKA AND HAWAII**

NOTE: Figures should be shown in Barrels of 42 U.S. Gallons and should include only those categories of stocks regularly reported to the Bureau of Mines.
Include foreign oil actually in storage but not crude or products in transit from foreign sources.

CRUDE OIL Report all figures in Barrels	WEST COAST Total in 5 Pacific Coast States (Arizona, California, Nevada, Oregon & Washington)	ALASKA	HAWAII
	<p>1. Fill in here amount of crude oil stocks you reported to Bureau of Mines as of September 30, 1962 as at refineries or in transit thereto from domestic sources—Section A—Washington Form 6-1311-M or District 5 Form 6-1320-M(B-1) (Column A, Line 22).</p> <p>(a) Of the above quantity, how much was unavailable—such as oil content of tank bottoms, in refinery pipe lines, and the minimum quantity required to assure continuous processing, handling and blending various grades of crude. (Do not show volumes as unavailable in these categories unless reported as stocks on Forms 6-1311-M or 6-1320-M(B-1).)</p> <p>(b) As in transit to refineries by truck, tank car, barge or tanker from Domestic Sources.</p> <p>(c) Total Unavailable Stocks of Crude At Refineries and In Transit Thereto. (Sum of (a) plus (b) above.)</p> <p>(d) Total Available as of September 30, 1962. (Lines (c) + (d) = Total shown in Line 1 above.)</p>		
	11,941,930		715,000
	7,235,396		620,000
	536,000		
	7,771,396		620,000
	4,170,534		95,000
<p>2. Fill in here amount of crude oil stocks you reported to Bureau of Mines as of September 30, 1962 as Pipe Line and Tank Farm Stocks. Section B Form 6-1311-M or Form 6-1320-M(B-1) (Column A, Line 23 minus Producers' Lease Stocks, if any, included in Line 23). See note (A) below.</p> <p>(a) Of the above quantity, how much was unavailable as pipe line fill included in (2) above.</p> <p>(b) As minimum required in tankage to assure continuous operation of pipe lines (this should reflect the absolute minimum below which you would get into operating difficulties).</p> <p>(c) Oil content of tank bottoms of tank farm tanks (if reported as stocks on Forms 6-1311-M or 6-1320-M(B-1), Line 23).</p> <p>(d) Total Unavailable Stocks of Crude in Pipe Line—Tank Farm Stocks. (Sum of (a) + (b) + (c) above.)</p> <p>(e) Total Available as of September 30, 1962 (Lines (d) and (e) = Total shown on Line 2 above.)</p>			
	11,416,037	187,000	
	2,122,904	6,000	
	4,835,464		
	1,578,654	20,000	
	8,537,022	26,000	
	2,879,015	161,000	
<p>NOTE (A): For purposes of this survey Producers' Lease Stocks, Section C Form 6-1311-M, or that portion of Col. A, Line 23, Form 6-1320-M(B-1) will be considered as completely unavailable. District 5 companies not using Washington Form 6-1311-M probably have refinery stocks only. If any exception to this be sure to segregate stocks reported on Form 6-1320-M(B-1), Col. A, Line 23 so as to report only the portion called for in (2) above.</p>			
GASOLINE (Deal only with those inventories regularly reported on California B. of M. Form 6-1320-M(B-1), Col. F, Lines 22, 23 & 24) Report all figures in Barrels			
	<p>1. Fill in here amount you reported to Bureau of Mines as at Refineries, at Bulk Terminals, or in Pipe Lines or In Transit thereto as of September 30, 1962 on Form 6-1320-M(B-1), Col. F, Lines 22, 23 and 24.</p> <p>2. Memo: Total Capacity all tankage in designated gasoline service (Copy from Questionnaire #2)</p> <p>3. Analysis of Unavailable Stocks included in Item 1 above:</p> <p>(a) Credit tank bottoms as you carry them in your own inventory statements (if included in stocks reported on Form 6-1320-M(B-1), Column F, Lines 22-24).</p> <p>(b) In Refinery Lines and Refinery Equipment (if included in stocks reported on Form 6-1320-M(B-1), Column F, Lines 22-24).</p> <p>(c) One-Half of Average Size Water Cargo Receipt (Total of each individual grade calculated separately.) (See explanation.)</p> <p>(d) Other Unavailable Stocks. (Include Filter House Naphtha and Unavailable Unblended Finished.) (See explanation.)</p> <p>(e) Pipe Line Fill</p> <p>(f) Pipe Line Operating Requirements</p> <p>(g) Unavailable In Transit by truck, tank car, barge or tanker from Domestic Sources (if included in stocks reported on Form 6-1320-M(B-1), Column F, Lines 22-24).</p> <p>(h) Total Unavailable Gasoline. (Sum of (a) thru (g) above.)</p> <p>(i) Total Available Gasoline as of September 30, 1962 (Lines (h) and (i) = Total shown in Line 1 above).</p> <p>Comparable Unavailable Gasoline as of March 31, 1962 (comparable to Line (h) above).</p>		
	21,048,918	295,000	825,000
	44,454,255	522,000	1,486,800
	2,803,583	20,000	102,000
	72,687		70,000
	756,404	102,000	109,000
	3,772,901		
	222,595		
	607,878		
	423,877	48,000	
	8,659,725	170,000	281,000
	12,389,193	125,000	544,000
	8,566,000	174,000	281,000
KEROSENE (Deal only with those inventories regularly reported on California B. of M. Form 6-1320-M(B-1), Col. H, Lines 22, 23 & 24) Report all figures in Barrels			
	<p>1. Fill in here amount you reported to Bureau of Mines as at Refineries, at Bulk Terminals, or in Pipe Lines or In Transit thereto as of September 30, 1962 on Form 6-1320-M(B-1) Col. H, Lines 22, 23 and 24</p> <p>2. Memo: Total Capacity all tankage in designated kerosene service (Copy from Questionnaire #2)</p> <p>3. Analysis of Unavailable Stocks included in Item 1 above:</p> <p>(a) Credit tank bottoms as you carry them in your own inventory statements (if included in stocks reported on Form 6-1320-M(B-1), Column H, Lines 22-24).</p> <p>(b) In Refinery Lines and Refinery Operating Equipment (if included in stocks reported on Form 6-1320-M(B-1), Column H, Lines 22-24).</p> <p>(c) One-Half of Average Size Water Cargo Receipt (Total of each individual grade calculated separately.) (See explanation.)</p> <p>(d) Other Unavailable Stocks. (Include Unavailable Unblended Finished.) (See explanation.)</p> <p>(e) Pipe Line Fill</p> <p>(f) Pipe Line Operating Requirements</p> <p>(g) Unavailable In Transit by truck, tank car, barge or tanker from Domestic Sources (if included in stocks reported on Form 6-1320-M(B-1), Column H, Lines 22-24).</p> <p>(h) Total Unavailable Kerosene. (Sum of (a) thru (g) above.)</p> <p>(i) Total Available Kerosene as of September 30, 1962 (Lines (h) and (i) = Total shown in Line 1 above).</p> <p>Comparable Unavailable Kerosene as of March 31, 1962 (comparable to Line (h) above).</p>		
	1,628,207	55,000	166,000
	3,611,503	144,700	313,400
	193,270	7,100	12,500
	10,167		34,000
	132,017	19,900	15,200
	284,716		
	7,400		
	5,000		
	23,000	10,000	
	655,570	37,000	61,700
	972,637	18,000	104,300
	638,802	38,000	61,700

NATIONAL PETROLEUM COUNCIL'S SURVEY OF PETROLEUM STORAGE CAPACITY AND INVENTORY AVAILABILITY

EXHIBIT #5

QUESTIONNAIRE FORM #1 (CONTINUED)—TOTAL FIXED UNAVAILABLE STOCKS OF CRUDE OIL, GASOLINE, Kerosine, DISTILLATE FUEL OIL AND RESIDUAL FUEL OIL AS OF SEPTEMBER 30, 1962

DISTRICT 5—WEST COAST ALASKA AND HAWAII

NOTE: Figures should be shown in Barrels of 42 U.S. Gallons and should include only those categories of stocks regularly reported to the Bureau of Mines. Include foreign oil actually in storage but not crude or products in transit from foreign sources.

DISTILLATE FUEL OIL (Deal only with those inventories regularly reported on California Bureau of Mines Form 6-1320-M(B-1), Col. I, Lines 22, 23 and 24.) Report all figures in Barrels		WEST COAST Total in 5 Pacific Coast States (Arizona, California, Nevada, Oregon & Washington)	ALASKA	HAWAII
1. Fill in here amount you reported to Bureau of Mines as at Refineries, at Bulk Terminals, or in Pipe Lines or In Transit thereto as of September 30, 1962 on Form 6-1320-M(B-1), Col. I, Lines 22, 23 and 24.		13,186,639	398,000	471,000
2. Memo: Total Capacity all tankage in designated distillate fuel oil (Stove Oil & Diesel Oil) service (Copy from Questionnaire #2).		24,327,439	723,300	772,200
3. Analysis of Unavailable Stocks included in Item 1 above:				
(a) Credit tank bottoms as you carry them in your own inventory statements (if included in stocks reported on Form 6-1320-M(B-1), Column I, Lines 22-24).		1,259,799	32,700	28,200
(b) In Refinery Lines and Refinery Operating Equipment (if included in stocks reported on Form 6-1320-M(B-1), Column I, Lines 22-24).		31,297		48,000
(c) One-Half of Average Size Water Cargo Receipt (Total of each individual grade calculated separately.) (See explanation.)		405,000	179,100	48,200
(d) Other Unavailable Stocks. (Include Unavailable Unblended Finished.) (See explanation.)		1,232,001		
(e) Pipe Line Fill		214,860		
(f) Pipe Line Operating Requirements		231,878		
(g) Unavailable In Transit by truck, tank car, barge or tanker from Domestic Sources (if included in stocks reported on Form 6-1320-M(B-1) Column I, Lines 22-24).		157,000	108,000	
(h) Total Unavailable Distillate Fuel Oil. (Sum of (a) thru (g) above.)		3,531,835	319,800	124,400
(i) Total Available Distillate Fuel Oil as of September 30, 1962 (Lines (h) and (i) = Total shown in Line 1 above).		9,654,804	78,200	346,600
Comparable Unavailable Distillate Fuel Oil as of March 31, 1962 (comparable to Line (h) above).		3,479,929	275,800	127,400
RESIDUAL FUEL OIL (Deal only with those inventories regularly reported on California Bureau of Mines Form 6-1320-M(B-1), Col. K, Lines 22, 23 & 24.) Report all figures in Barrels				
1. Fill in here amount you reported to Bureau of Mines as at Refineries, at Bulk Terminals, or in Pipe Lines or In Transit thereto as of September 30, 1962 on Form 6-1320-M(B-1), Col. K, Lines 22, 23 and 24.		21,727,573	69,000	1,095,000
2. Memo: Total Capacity all tankage in designated residual fuel oil service (Copy from Questionnaire #2)		45,998,824	101,200	1,218,500
3. Analysis of Unavailable Stocks included in Item 1 above:				
(a) Credit tank bottoms for tanks and/or reservoirs as you carry them in your own inventory statements (if included in stocks reported on Form 6-1320-M(B-1), Column K, Lines 22-24).		1,144,975	9,000	63,900
(b) In Refinery Lines and Refinery Operating Equipment (if included in stocks reported on Form 6-1320-M(B-1), Column K, Lines 22-24).		68,436		233,000
(c) One-Half of Average Size Water Cargo Receipt (Total of each individual grade calculated separately.) (See explanation.)		423,651	11,000	136,500
(d) Other Unavailable Stocks, for example, Plant Fuel, etc. (See explanation.)		1,472,915		4,000
(e) Pipe Line Fill, if any.		41,659		
(f) Pipe Line Operating Requirements		266,981		
(g) Unavailable In Transit by truck, tank car, barge or tanker from Domestic Sources (if included in stocks reported on Form 6-1320-M(B-1), Column K, Lines 22-24).		20,000	4,000	
(h) Total Unavailable Residual Fuel Oil. (Sum of (a) thru (g) above.)		3,438,617	24,000	437,400
(i) Total Available Residual Fuel Oil as of September 30, 1962 (Lines (h) and (i) = Total shown in Line 1 above.)		18,288,956	45,000	657,600
Comparable Unavailable Residual Fuel Oil as of March 31, 1962 (comparable to Line (h) above).		3,609,106	22,000	482,400

DISTRICT 5—WEST COAST, ALASKA AND HAWAII

QUESTIONNAIRE FORM #2—CAPACITY OF CRUDE OIL, GASOLINE, Kerosine, DISTILLATE FUEL OIL AND RESIDUAL FUEL OIL TANKAGE AS OF SEPTEMBER 30, 1962

NOTE: Express figures in Barrels of 42 U.S. Gallons and report all tankage available for storing Crude Oil, Gasoline, Kerosine, Distillate Fuel Oil and Residual Fuel Oil, as shown below, but deal only with the tankage that is located at the points (Refineries, Pipe Lines, Tank Farms and Terminals) included in the stock figures you regularly report to the Bureau of Mines on Forms 6-1311-M, Crude, (except Producers' Lease Stocks) or on Form 6-1320-M(B-1), Column A, Lines 22 and 23 Crude Oil (see Note B below); Gasoline Column F, Lines 22, 23 and 24; Kerosine Column H, Lines 22, 23 and 24; Distillate Fuel Oil Column I, Lines 22, 23 and 24; and Residual Fuel Oil Column K, Lines 22, 23 and 24. Do not include tankage at distributing stations, bulk plants, service stations, etc.

Report all figures in Barrels

	CRUDE OIL TANKAGE Sections A and B Form 6-1311-M (See Notes A and B)			GASOLINE TANKAGE Form 6-1320-M(B-1), Col. F Lines 22, 23 and 24 (See Note A)			Kerosine TANKAGE Form 6-1320-M(B-1), Col. H Lines 22, 23 and 24 (See Note A)			DISTILLATE FUEL OIL TANKAGE Form 6-1320-M(B-1), Col. I Lines 22, 23 and 24 (See Note A)			RESIDUAL FUEL OIL TANKAGE Form 6-1320-M(B-1), Col. K Lines 22, 23 and 24 (See Note A)		
	Total West Coast (5 Pacific Coast States)	Alaska	Hawaii	Total West Coast (5 Pacific Coast States)	Alaska	Hawaii	Total West Coast (5 Pacific Coast States)	Alaska	Hawaii	Total West Coast (5 Pacific Coast States)	Alaska	Hawaii	Total West Coast (5 Pacific Coast States)	Alaska	Hawaii
1. Capacity of Tankage at Refineries as of September 30, 1962	22,567,630		1,080,000	32,110,010		591,000	2,563,995		129,000	14,780,662		467,000	34,049,681		705,000
2. Capacity of Tankage along Pipe Lines and on Tank Farms	36,503,742	488,000		1,858,042			10,757			1,670,676			7,721,685		
3. Capacity of Tankage at Bulk Terminals—(Not bulk plants)	535,000			10,486,203	522,000	895,800	1,036,751	144,700	184,400	7,876,101	723,300	305,200	4,227,458	101,200	513,500
4. Total Tankage Capacity—Sum of (1), (2) and (3) above.	59,606,372	488,000	1,080,000	44,454,255	522,000	1,486,800	3,611,503	144,700	313,400	24,327,439	723,300	772,200	45,998,824	101,200	1,218,500
5. Earthen and/or concrete reservoir storage capacity included in (4) above.	7,338,000									1,002,000			26,403,396		

NOTES (A) The figures to be shown here are NOT the actual stocks previously reported as of September 30, 1962, but the TOTAL CAPACITY OF THE TANKAGE assigned to those stocks and corresponding to the actual categories reported in the columns indicated. Exclude tankage for marketing stocks and unfinished refinery stocks in order to correspond to Questionnaire #1.

(B) Producers' Lease Tankage, the actual stocks figures for which are reported as Section C, Form 6-1311-M, or as part of Column A, Line 23, Form 6-1320-M(B-1), should not be included. See Crude Oil Section Questionnaire #1.