REPORT OF THE

NATIONAL PETROLEUM COUNCIL'S COMMITTEE

ON PETROLEUM INDUSTRY STEEL REQUIREMENTS

March 16, 1948

National Petroleum Council
Suite 601 - 1625 K St., N. W.
Washington 6, D. C.

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March 16, 1948

INTRODUCTION

This is the first report of the Committee on Petroleum Industry Steel Requirements of the National Petroleum Council and summarizes the attached reports of the subcommittees created to report on the steel requirements for each of the following functional divisions of the American petroleum industry:

Oil and Gas Production
Oil Transportation
Refining
Marketing
Natural Gas Transmission
Foreign Operations (U. S. Owned)

AUTHORITY

The Committee was appointed and is functioning under the authority as set forth in the report of the Agenda Committee of the National Petroleum Council dated January 21, 1948 as follows:

> "The Agenda Committee also considered the submission contained in a letter from Director Ball to Chairman Hallanan, dated January 21, 1948 requesting the appointment of a committee to provide full information and advice with respect to quantities and kinds of steel needed by the American petroleum industry in the United States and abroad in order to further the purposes stated in Section 1 of Public Law 395. The Committee unanimously agreed that it is proper that such a committee be appointed to study, advise and recommend to the Council and to submit such reports from time to time to the Chairman as it deems necessary; it further being suggested that any calculations with regard to the petroleum industry's steel requirements be reported separately as between domestic and foreign."

A copy of Mr. Ball's letter, referred to above, is attached as Exhibit A.

PURPOSE

The objective of this Committee was to determine steel requirements

for the petroleum industry in accordance with the request of the Department of the Interior as contained in Mr. Max Ball's letter of February 13, 1948 to Mr. Russell B. Brown which states in part as follows:

> "... what is desired from your committee is a recommendation of the amount of steel that should be delivered by the steel mills to fabricators and consumers for use of the petroleum industry by calendar quarters, beginning April 1, 1948, and ending September 30, 1949, to enable the petroleum industry to ease inflationary pressures by bringing the supply of petroleum products into balance with prospective demand as soon as possible."

This objective was further defined in Mr. Ball's letter to Mr. Brown of February 25, 1948 a portion of which is quoted:

> "... the Oil and Gas Division estimates the total United States demand for petroleum, including exports, to be as follows:

Year	Total Demand Barrels per day
1948	6,250,000
1949	6,550,000
1950	6,800,000

> "A petroleum supply capable of satisfying these demands should relieve inflationary pressures caused by petroleum shortages and avoid any maldistribution of petroleum and petroleum products that might otherwise exist..."

The above estimates of demand compare with actual oil consumption of 5,321,000 barrels daily in 1946 which increased by 11% in one year to 5,900,000 per day in 1947. The estimated yearly increases for 1948, 1949 and 1950 are 6 percent, 5 percent and 4 percent, respectively, and approximate the normal growth in the use of petroleum. The expanding part that petroleum is taking in the national economy is apparent from the fact that actual consumption in 1947 was 62% greater than the average of the prewar period 1936-1939 and this consumption was met only through the use of reserve capacity built up largely prior to the war years. This reserve capacity has now been absorbed and substantial increases

in capacity are required to restore a proper balance between oil supply and demand.

PROCEDURE

The assumptions, definitions and methods of approach employed by each subcommittee are covered in its report.

It should be emphasized that, in carrying out the objective, requirements have been determined which include all uses of steel by the petroleum industry, whether purchased direct from the mills by petroleum operators or furnished indirectly from the mills through suppliers, fabricators or manufacturers for ultimate delivery to the oil industry in the form of material and equipment. Because of the inclusion of these indirect requirements, these estimates are not comparable with statistics available from published sources.

SUMMARY OF STEEL REQUIREMENTS

The following paragraphs summarize the requirements of steel mill products (exclusive of castings and forgings) for the American petroleum industry in the United States and abroad.

	Total Requirements 18 Month Period Apr. 1,1948-Sep. 30,1949 (1,000)	Requirements Expressed in Tons per Year (1,000)
(1.) Steel Requirements for the following activities of the domestic petroleum industry are:		
Oil and Gas Production		
Oil and Gas	3,654.0	2,436.0
Nat. Gaso., etc.	304.6	203.1
Sub-total	3,958.6	2,639.1
Oil Pipelines	1,646.4	1,097.5
Refining	1,363.8	909.1
Marketing		
Terminals bulk plants & Service Stations	611.9	408.0
L. P. G. plant facilities	127.2	84.8
Sub-total	739.1	492.8
Total	7,707.9	5,138.5

	Total Requirements 18 Month Period Apr. 1,1948-Sep. 30,1949 (1,000)	Requirements Expressed in Tons per Year (1,000)
(2.) In addition to the requirements for the foregoing activities of the oil industry in the United States, the following are the requirements for natural gas transmission up to the city gate:		
Natural Gas	2,191.9	1,461.4
(3.) In addition to the above activities, the petroleum industry in the United States has requirements for packaging, other transportation and home storage as follows:		
Containers	1,496.6	997.8
Transportation (Other than Pipeline)		
Tankers	370.9	247.2
Barges	319.1	212.7
Tank Cars	324.3	216.2
Truck Tanks	106.1	70.7
Sub-total	1,120.4	746.8
Farm & Home Storage		
Oil	558.8	372.5
L. P. G.	781.5	521.0
Sub-total	1,340.3	893.5
(4.) The steel requirements for the American petroleum industry abroad are:		
Foreign (U. S. Owned)	1,714.4	1,143.0
(5.) The total of all direct and allied steel requirements of the American petroleum industry, domestic and foreign, as itemized in the foregoing are:		
GRAND TOTAL	15,571.5	10,381.0

A somewhat different quarterly breakdown of these requirements by steel product classifications, including castings and forgings, and explanatory notes are

shown in summary Tables 1 - 6, attached. Further details on these requirements are shown in the attached subcommittee reports.

E. C. Brown
Al Buchanan
J. C. Donnell, II
Fayette B. Dow
Gordon Duke
R. G. Follis
Michael Halpern
C. L. Harding
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Claude P. Parsons
A. W. Peake
Frank M. Porter
A. H. Rowan
W. G. Skelly
John R. Suman
J. Ed Warren
Henry E. Zoller

Russell B. Brown, CHAIRMAN

C
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Y

EXHIBIT A

UNITED STATES

DEPARTMENT OF THE INTERIOR

OIL AND GAS DIVISION

Washington 25, D. C.

January 21, 1948

Dear Mr. Hallanan:

By Executive Order 9919 the authority of the President under Public Law 395 with respect to priority allocation, and inventory control of scarce commodities which basically affects the cost of living or industrial production, other than fuels, agricultural commodities, and transportation facilities and equipment is delegated to the Secretary of Commerce.

The Secretary of Commerce has informed the Department of the Interior that he will look to it for advice as to the needs of the petroleum industry for steel and other materials and equipment. The ability of the Department of the Interior to advise the Department of Commerce intelligently will depend upon its receiving adequate information and advice from the industry.

I therefore request that the National Petroleum Council provide means of furnishing to the Oil and Gas Division, on a continuing basis for the period provided for voluntary programs in Public Law 395, full information and advice with respect to quantities and kinds of steel needed by the American petroleum industry in the United States and abroad in order to further the purposes stated in Section 1 of Public Law 395.

Sincerely,

(Sgd.) Max W. Ball

MAX W. BALL,
Director

Mr. Walter S. Hallanan,
Chairman,
National Petroleum Council,
Washington, D. C.

SUMMARY OF

ESTIMATED QUARTERLY STEEL REQUIREMENTS FOR THE

AMERICAN PETROLEUM INDUSTRY IN THE UNITED STATES AND ABROAD

AS SHOWN IN FOLLOWING QUARTERLY TABLES NOS. 1-6

(thous. of short tons)	1948			1949		
	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q
Petroleum Industry Use						
Oil and Gas Production						
Oil and Gas	552.9	640.7	667.4	528.6	597.8	667.1
Nat. Gaso., etc.	60.1	73.9	53.6	39.9	39.9	37.2
Subtotal	613.0	714.6	721.0	568.5	637.7	704.3
Oil Transportation						
Pipe Lines	226.7	347.3	182.1	258.7	297.9	333.9
Tankers	61.8	61.8	61.8	61.8	61.8	61.8
Barges	58.2	58.2	58.2	58.2	58.2	58.2
Tank Cars	54.1	54.1	54.1	54.1	54.1	54.1
Truck Tanks	8.3	8.3	8.3	8.3	8.3	8.3
Subtotal	409.1	529.7	364.5	441.1	480.3	516.3
Refining	180.6	240.4	253.2	249.6	255.8	184.4
Marketing						
Plant Facilities	103.7	103.7	103.7	102.5	102.5	102.5
Containers	263.0	263.0	175.3	198.8	298.3	298.3
Consumer Storage	93.2	93.2	93.2	93.2	93.2	93.2
L. P. G.	152.9	152.9	152.9	153.0	153.0	153.0
Subtotal	612.8	612.8	525.1	547.5	647.0	647.0
Total above items	1,815.5	2,097.5	1,863.8	1,806.7	2,020.8	2,052.0
Natural Gas Transmission	365.7	365.6	365.3	365.3	365.1	364.9
Total Domestic Requirements	2,181.2	2,463.1	2,229.1	2,172.0	2,385.9	2,416.9
Foreign Operations (U.S. Owned)						
Western Hemisphere	130.1	132.8	129.6	115.2	110.3	108.9
Eastern Hemisphere	150.3	161.1	162.0	150.4	172.2	200.4
Subtotal	280.4	293.9	291.6	265.6	282.5	309.3
Grand Total Requirements	2,461.6	2,757.0	2,520.7	2,437.6	2,668.4	2,726.2

(All figures in short tons)

Table No. 1
2nd Quarter 1948

Estimated Quarterly Steel Requirements for the American Petroleum Industry in the United States and Abr[oad]

	Structural Steel Shapes	Carbon Bars	Sheets: Hot Rolled 16 gauge & heavier	Sheets: Cold Rolled & Hot Rolled P & O 17 gauge & lighter	Sheets: Galvanized	Plates: 3/16" -5/8"	Plates: Over 5/8"	Plates: Unclassified	Tubular Goods: Oil Country & Pressure Tubing: Carbon	Tubular Goods: Oil Country & Pressure Tubing: Alloy	Tubular Goods: Line Pipe: 16" Diameter	Tubular Goods: Line Pipe: 6 5/8"-14"	Tubular Goods: Line Pipe: 2" - 5"	Tubular Goods: 3 1/2"O.D.	Tubular Goods: Unclassified	Tubular Goods Total	Misc. Steel Prod.	Total Steel Mill Prods.	Forgings and Castings	Grand Total
Oil and Gas Production																				
Oil and Gas	20,910	47,530(g)	29,635	230				22,975	287,800	62,000					77,250		4,610	552,930	62,730	615,660
Nat. Gaso, etc. (a)	4,124	2,197	111	43	537	8,186	9,189				10,104	13,631	6,985	1,271	3,730			60,108	10,506	70,614
Subtotal	25,034	49,727	29,736	273	537	8,186	9,189	22,975	287,800	62,000	10,104	13,631	6,985	1,271	80,980	462,771	4,610	618,038	73,236	686,274
Oil Transportation																				
Pipe Lines (b)	1,401					13,772	1,324	285			103,132	87,193	16,496		3,002		74	226,679		226,679
Tankers (c)	3,578	633						56,083							1,520			61,814		61,814
Barges	15,767	66	146				41,145						1,057					58,181		58,181
Tank Cars	6,515	2,160	6,275			19,195	18,410							1,505				54,060		54,060
Truck Tank (d)			8,340															8,340		8,340
Subtotal	27,261	2,859	14,761	—	—	32,967	60,879	56,368	—	—	103,132	87,193	17,553	1,505	4,522	213,905	74	409,074	—	409,074
Refining	31,847	7,486	835		1,026	44,450	25,475		6,458	4,014	5,620	27,882	16,231	8,354		68,559	918	180,596	18,940	199,536
Marketing																				
Plant Facilities	6,587	97	22,234	2,438	372	53,015	3,115		2,720			5,045	3,442	4,687				103,752	15,560	119,312
Containers			9,285	253,705														262,990		262,990
Consumer Storage (e)	3,500		74,392			7,500							7,806					93,198	13,970	107,168
L. P. G.	767	125	27,984		92	96,377	19,787					180	67	7,507				152,886	22,900	175,786
Subtotal	10,854	222	133,895	256,143	464	156,892	22,902	—	2,720	—	—	5,225	11,315	12,194	—	31,454	—	612,826	52,430	665,256
Total Above Items	94,996	60,294	179,227	256,416	2,027	242,495	118,445	79,343	296,978	66,014	118,856	133,931	52,084	23,324	85,502	776,689	5,602	1,815,534	144,606	1,960,140
Natural Gas Transmission (f)	3,700	1,200	1,100		300	1,400	1,300				286,700	61,400		2,800	5,800	356,700		365,700	4,300	370,000
Total Domestic Requirements	98,696	61,494	180,327	256,416	2,327	243,895	119,745	79,343	296,978	66,014	405,556	195,331	52,084	26,124	91,302	1,133,389	5,602	2,181,234	148,906	2,330,140
Foreign Operations (U.S. Owned)																				
Western Hemisphere	13,290	7,772	264	162	618	15,475	2,483		31,157	8,650	22,421	18,433	2,428	2,162			4,760	130,075	40	130,115
Eastern Hemisphere	18,227	2,862	12,580	197	952	14,897	6,604		14,615	1,550	54,760	7,945	1,974	1,056			12,099	150,318		150,318
Subtotal	31,517	10,634	12,844	359	1,570	30,372	9,087	—	45,772	10,200	77,181	26,378	4,402	3,218	—	167,151	16,859	280,393	40	280,433
Grand Total Requirements	130,213	72,128	193,171	256,775	3,897	274,267	128,832	79,343	342,750	76,214	482,737	221,709	56,486	29,342	91,302	1,300,540	22,461	2,461,627	148,946	2,610,573

Footnotes

(a) Natural gasoline, cycling, and pressure maintenance plants.

(b) Includes storage facilities in connection with pipe lines.

(c) Includes tankers from American yards for foreign service under U. S. ownership.

(d) "Over the road" - 2,000 gallons and larger. Delivery truck tanks under 2,000 gallons included in Marketing Plant Facilities.

(e) Exclusive of L. P. G. consumer storage which is included in L. P. G. figures.

(f) Up to the city gate.

(g) Approximately 40% Alloy - See Production Subcommittee report for breakdown.

(All figures in short tons)

Estimated Quarterly Steel Requirements for the American Petroleum Industry in the United States and Abroad

Table No. 2
3rd Quarter 1948

	Structural Steel Shapes	Carbon Bars	Sheets: Hot Rolled 16 gauge & heavier	Sheets: Cold Rolled & Hot Rolled P & O 17 gauge & lighter	Sheets: Galvanized	Plates: 3/16" -5/8"	Plates: Over 5/8"	Plates: Unclassified	Tubular Goods: Oil Country & Pressure Tubing: Carbon	Tubular Goods: Oil Country & Pressure Tubing: Alloy	Tubular Goods: Line Pipe: 16" Diameter & Larger	Tubular Goods: Line Pipe: 6 5/8"-14" Diameter	Tubular Goods: Line Pipe: 2" - 5" Diameter Seamless	Tubular Goods: Line Pipe: 3 1/2"O.D. & Smaller	Tubular Goods: Line Pipe: Unclassified	Tubular Goods: Tubular Goods Total	Misc. Steel Prod.	Total Steel Mill Prods.	Forgings and Castings	Grand Total
Oil and Gas Production																				
Oil and Gas	23,615	55,260(g)	34,415	270				25,525	334,400	72,000					89,850		5,370	640,705	72,940	713,645
Nat. Gaso, etc. (a)	5,069	2,701	137	53	661	9,970	11,320				12,442	16,793	8,606	1,566	4,594			73,912	15,934	89,846
Subtotal	28,684	57,961	34,552	323	661	9,970	11,320	25,525	334,400	72,000	12,442	16,793	8,606	1,566	94,444	540,251	5,370	714,617	88,874	803,491
Oil Transportation																				
Pipe Lines (b)	1,971					12,489	3,044	801			165,018	135,639	17,870		10,298		182	347,312		347,312
Tankers (c)	3,578	633						56,083							1,520			61,814		61,814
Barges	15,767	66	146				41,145						1,057					58,181		58,181
Tank Cars	6,515	2,160	6,275			19,195	18,410							1,505				54,060		54,060
Truck Tank (d)			8,340															8,340		8,340
Subtotal	27,831	2,859	14,161	—	—	31,684	62,599	56,884	—	—	165,018	135,639	18,927	1,505	11,818	332,907	182	329,707	—	529,707
Refining	44,115	9,610	1,042		1,316	63,015	36,214		7,766	5,022	6,861	34,364	19,816	10,050		83,879	1,192	240,383	24,127	264,510
Marketing																				
Plant Facilities	6,587	97	22,234	2,438	372	53,015	3,115		2,720			5,045	3,442	4,687				103,752	15,560	119,312
Containers			9,285	253,705														262,990		262,990
Consumer Storage (e)	3,500		74,392			7,500							7,806					93,198	13,970	107,168
L. P. G.	767	125	27,984		92	96,377	19,787					180	67	7,507				152,886	22,900	175,786
Subtotal	10,854	222	133,895	256,143	464	156,892	22,902	—	2,720	—	—	5,225	11,315	12,194	—	31,454	—	612,826	52,430	665,256
Total Above Items	111,484	70,652	184,250	256,466	2,441	261,561	133,035	82,409	344,886	77,022	184,321	192,021	58,664	25,315	106,262	988,491	6,744	2,097,533	165,431	2,262,964
Natural Gas Transmission (f)	3,700	1,100	1,100		300	1,400	1,300				286,700	61,400		2,800	5,800	356,700		365,600	4,300	369,900
Total Domestic Requirements	115,184	71,752	185,350	256,466	2,741	262,961	134,335	82,409	344,886	77,022	471,021	253,421	58,664	28,115	112,062	1,345,191	6,744	2,463,133	169,731	2,632,864
Foreign Operations (U.S. Owned)																				
Western Hemisphere	15,158	7,310	310	223	627	15,595	4,426		31,157	8,650	14,666	21,893	3,235	3,466			6,050	132,766	40	132,806
Eastern Hemisphere	17,722	1,707	12,626	204	681	17,467	10,142		11,443	1,050	67,133	8,461	1,689	1,028			9,781	161,134	4	161,138
Subtotal	32,880	9,017	12,936	427	1,308	33,062	14,568	—	42,600	9,700	81,799	30,354	4,924	4,494	—	173,871	15,831	293,900	44	293,944
Grand Total Requirements	148,064	80,769	198,286	256,893	4,049	296,023	148,903	82,409	387,486	86,722	552,820	283,775	63,588	32,609	112,062	1,519,062	22,575	2,757,033	169,775	2,926,808

Footnotes

(a) Natural gasoline, cycling, and pressure maintenance plants.

(b) Includes storage facilities in connection with pipe lines.

(c) Includes tankers from American yards for foreign service under U. S. ownership.

(d) "Over the road" - 2,000 gallons and larger. Delivery truck tanks under 2,000 gallons included in Marketing Plant Facilities.

(e) Exclusive of L.P.G. consumer storage which is included in L. P. G. figures.

(f) Up to the city gate.

(g) Approximately 40% Alloy-See Production Subcommittee report for breakdown

(All figures in short tons)

Estimated Quarterly Steel Requirements for the American Petroleum Industry in the United States and Abroad

Table No. 3
4th Quarter 1948

	Structural Steel Shapes	Carbon Bars	Sheets: Hot Rolled 16 gauge & heavier	Sheets: Cold Rolled & Hot Rolled P & O 17 gauge & lighter	Sheets: Galvanized	Plates: 3/16" -5/8"	Plates: Over 5/8"	Plates: Unclassified	Tubular Goods: Oil Country & Pressure Tubing: Carbon	Tubular Goods: Oil Country & Pressure Tubing: Alloy	Tubular Goods: Line Pipe: 16" Diameter & Larger	Tubular Goods: Line Pipe: 5 5/8" -14" Diameter	Tubular Goods: Line Pipe: 2" - 5" Diameter Seamless	Tubular Goods: Line Pipe: 3 1/2"O.D. & Smaller	Tubular Goods: Unclassified	Tubular Goods Total	Misc. Steel Prod.	Total Steel Mill Prods.	Forgings and Castings	Grand Total
Oil and Gas Production																				
Oil and Gas	25,140	57,288(g)	35,640	280				26,275	347,110	74,700					95,365		5,570	667,368	75,560	742,928
Nat. Gaso, etc. (a)	3,693	1,973	92	40	484	7,135	8,227				9,052	12,207	6,256	1,136	3,338			53,633	9,405	63,038
Subtotal	28,833	59,261	35,732	320	484	7,135	8,227	26,275	347,110	74,700	9,052	12,207	6,256	1,136	98,703	549,164	5,570	721,001	84,965	805,966
Oil Transportation																				
Pipe Lines (b)	1,329					15,769	1,704	1,151			78,490	60,544	14,342		8,640		125	182,094		182,094
Tankers (c)	3,578	633						56,083							1,520			61,814		61,814
Bargers	15,767	66	146				41,145						1,057					58,181		58,181
Tank Cars	6,515	2,160	6,275			19,195	18,410							1,505				54,060		54,060
Truck Tank (d)			8,340															8,340		8,340
Subtotal	27,189	2,859	14,761			34,964	61,259	57,234			78,490	60,544	15,399	1,505	10,160	166,098	125	364,489		364,489
Refining	47,353	11,165	1,224		1,529	63,400	35,655		8,504	5,483	7,452	37,468	21,530	11,014		91,451	1,377	253,154	25,963	279,117
Marketing																				
Plant Facilities	6,587	97	22,234	2,438	372	53,015	3,115		2,720			5,045	3,442	4,687				103,752	15,560	119,312
Containers			6,189	169,083														175,272		175,272
Consumer Storage (e)	3,500		74,392			7,500							7,806					93,198	13,970	107,168
L. P. G.	767	125	27,984		92	96,377	19,787					180	67	7,507				152,886	22,900	175,786
Subtotal	10,854	222	130,799	171,521	464	156,892	22,902		2,720			5,225	11,315	12,194		31,454		525,108	52,430	577,538
Total Above Items	114,229	73,507	182,516	171,841	2,477	262,391	128,043	83,509	358,334	80,183	94,994	115,444	54,500	25,849	108,863	838,167	7,072	1,863,752	163,358	2,027,110
Natural Gas Transmission (f)	3,700	1,100	1,100		200	1,400	1,300				286,700	61,300		2,800	5,700	356,500		365,300	4,300	369,600
Total Domestic Requirements	117,929	74,607	183,616	171,841	2,677	263,791	129,343	83,509	358,334	80,183	381,694	176,744	54,500	28,649	114,563	1,194,667	7,072	2,229,052	167,658	2,396,710
Foreign Operations (U.S. Owned)																				
Western Hemisphere	14,393	7,079	390	237	642	22,323	4,607		31,157	8,650	10,636	19,475	2,303	2,677			5,047	129,616	40	129,656
Eastern Hemisphere	17,082	1,264	12,581	203	688	19,603	12,259		10,323	1,050	66,702	7,075	1,473	840			10,880	162,023	2	162,025
Subtotal	31,475	8,343	12,971	440	1,330	41,926	16,866		41,480	9,700	77,338	26,550	3,776	3,517		162,361	15,927	291,639	42	291,681
Grand Total Requirements	149,404	82,950	196,587	172,281	4,007	305,717	146,209	83,509	399,814	89,883	459,032	203,294	58,276	32,166	144,563	1,357,028	22,999	2,520,691	167,700	2,688,391

Footnotes (a) Natural gasoline, cycling, and pressure maintenance plants. (b) Includes storage facilities in connection with pipe lines. (c) Includes tankers from American yards for foreign service under U. S. ownership. (d) "Over the road" - 2,000 gallons and larger. Delivery truck tanks under 2,000 gallons included in Marketing Plant Facilities (e) Exclusive of L.P.G. consumer storage which is included in L. P. G. figures. (f) Up to the city gate. (g) Approximately 40% Alloy-See Production Subcommittee report for breakdown.

Table No. 4
1st Quarter 1949

(All figures in short tons)

Estimated Quarterly Steel Requirements for the American Petroleum Industry in the United States & Abroad

	Structural Steel Shapes	Carbon Bars	Sheets: Hot Rolled 16 gauge & heavier	Sheets: Cold Rolled & Hot Rolled P & O 17 gauge & lighter	Sheets: Galvanized	Plates: 3/16" - 5/8"	Plates: Over 5/8"	Plates: Unclassified	Tubular Goods: Oil Country & Pressure Tubing: Carbon	Tubular Goods: Oil Country & Pressure Tubing: Alloy	Tubular Goods: Line Pipe: 16" Diameter & Larger	Tubular Goods: Line Pipe: 6 5/8" - 14" Diameter	Tubular Goods: Line Pipe: 2" - 5" Diameter Seamless	Tubular Goods: Line Pipe: 3 1/2" O.D. & Smaller	Tubular Goods: Line Pipe: Unclassified	Tubular Goods: Tubular Goods Total	Misc. Steel Prods.	Total Steel Mill Prods.	Forgings and Castings	Grand Total
Oil and Gas Production																				
Oil and Gas	20,810	45,030(g)	28,095	220				22,225	272,580	58,700					76,565		4,365	528,590	59,570	588,160
Nat. Gaso, etc. (a)	2,759	1,456	77	31	356	5,410	6,101				6,706	3,048	4,637	844	2,479			39,904	6,980	46,884
Subtotal	23,569	46,486	28,172	251	356	5,410	6,101	22,225	272,580	58,700	6,706	9,048	4,637	844	79,044	431,559	4,365	568,494	66,550	635,044
Oil Transportation																				
Pipe Lines (b)	1,087					11,949	2,651	304			84,095	139,944	16,617		1,965		84	258,696		258,696
Tankers (c)	3,578	633						56,083							1,520			61,814		61,814
Barges	1,567	66	146				41,145						1,057					58,181		58,181
Tank Cars	6,515	2,160	6,275			19,195	18,410							1,505				54,060		54,060
Truck Tanks (d)			8,340															8,340		8,340
Subtotal	26,947	2,859	14,761			31,144	62,206	56,387			84,095	139,944	17,674	1,505	3,485	246,703	84	441,091		441,091
Refining	45,343	10,773	1,178		1,473	62,100	37,608		8,364	5,406	7,328	36,648	21,232	10,828		89,806	1,325	249,606	26,284	275,890
Marketing																				
Plant Facilities	6,469	97	22,234	2,438	372	51,979	3,115		2,720			5,045	3,341	4,687				102,497	15,370	117,867
Containers			6,964	191,822														198,786		198,786
Consumer Storage (e)	3,500		74,392			7,500							7,806					93,198	13,970	107,168
L. P. G.	767	125	28,134		92	96,377	19,787					180	67	7,508				153,037	22,900	175,937
Subtotal	10,736	222	131,724	194,260	464	155,856	22,902		2,720			5,225	11,214	12,195		31,354		547,518	52,240	599,758
Total Above Items	106,595	60,340	175,835	194,511	2,293	254,510	128,817	78,612	283,664	64,106	98,129	190,865	54,757	25,372	82,529	799,422	5,774	1,806,709	145,074	1,951,783
Natural Gas Transmission (f)	3,700	1,100	1,100		200	1,400	1,300				286,700	61,300		2,800	5,700	356,500		365,300	4,200	369,500
Total Domestic Requirements	110,295	61,440	176,935	194,511	2,493	255,910	130,117	78,612	283,664	64,106	384,829	252,165	54,757	28,172	88,229	1,155,922	5,774	2,172 009	149,274	2,321,283
Foreign Operations (U.S. Owned)																				
Western Hemisphere	13,239	3,959	358	335	635	16,619	5,007		31,617	8,860	8,560	16,504	2,151	2,667			4,709	115,220	40	115,260
Eastern Hemisphere	13,900	3,155	12,744	383	697	25,012	8,391		11,653	1,050	44,792	13,559	1,410	1,052			12,564	150,362	1	150,363
Subtotal	27,139	7,114	13,102	718	1,332	41,631	13,398		43,270	9,910	53,352	30,063	3,561	3,719		143,875	17,273	265.582	41	265,623
Grand Total Requirements	137,434	68,554	190,037	195,229	3,825	297,541	143,515	78,612	326,934	74,016	438,181	282,228	58,318	31,891	88,229	1,299.797	23,047	2,437,591	149,315	2,586,906

Footnotes

(a) Natural gasoline, cycling, and pressure maintenance plants.

(b) Includes storage facilities in connection with pipe lines.

(c) Includes tankers from American yards for foreign service under U. S. ownership.

(d) "Over the road" - 2,000 gallons and larger. Delivery truck tanks under 2,000 gallons included in Marketing Plant Facilities.

(e) Exclusive of L.P.G. consumer storage which is included in L.P.G. figures.

(f) Up to the city gate.

(g) Approximately 40% Alloy - See Production Subcommittee report for breakdown.

(All figures in short tons)

Estimated Quarterly Steel Requirements for the American Petroleum Industry in the United States and Abroad

Table No. 5
2nd Quarter 1949

	Structural Steel Shapes	Carbon Bars	Sheets: Hot Rolled 16 gauge & heavier	Sheets: Cold Rolled & Hot Rolled P. & O 17 gauge & lighter	Sheets: Galvanized	Plates: 3/16"-5/8"	Plates: Over 5/8"	Plates: Unclassified	Tubular Goods: Oil Country & Pressure Tubing: Carbon	Tubular Goods: Oil Country & Pressure Tubing: Alloy	Tubular Goods: Line Pipe: 16 Diameter & Larger	Tubular Goods: Line Pipe: 6 5/8"-14" Diameter	Tubular Goods: Line Pipe: 2"-5" Diameter Seamless	Tubular Goods: Line Pipe: 3 1/2"O.D. & Smaller	Tubular Goods: Line Pipe: Unclassified	Tubular Goods Total	Misc. Steel Prods.	Total Steel Mill Prods.	Forgins and Castings	Grand Total
Oil and Gas Production																				
Oil and Gas	22,970	51,120(g)	31,865	250				24,260	309,840	66,700					85,865		4,970	597,840	67,520	665,360
Nat. Gaso, etc. (a)	2,759	1,456	77	31	356	5,410	6,101				6,706	9,048	4,637	844	2,479			39,904	6,980	46,884
Subtotal	25,729	52,576	31,942	281	356	5,410	6,101	24,260	309,840	66,700	6,706	9,048	4,637	844	88,344	486,119	4,970	637,744	74,500	712,244
Oil Transportation																				
Pipe Lines (b)	1,430					18,724	2,148	94			174,968	84,169	15,154		1,105		69	297,861		297,861
Tankers (c)	3,579	634						56,084							1,520			61,817		61,817
Barges	15,767	66	146				41,145						1,057					58,181		58,181
Tank Cars	6,515	2,160	6,275			19,195	18,410							1,505				54,060		54,060
Tmuck Tanks (d)			8,340															8,340		8,340
Subtotal	27,291	2,860	14,761			37,919	61,703	56,178			174,968	84,169	16,211	1,505	2,625	279,478	69	480,259		480,259
Refining	44,790	10,890	1,200		1,492	67,225	39,703		8,367	5,376	7,381	36,722	21,114	10,159		89,119	1,345	255,764	25,845	281,609
Marketing																				
Plant facilities	6,469	97	22,234	2,438	372	51,979	3,115		2,720			5,045	3,341	4,687				102,497	15,370	117,867
Containers			10,447	287,821														298,268		298,268
Consumer Storage (e)	3,500		74,392			7,500							7,806					93,198	13,970	107,168
L. P. G.	767	125	28,134		92	96,377	19,787					180	67	7,508				153,037	22,900	175,937
Subtotal	10,736	222	135,207	290,259	464	155,856	22,902		2,720			5,225	11,214	12,195		31,354		647,000	52,240	699,240
Total Above Items	108,546	66,548	183,110	290,540	2,312	266,410	130,409	80,438	320,927	72,076	189,055	135,164	53,176	24,703	90,969	886,070	6,384	2,020,767	152,585	2,173,352
Natural Gas Transmission (f)	3,700	1,100	1,100		200	1,400	1,300				286,600	61,300		2,700	5,700	356,300		365,100	4,200	369,300
Total Domestic Requirements	112,246	67,648	184,210	290,540	2,512	267,810	131,709	80,438	320,927	72,076	475,655	196,464	53,176	27,403	96,669	1,242,370	6,384	2,385,867	156,785	2,542,652
Foreign Operations (U.S. Owned)																				
Western Hemisphere	13,685	3,779	401	129	710	15,600	3,631		31,617	8,860	8,379	16,160	2,013	1,774			3,610	110,348	40	110,388
Eastern Hemisphere	21,195	5,312	12,767	462	698	28,719	8,589		10,673	1,050	51,000	15,414	2,702	2,052			11,598	172,231	1	172,232
Subtotal	34,880	9,091	13,168	591	1,408	44,319	12,220		42,290	9,910	59,379	31,574	4,715	3,826		151,694	15,208	282,579	41	282,620
Grand Total Requirements	147,126	76,739	197,378	291,131	3,920	312,129	143,929	80,438	363,217	81,986	535,034	228,038	57,891	31,229	96,669	1,394,064	21,592	2,668,446	156,826	2,825,272

Footnotes

(a) Natural gasoline, cycling, and pressure maintenance plants.

(b) Includes storage facilities in connection with pipe lines.

(c) Includes tankers from American yards for foreign service under U. S. ownership.

(d) "Over the road" - 2,000 gallons and larger. Delivery truck tanks under 2,000 gallons included in Marketing Plant Facilities.

(e) Exclusive of L.P.G. consumer storage which is included in L.P.G. figures.

(f) Up to the city gate.

(g) Approximately 40% Alloy See Production Sub-Commitee report for breakdown.

(All figures in short tons)

Estimated Quarterly Steel Requirements for the American Petroleum Industry in the United States and Abroad

Table No. 6
3rd Quarter 1949

	Structural Steel Shapes	Carbon Bars	Sheets: Hot Rolled 16 gauge & heavier	Sheets: Cold Rolled & Hot Rolled P & O 17 gauge & lighter	Sheets: Galvanized	Plates: 3/16" -5/8"	Plates: Over 5/8"	Plates: Unclassified	Tubular Goods: Oil Country & Pressure Tubing: Carbon	Tubular Goods: Oil Country & Pressure Tubing: Alloy	Tubular Goods: Line Pipe: 16" Diameter & Larger	Tubular Goods: Line Pipe: 6 5/8" -14" Diameter	Tubular Goods: Line Pipe: 2" - 5" Diameter Seamless	Tubular Goods: Line Pipe: 3 1/2"O.D. & Smaller	Tubular Goods: Line Pipe: Unclassified	Tubular Goods: Tubular Goods Total	Misc. Steel Prod.	Total Steel Mill Prods.	Forgings and Castings	Grand Total
Oil and Gas Production																				
Oil and Gas	24,455	57,570(g)	35,845	280				26,285	348,670	75,200					93,250		5,590	667,145	75,990	743,135
Nat. Gaso, etc. (a)	2,582	1,356	72	30	331	5,037	5,677				6,239	8,419	4,316	785	2,307			37,151	6,469	43,620
Subtotal	27,037	58,926	35,917	310	331	5,037	5,677	26,285	348,670	75,200	6,239	8,419	4,316	785	95,557	539,186	5,590	704,296	82,459	786,755
Oil Transportation																				
Pipe Lines (b)	6,171					24,429	577	94			55,382	232,788	13,444		940		69	333,894		333,894
Tankers (c)	3,579	634						56,084							1,520			61,817		61,817
Barges	15,767	66	146				41,145						1,057					58,181		58,181
Tank Cars	6,515	2,160	6,275			19,195	18,410							1,505				54,060		54,060
Truck Tanks (d)			8,340															8,340		8,340
Subtotal	32,032	2,860	14,761	—	—	43,624	60,132	56,178	—	—	55,382	232,788	14,501	1,505	2,460	306,636	69	516,292	—	516,292
Refining	29,291	7,086	770		969	47,528	27,724		6,530	4,224	5,759	28,644	16,572	8,496		70,225	870	184,463	20,483	204,946
Marketing																				
Plant Facilities	6,469	97	22,234	2,438	372	51,979	3,115		2,720			5,045	3,341	4,687				102,497	15,370	117,867
Containers			10,447	287,821														298,268		298,268
Consumer Storage (e)	3,500		74,392			7,500							7,806					93,198	13,970	107,168
L. P. G.	767	125	28,134		92	96,377	19,787					180	67	7,508				153,037	22,900	175,937
Subtotal	10,736	222	135,207	290,259	464	155,856	22,902	—	2,720	—	—	5,225	11,214	12,195	—	31,354	—	647,000	52,240	699,240
Total Above Items	99,096	69,094	186,655	290,569	1,764	252,045	116,435	82,463	357,920	79,424	67,380	275,076	46,603	22,981	98,017	947,401	6,529	2,052,051	155,182	2,207,233
Natural Gas Transmission (f)	3,700	1,100	1,100		200	1,300	1,200				286,600	61,300		2,700	5,700	356,300		364,900	4,200	369,100
Total Domestic Requirements	102,796	70,194	187,755	290,569	1,964	253,345	117,635	82,463	357,920	79,424	353,980	336,376	46,603	25,681	103,717	1,303,701	6,529	2,416,951	159,382	2,576,333
Foreign Operations (U.S. Owned)																				
Western Hemisphere	12,564	3,777	379	99	721	14,209	3,257		31,617	8,860	8,177	18,017	2,012	1,745			3,460	108,894	40	108,934
Eastern Hemisphere	20,736	6,445	12,672	350	614	45,988	10,720		11,153	1,050	51,000	23,848	2,703	2,247			10,878	200,404		200,404
Subtotal	33,300	10,222	13,051	449	1,335	60,197	13,977	—	42,770	9,910	59,177	41,865	4,715	3,992	—	162,429	14,338	309,298	40	309,338
Grand Total Requirements	136,096	80,416	200,806	291,018	3,299	313,542	131,612	82,463	400,690	89,334	413,157	378,241	51,318	29,673	103,717	1,466,130	20,867	2,726,249	159,422	2,885,671

Footnotes

(a) Natural gasoline, cycling, and pressure maintenance plants.

(b) Includes storage facilities in connection with pipe lines.

(c) Includes tankers from American yards for foreign service under U. S. ownership.

(d) "Over the road" - 2,000 gallons and larger. Delivery truck tanks under 2,000 gallons included in Marketing Plant Facilities.

(e) Exclusive of L.P.G. consumer storage which is included in L. P. G. figures.

(f) Up to the City gate.

(g) Approximately 40% Alloy See Production Sub-committee report for breakdown.

A P P E N D I C E S

SUBCOMMITTEE REPORTS

A - PRODUCTION SUBCOMMITTEE

B - TRANSPORTATION SUBCOMMITTEE

C - REFINING SUBCOMMITTEE

D - MARKETING SUBCOMMITTEE

E - NATURAL GAS SUBCOMMITTEE

F - FOREIGN SUBCOMMITTEE

A P P E N D I X A

PRODUCTION SUBCOMMITTEE

R E P O R T

of

PRODUCTION SUBCOMMITTEE

of

NATIONAL PETROLEUM COUNCIL'S COMMITTEE

on

PETROLEUM INDUSTRY STEEL REQUIREMENTS

J. Ed Warren, Chairman
E. C. Brown
Al Buchanan
H. L. Hunt
Claude Parsons
F. M. Porter
Carl E. Reistle, Jr.
A. H. Rowan

REPORT OF PRODUCTION SUBCOMMITTEE
OF
NATIONAL PETROLEUM COUNCIL'S COMMITTEE ON
PETROLEUM INDUSTRY STEEL REQUIREMENTS

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Herewith is the report of the Production Subcommittee for the Petroleum Industry Steel Requirements Committee of the National Petroleum Council. The first section of the report is devoted to oil and gas development and production operation requirements and the second section to gasoline, cycling and pressure maintenance plants.

The requirements of both sections are combined to give the total requirements of the production branch of the petroleum industry in Table No. VII at the end of the report.

I. Oil and Gas Drilling, Development, and Production Operations 1948 and 1949

A. Crude Oil Demand

It is forecast that the total demand for all oils from the United States will be 6,250,000 barrels daily averaged over the year 1948 and 6,550,000 barrels daily for 1949. As indicated in Table I attached, domestic crude oil production of 5,350,000 barrels daily average for 1948 and 5,575,000 barrels daily in 1949 will be required to meet the aforementioned demands. The domestic crude oil production required in 1948 is nearly 5.4% higher than 1947 production which set the record high to date. Table II shows the history of the growth in domestic crude oil production from 1927 forward in relation to the volume of proved underground crude oil reserves and drilling activitiy in the United States.

B. Relationships Between Productive Capacity, Reserves, and Drilling

Current domestic crude oil production is substantially up to the maximum of the efficient productive capacities of all of the oil fields in the United States. Accordingly, in order to meet the forecasted greater domestic crude oil production required in 1948 and 1949, drilling activity should be increased considerably over 1947 and preceding years. Continued and increased exploratory and development drilling is necessary to discover and develop the additional new crude oil reserves and productive capacity needed to offset the declining production of older fields and to meet the increasing crude oil production requirements forecasted.

The ability of the domestic oil industry to provide sufficient crude oil productive capacity to meet demands at any given time depends primarily upon the then existing volume of proved and developed underground reserves, which in turn depends on the rate of discovery and development of new crude oil reserves from year to year in relation to the demands. Analysis of the pre-war historical relationship (Table II) between the volume of proved underground crude oil reserves and the growth in actual production and productive capacity, indicates the need to discover and develop at least about 1-2/3 barrels of new crude oil reserves for each barrel produced during such time as the demand for crude continues to increase as it has in the past and as is forecast for the future.

Table II shows that drilling activity was curtailed sharply during the recent war years, on account of materials and equipment shortages. As a result, the domestic proved crude oil reserve position did not increase in keeping with the large

increase in crude oil demand and production, and thus substantially all of the excess or reserve productive capacity has been absorbed. The history of domestic operations over a number of years shows that a fairly good relationship exists between the volume of new crude oil reserves discovered and developed and the volume of drilling activity expressed in terms of total footage drilled annually. This relationship indicates that total domestic drilling was about 18.5 million feet per year below that needed during the 4 war years, 1942-45, to provide normal additions to underground crude oil reserves in relation to actual crude production during those years.

C. Drilling Program

Based on the aforementioned relationships (1) between required crude oil production and necessary additions to underground reserves and (2) between the needed additions to reserves and the total required drilling footage, and considering that 1/4 of the deficiency in drilling during the 4 war years, 1942-45, should be made up during this and succeeding years the domestic drilling programs for 1948 and 1949 were determined as shown in Table III. The program for 1948 calls for the drilling of 37,600 wells and 130.5 million feet of hole and 38,300 wells and 134.0 million footage in 1949.

D. Steel Requirements for Oil and Gas Drilling, Development and Production Operations

In order to carry-out the oil and gas well drilling, development and production programs for 1948 and 1949 specified in Table III, large quantities of mill steel products and materials and equipment made therefrom will be required. Oil

country tubular goods and line pipe account for the major tonnage, but large quantities of plate and sheet, bars, structural shapes, etc., are also needed. Petroleum operators' and petroleum equipment manufacturers' stocks of these materials are depleted to below efficient working levels, and hence the entire requirements, except for minor salvage, will have to be met from new supplies.

Table IV shows the history back to 1933 of the domestic production of oil country tubular goods and steel line pipe and the indicated portion of the former that was available for domestic use. The new supply of oil country tubular goods has averaged close to 11.2 tons per 1,000 feet drilled over the years. The total new steel requirements of all classes of mill products for the projected drilling programs in 1948 and 1949 is estimated to be 15.45 tons per 1,000 feet drilled or 52.8 tons per well based on the expected average well depth of 3,475 feet for 1948. This includes casing and tubing (plus line pipe often used for this purpose in shallow wells), pumping units and drivers, sucker rods, valves and fittings, flow lines, oil and gas separators, heaters, treaters, and lease tankage. The aforementioned unit steel tonnages check closely with those used by the Petroleum Administration for War in determining materials requirements for drilling operations during the recent war, and they constitute a reliable basis for estimating the total steel requirements for oil and gas drilling, development, and production operations.

Table V presents the forecast of steel requirements for all domestic oil and gas drilling, development, and production operations in the years 1948 and 1949 by quarters. The requirements include those of manufacturers for production oil field equipment and materials. The requirements are broken-down into basic steel mill products and are shown separately for carbon steel and for alloy steel.

Steel and steel products are not currently being received by petroleum operators or by the manufacturers of oil field equipment in sufficient quantities to enable accomplishment of the necessary oil and gas well drilling program outlined in Table III. Stocks of many items are depleted and operations are often delayed or hampered for want of steel and steel products.

II. Natural Gasoline, Cycling, and Pressure Maintenance Plants.

Attached is table No. VI showing steel requirments for natural gasoline, cycling, and pressure maintenance plants complete with field, gathering and return lines, for the period April 1, 1948 through September 30, 1949. This estimate was obtained by contacting all the known construction companies now building plants, and several of the larger oil companies who engineer and design their own plants. We believe the figures obtained from them as a composite are reasonably accurate. Using the tonnage reports received from the various companies as a base, we have added ten per cent additional to cover plants that we were unable to contact and have also added four percent for maintenance steel for this period.

The Total requirements for this period are 359,322 tons. This amount is based on the actual construction of sixty-two natural gasoline, recycling, and pressure maintenance projects, either now under construction or planned and authorized during this period in nine states of the United States. The figure of sixty-two plants include five pressure maintenance plants. The capacity included covers the handling of 3,498 MMCF from which it is estimated that 51,250 barrels daily gasoline production will be recovered, and 75,290 barrels additional LPG, and that the pressure maintenance plants will permit the production of 12,850 barrels daily additional crude oil. The natural gasoline and liquefied petroleum gas production is estimated at forty-six million barrels additional per year, which is an increase of 45.4% over the industry's production for 1947. It is also noted that 59.7% of the increased production is for the recovery of additional liquefied petroleum gas. These figures do not include any of the ten per cent increase in steel used for plants in progress that have not been contacted.

III. Combined Steel Requirements for Production Branch of the Industry

Table No. VII attempts to combine the requirements shown in Tables V and VI, into a table reflecting the total combined requirements of, domestic oil and gas drilling, development and production operations, natural gasoline, cycling and pressure maintenance plants for the period April 1, 1948 through September 30, 1949.

TABLE I

PETROLEUM DEMAND AND SUPPLY FORECAST

UNITED STATES

(1,000 Barrels Daily)

Demand - All Oils	1946	1947	1948	1949	1950
Domestic	4,907	5,451	5,825	6,150	6,400
Export	414	458	425	400	400
Total	5,321	5,909	6,250*	6,550*	6,800*
Supply					
Domestic Crude Oil Production	4,749	5,077	5,350	5,575	5,760
Gasoline and Cycling Plant Production	315	360	400	425	440
Benzol Production	6	2	2	1	1
Imports - All Oils	370	432	500	550	600
Total	5,440	5,871	6,252	6,551	6,801
Stock Changes - All Oils	/ 119	- 38	/ 2	/ 1	/ 1

Note * From Oil and Gas Division, U. S. Department of Interior

TABLE II

DOMESTIC CRUDE OIL PRODUCTION, PROVED RESERVES AND DRILLING ACTIVITY
1927-1947

Year	*Crude Oil Production: Million Bbls/Yr.	Proved *Crude Oil Reserves: Additions Due Drilling Million Bbls/Yr.	Proved *Crude Oil Reserves: Reserves End of Year Million Bbls.	New Well Footage Drilled: Mil Ft/Yr.	New Wells Drilled
1927	901	2,601	10,500	72.3	24,089
1928	901	1,401	11,000	66.7	24,765
1929	1,007	3,207	13,200	75.6	30,363
1930	898	1,298	13,600	60.4	23,711
1931	851	251	13,000	35.8	12,959
1932	785	85	12,300	44.9	15,836
1933	906	606	12,000	37.4	13,523
1934	908	1,085	12,177	56.1	21,122
1935	997	1,220	12,400	67.8	24,851
1936	1,100	1,763	13,063	81.0	28,962
1937	1,279	3,723	15,507	104.7	35,213
1938	1,214	3,055	17,348	90.6	29,127
1939	1,265	2,400	18,483	85.5	28,012
1940	1,353	1,895	19,025	96.2	31,149
1941	1,402	1,967	19,589	99.3	32,510
1942	1,387	1,880	20,083	67.9	21,990
1943	1,506	1,487	20,064	62.0	20,349
1944	1,678	2,067	20,453	84.4	25,786
1945	1,714	2,087	20,827	93.0	26,649
1946	1,733	2,831	21,924	101.1	30,230
1947	1,853	2,995	23,067	112.8	33,013

*Includes Condensate.

Sources: (a) Production from U. S. Bureau of Mines.
(b) Reserves from API, except 1947 is from World Oil.
(c) Footage and New Wells Drilled from World Oil.

TABLE II-A

DOMESTIC FOOTAGE AND WELLS DRILLED
1947

Month	New Well Footage	New Wells Completed
January	7,793,905	2,221
February	8,070,006	2,339
March	8,486,642	2,465
1st Quarter	24,350,553	7,025
April	8,286,014	2,383
May	8,593,108	2,463
June	9,377,552	2,759
2nd Quarter	26,256,674	7,605
July	10,863,687	3,229
August	9,907,458	3,013
September	9,834,023	2,949
3rd Quarter	30,605,168	9,191
October	11,032,093	3,247
November	10,131,066	2,955
December	10,409,441	2,990
4th Quarter	31,572,600	9,192
Total for Year	112,784,995	33,013

Source: World Oil

TABLE III

FORECAST OF DOMESTIC DRILLING AND RESERVES DEVELOPMENT REQUIRED
TO
MEET ANTICIPATED CRUDE OIL DEMAND

	1948	1949
*Forecast of Required Domestic Crude Oil Production: B/D	5,350,000	5,575,000
**New Crude Oil Reserves Required to be developed to Support Required Production: Million Bbls.	3,280	3,420
***Drilling Footage Required to Develop Necessary New Reserves: Million Feet		
1st Quarter	28.2	28.7
2nd Quarter	30.4	32.7
3rd Quarter	35.3	36.8
4th Quarter	36.6	35.8
Total for Year	130.5	134.0
Estimated Average Well Depth: Feet	3,475	3,500
Required Domestic Wells to be Drilled:		
1st Quarter	8,020	8,080
2nd Quarter	8,700	9,280
3rd Quarter	10,440	10,800
4th Quarter	10,440	10,140
Total for Year	37,600	38,300

*See Table 1.

**Based on historical relationship between actual Crude Oil Production and Proved Reserves (Table II), it is indicated that 1.68 bbls. of new reserves should be developed for each barrel produced in order to provide sufficient sustained productive capacity to meet forecasted increasing demands.

***Based on historical relationship between Footage Drilled and resulting Additions to Proved Crude Oil Reserves (Table II), including 18.5 million feet per year to make-up for 1/4 of deficiency in drilling during war years 1942-1945, inclusive.

TABLE IV

PRODUCTION, EXPORTS AND DOMESTIC SUPPLY OF STEEL TUBULAR GOODS FOR THE OIL AND GAS INDUSTRY 1933-47

(Thousands of Short Tons)

Year	Domestic Annual Production			Estimated Exports of Oil Country Tubular Goods	Indicated New Supply of Oil Country Tubular Goods for Domestic Use	
	Oil Country Tubular Goods	Steel Line Pipe	Total	Exports	Total	Tons/1000 Ft. Drilled
1933	366	165	531	44	26	340	9.1
1934	681	205	886	64	48	633	11.3
1935	744	220	964	27	21	723	10.6
1936	1,116	620	1,736	32	21	1,095	13.5
1937	1,419	741	2,160	93	61	1,358	13.0
1938	1,035	289	1,324	71	56	979	10.8
1939	1,050	641	1,691	98	61	989	11.6
1940	1,028	796	1,824	203	72	956	10.0
1941	1,051	1,222	2,273	142	66	985	10.0
1942	458	1,049	1,507	137	32	426	6.3
1943	675	1,127	1,802	113	42	633	10.2
1944	1,127	986	2,113	199	79	1,048	12.4
1945	1,118	845	1,963	257	78	1,040	11.2
1946	1,095	974	2,069	180	77	1,018	10.1
1947	1,350*	1,200*	2,550*	-	95	1,255*	11.1

* Preliminary figures.

Source: Production figures from American Iron and Steel Institute

TABLE V

FORECAST OF STEEL REQUIREMENTS FOR DOMESTIC OIL AND GAS DRILLING, DEVELOPMENT, AND PRODUCTION OPERATIONS
(Includes Requirements of Manufacturers for Producing Oil Field Equipment and Materials)

	1948				1949			
	1st Qtr	2nd Qtr.	3rd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Carbon Steel (Short Tons)	450,005	483,585	560,015	583,695	462,525	523,365	583,135	568,065
Bars, cold finished	4,760	5,130	5,960	6,180	4,860	5,520	6,210	6,050
Bars, hot rolled	21,600	23,300	27,100	28,100	22,050	25,100	28,200	27,500
Ingots, billets, etc.	8,000	8,630	10,020	10,400	8,170	9,290	10,450	10,170
Oil Country Tubular Goods	258,400	278,000	323,000	335,300	263,300	299,300	336,800	327,800
Line Pipe	68,250	73,150	85,150	90,565	72,565	81,565	88,350	86,350
Plate	21,615	22,715	25,225	25,965	21,985	23,985	25,975	25,485
Rails	350	370	435	450	350	400	450	440
Sheet and Strip	26,945	29,045	33,745	34,945	27,545	31,245	35,145	34,245
Castings	10,970	11,710	13,640	14,130	11,120	12,630	14,180	13,810
Structural Shapes	19,685	20,910	23,615	25,140	20,810	22,970	24,455	23,885
Tin Plate	220	230	270	280	220	250	280	275
Tubing	6,060	6,530	7,600	7,870	6,180	7,030	7,910	7,700
Wire Rod and Wire	3,460	3,730	4,340	4,500	3,530	4,020	4,520	4,400
Alloy Steel (Short Tons)	122,350	132,120	153,560	159,050	125,450	141,950	160,150	155,930
Bars, cold finished	2,850	3,080	3,580	3,700	2,920	3,300	3,730	3,630
Bars, hot rolled	14,860	16,020	18,620	19,308	15,200	17,200	19,430	18,920
Ingots, billets, etc.	32,200	34,750	40,400	41,800	33,000	37,350	42,100	41,050
Oil Country Tubular Goods	57,600	62,000	72,000	74,700	58,700	66,700	75,200	73,200
Pipe	3,600	4,100	4,700	4,800	4,000	4,300	4,900	4,800
Plate	240	260	300	310	240	275	310	300
Sheet and Strip	535	580	670	695	550	620	700	680
Castings	7,000	7,640	8,880	9,230	7,280	8,250	9,260	9,020
Pressure Tubing	3,030	3,270	3,800	3,940	3,100	3,510	3,960	3,860
Wire Rods and Wire	475	510	595	620	485	550	620	605

TABLE VI

FORECAST OF STEEL REQUIREMENTS FOR

NATURAL GASOLINE, CYCLING, AND PRESSURE MAINTENANCE PLANTS

Material	2nd Qtr. 1948	3rd Qtr. 1948	4th Qtr. 1948	1st Qtr. 1949	2nd Qtr. 1949	3rd Qtr. 1949
Structural Steel Shapes	4,124	5,069	3,693	2,759	2,759	2,582
Carbon Steel Bars	2,197	2,701	1,973	1,456	1,456	1,356
Hot Rolled Sheets 16 ga. and Heavier	111	137	92	77	77	72
Cold Rolled Sheets & Hot Rolled Sheets P & C 17 Ga. and Lighter	43	53	40	31	31	30
Galvanized Sheets	537	661	484	356	356	331
Plates - Over 3/16" thick to 5/8"	8,186	9,970	7,135	5,410	5,410	5,037
Plates - Over 5/8" thick	9,189	11,320	8,227	6,101	6,101	5,677
Tubular Goods - 16" diameter & Larger	10,104	12,442	9,052	6,706	6,706	6,239
6 5/8" to 14" dia. Inclu.	13,631	16,793	12,207	9,048	9,048	8,419
Line Pipe - 2" to 5" diameter (Seamless only)	6,985	8,606	6,256	4,637	4,637	4,316
3½" OD & smaller (welded and seamless)	1,271	1,566	1,136	844	844	785
2 3/8" to 5 9/16" welded	3,730	4,594	3,338	2,479	2,479	2,307
Steel Castings	6,569	11,093	5,881	4,366	4,366	4,036
Steel Forgings	3,416	4,200	3,057	2,268	2,268	2,111
Cast Iron	521	641	467	346	346	322
	70,614	89,846	63,038	46,884	46,884	43,640

TABLE VII

COMBINED FORECAST OF STEEL REQUIREMENTS FOR
PRODUCTION BRANCH OF PETROLEUM INDUSTRY IN THE UNITED STATES

CARBON STEEL (SHORT TONS)	1948			1949		
	2nd Qtr.	3rd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	3rd Qtr.
Bars, Cold Finished	6,228	7,310	7,166	5,588	6,248	6,888
Bars, Hot Rolled	24,399	28,451	29,087	22,778	25,828	28,878
Ingots, billets, etc.	12,046	14,220	13,457	10,438	11,558	12,561
Oil country Tubular Goods	278,000	323,000	335,300	263,300	299,300	336,800
Line Pipe	108,871	129,151	122,554	96,279	105,279	110,416
Plate	40,090	46,515	41,327	33,496	35,496	36,689
Rails	370	435	450	350	400	450
Sheet and Strip	29,736	34,596	35,561	28,009	31,709	35,578
Castings	17,158	22,601	19,008	14,741	16,251	17,529
Structural Shapes	25,034	28,684	28,833	23,569	25,729	27,037
Tin Plate	230	270	280	220	250	280
Tubing	6,530	7,600	7,870	6,180	7,030	7,910
Wire Rod	3,730	4,340	4,500	3,530	4,020	4,520
Alloy Steel (Short Tons)						
Bars, Cold Finished	3,080	3,580	3,700	2,920	3,300	3,730
Bars Hot Rolled	16,020	18,620	19,300	15,200	17,200	19,430
Ingots, billets, etc.	34,750	40,400	41,800	33,000	37,350	42,100
Oil Country Tubular Goods	62,000	72,000	74,700	58,700	66,700	75,200
Pipe	4,100	4,700	4,800	4,000	4,300	4,900
Plate	260	300	310	240	275	310
Sheet and Strip	580	670	695	550	620	700
Castings	9,182	11,653	10,700	8,371	9,341	10,269
Pressure Tubing	3,270	3,800	3,940	3,100	3,510	3,960
Wire Rods and Wire	510	595	620	485	550	620
GRAND TOTAL CARBON AND ALLOY STEEL	686,319	803,421	805,783	634,859	712,199	786,925

A P P E N D I X B

TRANSPORTATION SUBCOMMITTEE

R E P O R T

of

TRANSPORTATION SUBCOMMITTEE

of

NATIONAL PETROLEUM COUNCIL'S COMMITTEE

on

PETROLEUM INDUSTRY STEEL REQUIREMENTS

Fayette B. Dow, Chairman
A. W. Peake
J. C. Donnell

C
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NATIONAL PETROLEUM ASSOCIATION

MUNSEY BUILDING

Washington 3, D.C.

March 3, 1948

Mr. Russell B. Brown
1110 Ring Building
Washington, D.C.

Dear Mr. Brown:

Under date of January 29th you appointed a Subcommittee consisting of A. W. Peake, J. C. Donnell and myself as Chairman, to make a study and report on the steel requirements for domestic petroleum transportation for the six quarterly periods commencing April 1st, 1948.

The desired information has been developed through a representative of each of the five media of petroleum transportation, as follows:

For Pipe Lines - by Bruce C. Clardy, President
Stanolind Pipe Line Company

For Tankers - by M. G. Gamble, General Manager of the
Marine Department of
Standard Oil Company of New Jersey.

For Barges - by Chester C. Thompson, President
American Waterways Operators

For Tank Cars - by B. C. Graves, President
Union Tank Car Company

For Tank Trucks - by S. F. Niness, President
Leaman Transportation, Inc.,
(who during World War II was Director
of the Tank Truck Section, Office of
Defense Transportation).

I attach hereto a report summarizing the requirements as determined for each of these media of transportation. These reports indicate the manner in which the steel requirements were ascertained.

Summarizing these reports, briefly, the requirements for the eighteen months period are as follows:

(1) - PIPE LINES

The total requirements for domestic crude oil and products pipe lines, as shown in the survey by Mr. Clardy, are 1,617,103 tons. These figures were determined by questionnaire. Replies were received from 79 companies. It is estimated that fully 97% of the steel requirements were reported. Only one important interstate pipe line system did not answer the questionnaire. The attached EXHIBIT A shows these requirements in detail.

In addition to the figures obtained through Mr. Clardy's questionnaire, it appeared that four companies in California had included their figures in the steel requirements report to you for refineries. These have been taken out of that report and a statement for the four companies is attached hereto, as EXHIBIT A1. The total tonnage for these four companies is 29429 tons. Adding them to those included in the questionnaire survey, the total requirements are 1,646,532 tons.

(2) - TANKERS

The attached statement by Mr. Gamble, EXHIBIT B, gives the results of his study of the world tanker and construction program based on the best available information as to tonnage presently under construction, as well as tankers reported to have been ordered with deliveries scheduled during 1948 and 1949. Tankers are defined as petroleum carrying vessels of 3000 dead weight tons or more. The statement shows that the estimated steel requirements for the period April 1, 1948 to September 30, 1949, for new construction in U. S. yards amount to 195,890 tons; for repairs and maintenance in U. S. yards the requirements are for 175,000 tons, making a total of 370,890 tons. The statement also shows the steel requirements for foreign yards but the extent to which such steel will come from U.S. steel mills has not been estimated. A further estimate has been made for construction contracts that may be placed in United States yards of 150,000 tons.

(3) - BARGES

Steel requirements for petroleum carrying barges (vessels of less than 3000 dead weight tons are shown in the attached statement, EXHIBIT C. The total requirement for the stated period is 349,086 tons.

(4) - TANK CARS

With respect to tank cars, EXHIBIT D, attached, shows the tonnage of steel required for the entire capacity of the plants of the two companies which build tank cars, the American Car and Foundry Company and the General American Transportation Corporation, for the period April 1, 1948 to September 30, 1949. There is a substantial shortage of petroleum tank cars, and the number of cars on order, as reported to the Oil and Gas Division by the Office of Defense Transportation, does not reflect the number of tank cars required, inasmuch as the current steel shortage has been a deterrent to placing

orders for the number of tank cars that are needed. It is understood that the requirement for tank cars has been and is under consideration in the current allocations of steel for total railroad car production that have been made through cooperation between the Department of Commerce, the Office of Defense Transportation, and the steel companies, with the Oil and Gas Division as advisers for tank cars. These allocations have been materially insufficient. EXHIBIT D shows that 324,360 tons of steel, of the several classifications, would be required for capacity operation of the two tank car manufacturing companies.

(5) - TANK TRUCKS

For the purpose of this report, a transport tank truck includes those having a carrying capacity of 2,000 gallons or more. The attached statement, EXHIBIT E, with reference to steel requirements for tank trucks, shows an estimated requirement of 50,040 tons of steel for the tanks in the estimated production of transport tank trucks. It will be noted that no estimate of steel requirements has been made for structural shapes, tubular goods, forgings and castings required in the production of these tanks. This could be estimated with approximate accuracy by taking the weight of these categories of steel required for the production of a single typical 3,000 gallon transport truck and multiplying that quantity by the number of vehicles scheduled to be built. In this exhibit there is also an estimate of the carbon steel and the alloy steel required for the trucks and tractors, 41,184 tons, which may be included if the committee feels that steel estimates for trucks and tractors should be included in its report to the Oil and Gas Division.

In the foregoing survey all figures are in short tons.

Sincerely yours,

/s/ Fayette B. Dow

Fayette B. Dow,
for the Subcommittee
on Steel Requirements
for Petroleum Transportation.

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STANOLIND PIPE LINE COMPANY

STANOLIND BUILDING

Tulsa 2, Oklahoma

March 2
1 9 4 8

AIR MAIL

Mr. Fayette B. Dow
Munsey Building
Washington, D.C.

Dear Mr. Dow:

Enclosed are three copies of the revised summary sheets showing steel requirements for the period April 1, 1948, to October 1, 1949, by quarters. Attached to the three summary sheets are additional detail sheets to be added to the detail information you have for each quarter.

With the addition of the requirements shown on these sheets, I now estimate that the revised summary covers 97 to 98 per cent of the total steel requirements for crude oil and products pipe lines.

Yours very truly

/s/ Bruce C. Clardy

Encl.

EXHIBIT A

PIPE LINE COMPANY STEEL REQUIREMENTS

SUMMARY - APRIL 1, 1948 to OCTOBER 1, 1949 BY QUARTERS

TOTAL REQUIREMENTS FOR ALL COMPANIES

		LINE PIPE								STRUCTURAL	STEEL PLATES		TOTAL
		16" or Larger		6 5/8" to 14" Incl.		2" to 5" Incl.		Total	Total	STEEL, SHAPES	3/16" to 5/8"	Over 5/8"	STEEL
		Miles	Tons	Miles	Tons	Miles	Tons	Miles	Tons	Tons	Tons	Tons	TONS
2nd Quarter 1948	W	606.68	88,491.	633.39	40,359.26	546.36	12,626.83	1786.33	141,477.09				
	S	105.20	14,641.	650.73	46,833.98	170.00	3,868.69	925.93	65,343.67				
	Total-	711.88	103,132.	1284.02	87,193.24	716.36	16,495.52	2712.26	206,820.76	1400.64	13,771.93	1,323.75	223,317.08
3rd. Quarter 1948	W	664.00	136,314.	797.84	52,316.25	569.41	13,052.01	2021.25	201,682.26				
	S	198.91	28,704.	1011.46	83,323.20	180.95	4,817.59	1391.32	116,844.79				
	Total-	862.91	165,018	1799.30	135,639.45	750.36	17,869.60	3412.57	318,527.05	1940.64	12,489.18	3,044.00	336,000.87
4th Quarter 1948	W	357.80	73,237.	518.07	37,783.87	520.96	11,629.11	1396.83	122,649.98				
	S	19.65	5,253.	327.80	22,760.57	109.71	2,712.45	457.16	30,726.02				
	Total	377.45	78,490.	845.87	60,544.44	630.67	14,341.56	1853.99	153,376.00	1318.64	15,769.07	1,703.75	172,167.46
1st. Quarter 1949	W	410.40	75,721.	1114.04	92,655.65	586.57	13,209.60	2111.01	181,586.26				
	S	60.50	8,374.	617.81	47,288.29	131.61	3,407.28	809.92	59,069.56				
	Total	470.90	84,095.	1731.85	139,943.94	718.18	16,616.88	2920.93	240,655.82	1047.64	11,948.67	2,650.50	256,302.63
2nd Quarter 1949	W	951.40	166,578.	505.79	30,386.65	494.36	11,139.39	1951.55	208,104.04				
	S	60.60	8,390.	712.72	53,782.15	154.70	4,014.54	928.02	66,186.69				
	Total	1,012.00	174,968.	1218.51	84,168.80	649.06	15,153.93	2879.57	274,290.73	1395.64	18,724.21	2,148.00	296,558.58
3rd Quarter 1949	W	315.20	46,952.	1875.04	190,853.73	480.99	10,350.58	2671.23	248,156.31				
	S	60.90	8,430.	588.48	41,933.96	119.63	3,093.35	769.01	53,457.31				
	Total	376.10	55,382.	2463.52	232,787.69	600.62	13,443.93	3440.24	301,613.62	6136.64	24,429.37	577.00	332,756.63
TOTAL-Apr.'48-Oct.'49-	W	3,305.48	587,293.	5434.07	444,355.41	3198.65	72,007.52	11938.20	1,103,655.94				
	S	505.76	73,792.	3909.00	295,922.15	866.60	21,913.90	5281.36	391,628.04				
Grand Total- March 1, 1948		3,811.24	661,085.	9343.07	740,277.56	4065.25	93,921.42	17219.56	1,495,283.98	13239.84	97,132.43	11,447.00	1,617,103.25

(Note: This summary supersedes summary dated Feb. 27, 1948)

W - Welded or Seamless

S - Seamless

EXHIBIT A1

ESTIMATED STEEL REQUIREMENTS FOR PIPE LINE FOR FOUR COMPANIES, - PACIFIC COAST AREAS

TONS

	Tubular Goods	Plate	Structural Steel	Bars & Misc.	Valves & Fittings	Total
1948 - 2nd Quarter	110	185	-	-	5	300
	325	60	-	-	2	387
	500	40	-	11	40	591
	2,067	-	-	-	16	2,083
Total	3,002	285	-	11	63	3,361
- 3rd Quarter	1,050	700	30	20	35	1,835
	1,530	60	-	-	60	1,650
	6,300	40	-	13	40	6,393
	1,418	1	-	2	12	1,433
Total	10,298	801	30	35	147	11,311
- 4th Quarter	2,000	1,050	10	5	55	3,120
	190	60	-	-	2	252
	6,300	40	-	13	40	6,393
	150	1	-	2	8	161
Total	8,640	1,151	10	20	105	9,926
1949 - 1st Quarter	1,025	210	5	5	10	1,255
	190	60	-	-	2	252
	600	33	34	17	40	724
	150	1	-	2	8	161
Total	1,965	304	39	24	60	2,392
- 2nd Quarter	-	-	-	-	-	-
	355	60	-	-	2	417
	600	33	34	17	40	724
	150	1	-	2	8	161
Total	1,105	94	34	19	50	1,302
- 3rd Quarter	-	-	-	-	-	-
	190	60	-	-	2	252
	600	33	34	17	40	724
	150	1	-	2	8	161
Total	940	94	34	19	50	1,137
TOTAL - 6 QUARTERS	25,950	2,729	147	128	475	29,429

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EXHIBIT B

STANDARD OIL COMPANY

(Incorporated in New Jersey)

Marine Department

30 Rockefeller Plaza
New York 20, N. Y.

February 27, 1948

Mr. Fayette B. Dow, General Counsel
National Petroleum Association
Munsey Building
Washington, D. C.

Dear Mr. Dow:

In an effort to secure an approximqtion of steel requirements in connection with tanker construction throughout the world from April 1, 1948 to September 30, 1949, we have made a study of the world's tanker construction program based on the best available information as to tonnage presently in the process of construction as well as tankers reported as having been ordered with deliveries seheduled during 1948 and 1949. The limited time available, however, has not permitted as thorough a study of the problem or as careful check of the data as would otherwise have been desirable.

While one of the objectives is to obtain a picture of the needs on a quarterly basis, estimates by such intervals cannot be made with any degree of accuracy due to the uncertainty as to delivery of the tankers ordered. On the other hand, it is felt that a reasonable forecast can be made covering the entire eighteeen month period. In determining the amount of steel required in this period, we have used as a basis the following figures which show the deadweight aggregate of tankers scheduled for delivery during this and next year from United States and foreign yards and the equivalents of such deadweight expressed in terms of T-2 type tankers:

	1948			1949		
		T-2 Equivalents			T-2 Equivalents	
Yards	DWT	No.	DWT	DWT	No.	DWT
United States	56,000	4	66,000	696,000	46	764,000
Foreign	967,000	50	830,000	743,000	38	631,000
Total	1,023,000	54	896,000	1,439,000	84	1,395,000

On this basis, delivery of the equivalent of 138 T-2 type tankers would be expected over these years. However, in the case of foreign construction we feel that an allowance should be made for expected delayed deliveries and, to compensate for this factor, we have assumed that 60 percent of the tonnage originally scheduled for delivery from foreign yards in 1948 and not as yet launched will be deferred until 1949 and likewise 60 percent of the tonnage reported

for delivery in 1949 will be deferred until 1950. On this premise, anticipated deliveries would work out about as follows:

	1948			1949		
		T-2 Equivalents			T-2 Equivalents	
Yards	DWT	No.	DWT	DWT	No.	DWT
United States	56,000	4	66,000	696,000	46	764,000
Foreign	478,000	25	415,000	788,000	41	681,000
Total	534,000	29	481,000	1,484,000	87	1,445,000

This would indicate completion of the equivalent of approximately 116 T-2s for 1948 and 1949, an average of about 58 tankers of this type per year, or 87 between April 1, 1948 and September 30, 1949.

The total amount of steel material required for plates (including YODER shapes formed of plating), shapes, bar-stock and pipes for the construction of a T-2 type tanker is about 5,155 short tons. This would aggregate a total of 448,000 short tons of steel needed for the construction of 87 T-2 equivalents throughout the world in the period April 1, 1948 to September 30, 1949. Divided as to United States and foreign construction, the corresponding steel requirements would be 196,000 and 252,000 short tons respectively.

As to steel requirements for plates, shapes, bar-stock and piping in connection with repairs to the world's tanker fleet, it is estimated that approximately 200,000 short tons will be needed annually, which when used as a basis in computing the amount of steel necessary for the maintenance of the world fleet, would result in an additional 300,000 short tons for this purpose over the one and a half year period, distributed 175,000 tons to United States Yards and 125,000 tons abroad.

To summarize, 371,000 short tons of steel other than for machinery will be required for tanker construction and repairs in the United States and 377,000 tons in foreign yards during the eighteen month period beginning April 1, 1948 and ending September 30, 1949, making a total of 748,000 tons for the same period on a world-wide basis.

However, these figures do not take into consideration the steel that would be required if further tanker construction is undertaken either in the United States or abroad. It is our feeling that 150,000 short tons of additional steel should be included to cover contracts that may be placed in this country for which steel will have to be provided within the period under consideration. Any contracts that may be placed abroad in the future will not, in our opinion, affect steel requirements in this period. Taking this estimate into account, we arrive at a grand total of 898,000 short tons, 521,000 of which would be required for U. S. yards and 377,000 for foreign yards.

The attached statement indicates our best estimate of the breakdown of these requirements into certain classifications.

Yours very truly

/s/ M. G. Gamble

STATEMENT OF ESTIMATED STEEL REQUIREMENTS IN CONNECTION WITH TANKER CONSTRUCTION AND MAINTENANCE FOR THE PERIOD APRIL 1,1948 TO SEPTEMBER 30, 1949, FOR N.P.C.COMMITTEE ON PETROLEUM INDUSTRY STEEL REQUIREMENTS

(Figures are expressed in Short Tons)

	U.S. Yards	Foreign Yards	Total
NEW CONSTRUCTION PROGRAM			
Plates	161,500	208,250	369,750
Shapes	21,470	27,685	49,155
Bar-stock	3,800	4,900	8,700
Piping	9,120	11,760	20,880
Total	195,890	252,595	448,485
REPAIRS AND MAINTENANCE			
Plates, etc.	175,000	125,000	300,000
TOTAL			
Plates	336,500	333,250	669,750
Shapes	21,470	27,685	49,155
Bar-stock	3,800	4,900	8,700
Piping	9,120	11,760	20,880
Total	370,890	377,595	748,485
FURTHER CONSTRUCTION CONTRACTS THAT MAY BE PLACED IN U.S.YARDS			
Plates	124,570	-	124,570
Shapes	15,910	-	15,910
Bar-stock	2,750	-	2,750
Piping	6,770	-	6,770
Total	150,000	-	150,000
GRAND TOTAL			
Plates	461,070	333,250	794,320
Shapes	37,380	27,685	65,065
Bar-stock	6,550	4,900	11,450
Piping	15,890	11,760	27,650
Total	520,890	377,595	898,485

February 27, 1948

EXHIBIT C

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THE

AMERICAN WATERWAYS OPERATORS,

INC.

Executive Offices
Suite 312-1319 F Street, N.W.
Washington 4, D. C.

February 26, 1948

Mr. Fayette B. Dow
Committee on Petroleum Industry
Steel Requirements
National Petroleum Council
Munsey Building
Washington 4, D.C.

Dear Mr. Dow:

Please be advised that at your request I have thoroughly canvassed the domestic water carrier and operator industry in an effort to ascertain its requirements for steel for the construction of equipment for the transportation of petroleum and its products in bulk.

Every known builder of this type of equipment in the United States has been requested to submit an estimate for the eighteen (18) months' period beginning April 1, 1948. The responses received from these inland shipyards have been generally satisfactory and estimates submitted include steel needed for the building of tank barges, towing vessels and repairs to such equipment, all of which will be used in the Continental United States, and by American Companies abroad for the transportation of petroleum and its products in bulk.

In submitting the following estimate of steel requirements, I have given consideration to all known factors and thus believe that such estimates represent the best judgment possible as to the amount of steel that can be reasonably expected to be required for the building of the equipment in question, both from an expansion standpoint and the replacement and repair of obsolete and existing floating equipment. As suggested by you, these estimates include the construction of self-propelled vessels of less than 3,000 dead weight tons.

For the six (6) quarters beginning April 1, 1948, and continuing through September 30, 1949, it is estimated that the following will be required for the construction of the equipment enumerated herein.

April, 1948 through June, 1948

Type of Steel	Net Tons (2,000 Pounds)
Plates (5/8-inch)	41,145
Shapes	15,767
Bars (2 inch and 3 inch)	66
Pipe (seamless - 5 inch and 6 inch)	634
Pipe (seamless - 2 inch)	423
Hot Rolled Sheets (16 gauge and heavier)	146
Total	58,181

July, 1948 through September, 1948

Type of Steel	Net Tons (2,000 Pounds)
Plates (5/8-inch)	41,145
Shapes	15,767
Bars (2 inch and 3 inch)	66
Pipe (seamless - 5 inch and 6 inch)	634
Pipe (seamless - 2 inch)	423
Hot Rolled Sheets (16 gauge and heavier)	146
Total	58,181

October, 1948 through December, 1948

Type of Steel	Net Tons (2,000 Pounds)
Plates (5/8-inch)	41,145
Shapes	15,767
Bars (2 inch and 3 inch)	66
Pipe (seamless - 5 inch and 6 inch)	634
Pipe (seamless - 2 inch)	423
Hot Rolled Sheets (16 gauge and heavier)	146
Total	58,181

January, 1949 through March, 1949

Type of Steel	Net Tons (2,000 Pounds)
Plates (5/8-inch)	41,145
Shapes	15,767
Bars (2 inch and 3 inch)	66
Pipe (seamless - 5 inch and 6 inch)	634
Pipe (seamless - 2 inch)	423
Hot Rolled Sheets (16 gauge and heavier)	146
Total	58,181

April, 1949 through June, 1949

Type of Steel	Net Tons (2,000 Pounds)
Plates (5/8-inch)	41,145
Shapes	15,767
Bars (2 inch and 3 inch)	66
Pipe (seamless - 5 inch and 6 inch)	634
Pipe (seamless - 2 inch)	423
Hot Rolled Sheets (16 gauge and heavier)	146
Total	58,181

July 1949 through September, 1949

Type of Steel	Net Tons (2,000 Pounds)
Plates (5/8-inch)	41,145
Shapes	15,767
Bars (2 inch and 3 inch)	66
Pipe (seamless - 5 inch and 6 inch)	634
Pipe (seamless - 2 inch)	423
Hot Rolled Sheets (16 gauge and heavier)	146
Total	58,181

Recapitulation

Type of Steel	Net Tons (2,000 Pounds)
Plates (5/8-inch)	246,870
Shapes	94,602
Bars (2 inch and 3 inch)	396
Pipe (seamless - 5 inch and 6 inch)	3,804
Pipe (seamless - 2 inch)	2,538
Hot Rolled Sheets (16 gauge and heavier)	876
Total	349,086

Respectfully submitted

/s/ Chester C. Thompson

CHESTER C. THOMPSON

C
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EXHIBIT D

UNION TANK CAR COMPANY

B. C. Graves
President

228 North LaSalle Street

Chicago 1, Illinois

February 27, 1948

Mr. Fayette B. Dow,
Chairman, Committee on Railroad Transportation,
American Petroleum Institute
930 Munsey Building
Washington 4, D. C.

Dear Sir:

Referring to telephone conversations and previous correspondence, relative to your request that I analyze the steel required for the construction of new tank cars needed in the Petroleum Industry:

As you know, there are two principal builders of tank cars, i.e. the American Car & Foundry Company and the General American Transportation Corporation. Possibly some cars are being built or will be built in other shops, but in my opinion not in sufficient quantity to justify inclusion in this report.

I have previously furnished you a letter from General American Transportation Corporation, listing the orders for tank cars on their books as of February 1, 1948 not yet delivered and identified as for the Petroleum Industry. I have also forwarded you a letter from the American Car & Foundry Company, setting forth similar information as to that Company.

Complying with your telephone request on Thursday, February 26, I am attaching a chart showing the tonnage of steel required by the General American Transportation Corporation and the American Car & Foundry Company to enable them to build new tank cars for the Petroleum Industry at their maximum capacity output for the six quarterly periods between April 1, 1948 and September 30, 1949. This tonnage has been subdivided into the different classifications in accordance with products classification of steel requirements attached to your letter of February 13.

I consider it very important that shipments of steel as scheduled on the enclosed chart be forwarded to the tank car builders immediately so that they can reach maximum production at the earliest possible date.

The tank car builders have orders for tank cars to be used for other than petroleum products and it is, therefore, very im-

February 27, 1948

Mr. Fayette B. Dow:

portant that steel allocated for tank cars to be used in the Petroleum Industry be properly earmarked to make sure that it is used for the purpose intended.

You are fully aware of the shortage of tank cars and its serious effect, not only upon the Petroleum Industry but on the entire country, and I am hopeful that the necessary steel will be promptly allocated so that new tank cars can be built in sufficient quantities to alleviate this shortage.

Thanking you for your cooperation, I am

Very truly yours,

/s/ B. C. Graves
President

BCG:EJ

AMERICAN CAR AND FOUNDRY COMPANY STEEL REQUIREMENTS FOR TANK CARS FOR THE PETROLEUM INDUSTRY

(Tonnage is based on an output of 450 cars per month or 1,350 cars per quarter)

	TONNAGE REQUIRED (QUARTERLY)						
Classifications	4/1/48 To 6/30/48	7/1/48 To 9/30/48	10/1/48 To 12/31/48	1/1/49 To 3/31/49	4/1/49 To 6/30/49	7/1/49 To 9/30/49	TOTAL
Structural Steel Shapes	3,435	3,435	3,435	3,435	3,435	3,435	20,610
Carbon Steel Bars	1,210	1,210	1,210	1,210	1,210	1,210	7,260
Hot Rolled Sheets, 16 Ga. and Heavier	3,775	3,775	3,775	3,775	3,775	3,775	22,650
Cold Rolled Sheets and Hot Rolled Sheets P and O 17 Ga. and Lighter	-	-	-	-	-	-	-
Galvanized Sheets	-	-	-	-	-	-	-
Plates:							
Over 3/16" Thick to 5/8" Thick, Incl.	6,740	6,740	6,740	6,740	6,740	6,740	40,440
Over 5/8" Thick	12,580	12,580	12,580	12,580	12,580	12,580	75,480
Tubular Products:							
Casing and Tubing-Carbon	-	-	-	-	-	-	-
Casing and Tubing-Alloy	-	-	-	-	-	-	-
Drilling Pipe	-	-	-	-	-	-	-
Line Pipe:							
16" Diameter and Larger	-	-	-	-	-	-	-
6-5/8" to 14" Dia. Incl.	-	-	-	-	-	-	-
2" to 5" Dia.Incl. (Seamless only)	-	-	-	-	-	-	-
3-1/2" O.D. and Smaller (Welded or Seamless)	485	485	485	485	485	485	2,910
TOTAL	28,225	28,225	28,225	28,225	28,225	28,225	169,350

2/27/48

GENERAL AMERICAN TRANSPORTATION CORPORATION STEEL REQUIREMENTS
FOR TANK CARS FOR THE PETROLEUM INDUSTRY

(Tonnage is based on an output of 450 cars per month or 1,350 cars per quarter)

Classifications	TONNAGE REQUIRED (QUARTERLY) 4/1/48 To 6/30/48	7/1/48 To 9/30/48	10/1/48 To 12/31/48	1/1/49 To 3/31/49	4/1/49 To 6/30/49	7/1/49 To 9/30/49	TOTAL
Structural Steel Shapes	3,080	3,080	3,080	3,080	3,080	3,080	18,480
Carbon Steel Bars	950	950	950	950	950	950	5,700
Hot Rolled Sheets, 16 Ga. and Heavier	2,500	2,500	2,500	2,500	2,500	2,500	15,000
Cold Rolled Sheets and Hot Rolled Sheets P and O 17 Ga. and Lighter	-	-	-	-	-	-	-
Galvanized Sheets	-	-	-	-	-	-	-
Plates: Over 3/16" Thick to 5/8" Thick, Incl.	12,455	12,455	12,455	12,455	12,455	12,455	74,730
Over 5/8" Thick	5,830	5,830	5,830	5,830	5,830	5,830	34,980
Tubular Products: Casing and Tubing-Carbon	-	-	-	-	-	-	-
Casing and Tubing-Alloy	-	-	-	-	-	-	-
Drilling Pipe	-	-	-	-	-	-	-
Line Pipe: 16" Dia.and Larger	-	-	-	-	-	-	-
6-5/8" to 14" Dia.Incl.	-	-	-	-	-	-	-
2" to 5" Dia. Incl. (Seamless Only)	-	-	-	-	-	-	-
3-1/2" O.D. and Smaller (Welded or Seamless)	1,020	1,020	1,020	1,020	1,020	1,020	6,120
TOTAL	25,835	25,835	25,835	25,835	25,835	25,835	155,010

2/26/48

EXHIBIT E

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LEAMAN TRANSPORTATION COMPANY, INC.,

Downingtown, Pennsylvania

February 27 1948

Mr. Fayette B. Dow
Dow, Lohnes and Albertson
Munsey Building
Washington 4, D. C.

Dear Mr. Dow:

On February 11 we sent you four copies of the material figures prepared by the National Truck Tank and Trailer Tank Institute for 1948 and three months of 1949. On February 13 you wrote us asking us to revise the figures in accordance with the Department of Commerce classification of steel requirements for a period covering April 1, 1948 to September 30, 1949, inclusive, by quarters.

You will find attached the National Truck Tank and Trailer Tank Institute figures as requested.

In talking to various members of the tank truck industry, it is the consensus of opinion that the group represented by the National Truck Tank and Trailer Tank Institute represents only about one-half of the tank manufacturers in the country. Such large firms as Fruehauf, Standard Steel and Beale, (on the West coast) are not members of this group. Therefore, it is suggested that if we double the number of units and the estimated steel requirements needed for manufacture, we will be as near right as can be estimated at this time.

As to the trucks and tractors, ~~it is very evident that the Automobile Manufacturers Association does not intend to furnish us with any information although we have requested it by letter, telephone and wire many times. Many of the truck manufacturers feel that this is a mistake but they have no alternative except to accept the decision of the Automobile Manufacturers Association.~~

In order to have something available, I then secured from one of the large representative manufacturers the amount of carbon steel and alloy steel which would be needed for a truck on which could be mounted a tank of 2000 gallons capacity or more and then, using the figures furnished by the National Truck Tank and Trailer Tank Institute of 370 units multiplied by two, to take care of the other manufacturers not included in the N.T.T. and T.T.I., times the amount of carbon steel and alloy steel required for a truck, we have arrived at an estimated tonnage figure needed for manufacture.

We have used the same procedure for tractors which will pull the trailer tanks by using an average size tractor and arriving at a tonnage figure in the same manner as outlined above.

These figures are all compiled on the recap sheet which is attached and which, in turn, makes up my report as requested.

Yours very truly

/s/ Sam Niness

ESTIMATED DOMESTIC PRODUCTION OF TRANSPORT TANKS

	Truck Tanks 2000-gallon or more capacity	Trailer Tanks All Sizes
	Units	Units
1948 Second Quarter	740	1000
" Third Quarter	740	1000
" Fourth Quarter	740	1000
1949 First Quarter	740	1000
" Second Quarter	740	1000
" Third Quarter	740	1000
TOTAL	4,440	6,000

ESTIMATED STEEL REQUIREMENTS NEEDED FOR MANUFACTURE TRANSPORT TANKS

Hot Rolled Sheets 16-Gauge and heavier

Period	Truck Tanks 2000-gallon or more Short Tons	Trailer Tanks Short Tons	Total Short Tons
One Quarter	2,590	5,750	8,340
Six Quarters	15,540	34,500	50,040

TRUCKS and TRACTORS

Period	Truck 196" Wheel Base Short Tons	Tractor 146" Wheel Base Short Tons	Total Short Tons
Carbon Steel	1,720	2,650	4,370
Alloy Steel	944	1,550	2,494
Six quarters			
Carbon Steel	10,320	15,900	26,220
Alloy Steel	5,664	9,300	14,964

February 27, 1948

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NATIONAL TRUCK TANK AND TRAILER TANK INSTITUTE

120 South LaSalle Street

Chicago 3, Ill.

ESTIMATED DOMESTIC PRODUCTION OF TRANSPORT TANKS FOR COMPANIES NAMES ON ATTACHED LIST

	Truck Tanks 2000 Gallon or more Capacity	Trailer Tanks All Sizes
	Units	Units
1948 Second Quarter	370	500
" Third Quarter	370	500
" Fourth Quarter	370	500
"		
1949 First Quarter	370	500
" Second Quarter	370	500
" Third Quarter	370	500
Total	2,220	3,000

ESTIMATED STEEL REQUIREMENTS NEEDED FOR MANUFACTURE

Hot Rolled Sheets 16-Gauge and Heavier

Period	Truck Tanks 2000 gallon or More Short Tons	Trailer Tanks Short Tons	Total Short Tons
One Quarter	1,295	2,875	4,170
Six Quarters	7,770	17,250	25,020

February 20, 1948

A P P E N D I X C

REFINING SUBCOMMITTEE

PRELIMINARY REPORT

of

SURVEY OF STEEL REQUIREMENTS

of the

U. S. (DOMESTIC) PETROLEUM REFINING INDUSTRY

for the period

April 1, 1948 to September 30, 1949

Survey and Report by:

Sub-Committee for U. S. Refining Industry of N. P. C. Committee on Steel Requirements for the Petroleum Industry.

Committee:

M. Halpern - Chairman
C. L. Harding
J. H. Marshall
H. E. Zoller

2/27/48

SUMMARY OF PRELIMINARY REPORT

The following is a summary of the attached report of the survey by the Sub-Committee for the U. S. Refining Industry of the N.P.C. Committee on Steel Requirements for the Petroleum Industry.

The steel requirements are those actually estimated by 65.02% of the domestic (U. S.) petroleum refining capacity proportionately increased to 100% of the domestic refining industry and covers the six calendar quarters April 1, 1948, to September 30, 1949.

The requirements are placed at:

1,363,966 tons of steel mill products for the total period and by quarters as follows:

1948 -	2nd Quarter	180,596 Tons of Steel
	3rd Quarter	240,383
	4th Quarter	253,154
1949 -	1st Quarter	249,606
	2nd Quarter	255,764
	3rd Quarter	184,463
	Total	1,363,966

The tonnage has been broken down in classifications as recommended at the meeting of February 10, 1948, (at Washington) of the Sub-Committee Chairmen. The breakdown by quarters and by classifications is shown on the attached Table II.

In addition, it was estimated that 141,642 tons of forgings and castings would be required by the refining group over the period divided by quarters as follows:

1948 -	2nd Quarter	18,940 Tons
	3rd Quarter	24,127
	4th Quarter	25,963
1949 -	1st Quarter	26,284
	2nd Quarter	25,845
	3rd Quarter	20,483
	Total	141,642 Tons

The above tonnage on forgings and castings is included in the attached Table II.

Petroleum demands were projected by the Oil & Gas Division (Department of Interior) for the years 1948 - 1950, inclusive. Based upon these demands the required refinery crude running and the required refinery crude running capacity, based upon 90% factor of required crude running were calculated. The derivation and detail of the above are brought out in the attached report.

The required crude running and crude refinery capacity are summarized as follows, expressed in thousands of barrels per day:

	1947	1948	1949	1950
Crude Running Required 4th Quarter Average	5,293	5,515	5,760	5,970
Crude Capacity Required End of year (90% Factor)	5,881*	6,128	6,400	6,633
Additional Crude Capacity Required	66	247	272	233
Total Additional Capacity Required				818

* Actual capacity end of 1947 - 5,815

To check the estimates of steel requirements as received from the refining industry a statistical survey was made basis known experience unit factors and the estimated prior industry consumption.

Calculations based upon the above factors and using the projected additional refining capacity resulted in an estimated requirement for the period of 1,299,426 tons of finished mill steel. It was also estimated that 138,490 tons of forgings and castings would be required over the same period.

In that the estimates as received from the industry were so close to that statistically calculated, it was concluded that the 1,363,966 tons of steel mill products and 141,642 tons of forgings and castings estimated by the various refining units represents a fair estimate of the domestic refining industry steel requirements over the subject period and is the best estimate possible from this preliminary survey.

REFINERY RUNS AND REFINERY CAPACITY REQUIREMENTS
Thousands of Barrels Per Day

	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Total Domestic Demand	2,475	2,283	2,379	2,521	2,695	2,986	3,205	3,110	3,381	3,629	4,075	3,970	4,175	4,569	4,861	4,903	5,455	5,850	6,195	6,490
Exports-Refined Products	271	207	192	201	212	223	289	319	320	216	207	228	298	474	411	303	319	265	230	190
Total	2,746	2,490	2,571	2,722	2,907	3,209	3,494	3,429	3,701	3,845	4,282	4,198	4,473	5,043	5,272	5,206	5,774	6,115	6,425	6,680
Less:																				
Direct Supply	194	137	163	170	206	232	247	220	218	234	312	353	362	424	422	435	514	545	585	615
Imports-Refined Products	106	81	37	41	56	68	81	76	71	112	127	65	136	130	108	134	170	175	190	190
Total	300	218	200	211	262	270	329	296	289	346	339	418	498	554	530	569	684	720	775	805
Stock Changes - Refined Products	19	(26)	(12)	(58)	-	10	78	94	(21)	35	28	(216)	(60)	42	(32)	104	(16)	50	35	25
Refinery Runs Required	2,465	2,246	2,359	2,453	2,645	2,949	3,243	3,227	3,391	3,534	3,971	3,654	3,915	4,531	4,710	4,741	5,074	5,445	5,685	5,900
Refinery Capacity - Yearly Average	3,791	3,854	3,737	3,706	3,832	3,912	4,057	4,185	4,326	4,488	4,587	4,714	4,809	5,054	5,342	5,480	5,621	5,954	6,218	6,467
% of Capacity Utilized	65.0	58.2	63.1	66.2	69.0	75.4	79.9	77.1	78.4	78.7	86.6	77.5	81.4	89.7	88.2	86.5	90.3	91.5	91.4	91.2

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	1947				1948				1949				1950			
	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Total Domestic Demand	5,489	5,158	5,274	5,887	5,918	5,568	5,690	6,224	6,274	5,891	6,019	6,596	6,562	6,184	6,318	6,896
Exports - Refined Products	324	345	345	262	258	272	272	258	215	245	245	215	185	195	195	185
Total	5,813	5,503	5,619	6,149	6,176	5,840	5,962	6,482	6,489	6,136	6,264	6,811	6,747	6,379	6,513	7,081
Less:																
Direct Supply	481	497	531	550	)											
Imports - Refined Products	199	168	134	179	) Quarterly breakdown not shown for these items. See upper											
Total	680	665	665	729	) portion of table for annual averages.											
Stock Changes - Refined Products	(337)	78	(315)	(128)	)											
Refinery Runs Required	4,796	4,916	5,269	5,293	5,355	5,425	5,485	5,515	5,610	5,660	5,710	5,760	5,825	5,875	5,930	5,970
Refinery Capacity Required @ 90%				5,881	5,950	6,028	6,094	6,128	6,233	6,289	6,344	6,400	6,472	6,528	6,589	6,633
Actual Capacity End of Period				5,815	5,881	5,950	6,028	6,094	6,128	6,233	6,289	6,344	6,400	6,472	6,528	6,589
Additional Required				66	69	78	66	34	105	56	55	56	72	56	61	44
Cumulative				66	135	213	279	313	418	474	529	585	657	713	774	818

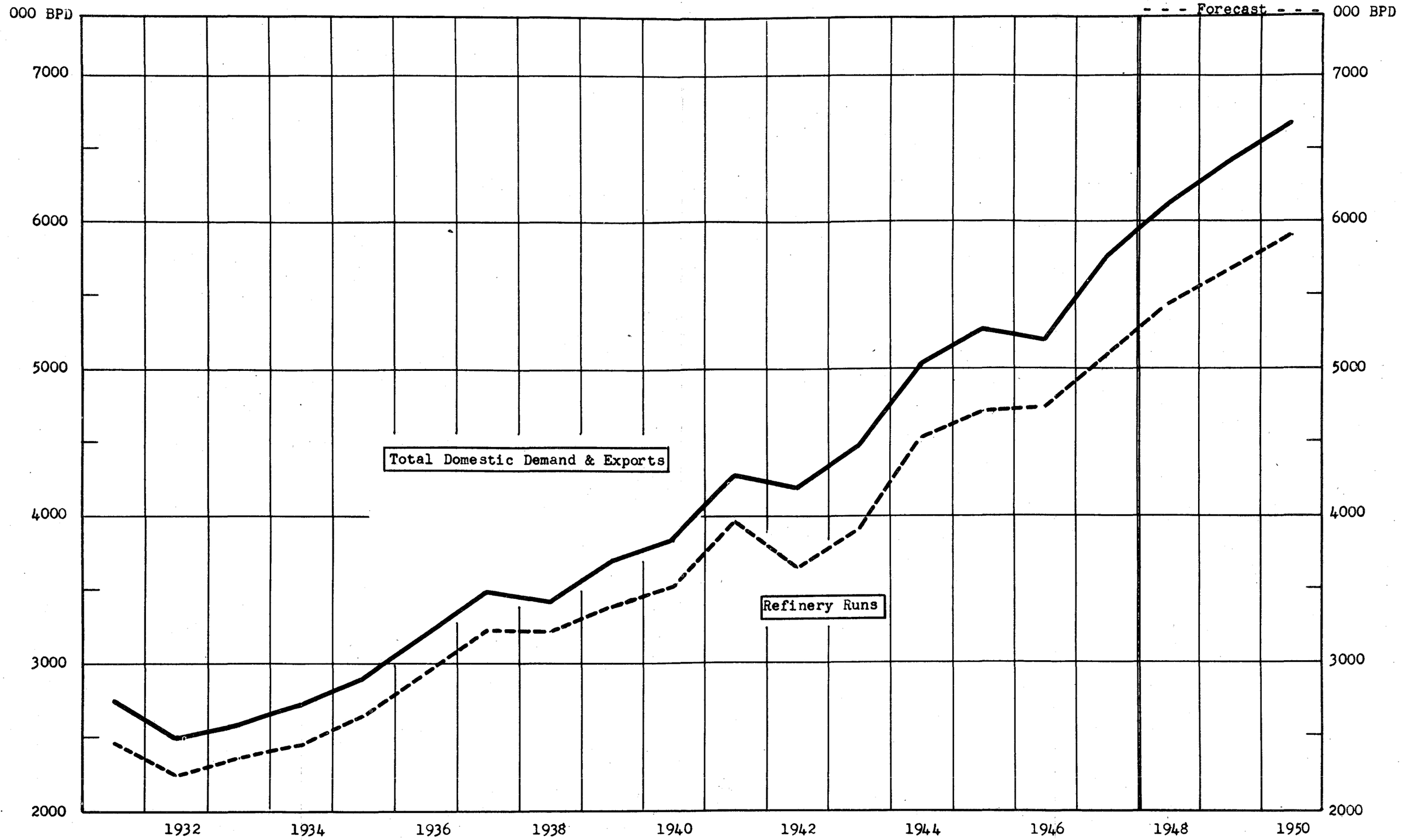
( ) - Figures in parentheses are decreases.

Source: (1) 1931 - 3rd Quarter 1947, inclusive, from U. S. Bureau of Mines.
(2) 4th Quarter 1947 - 4th Quarter 1950, inclusive, estimated.

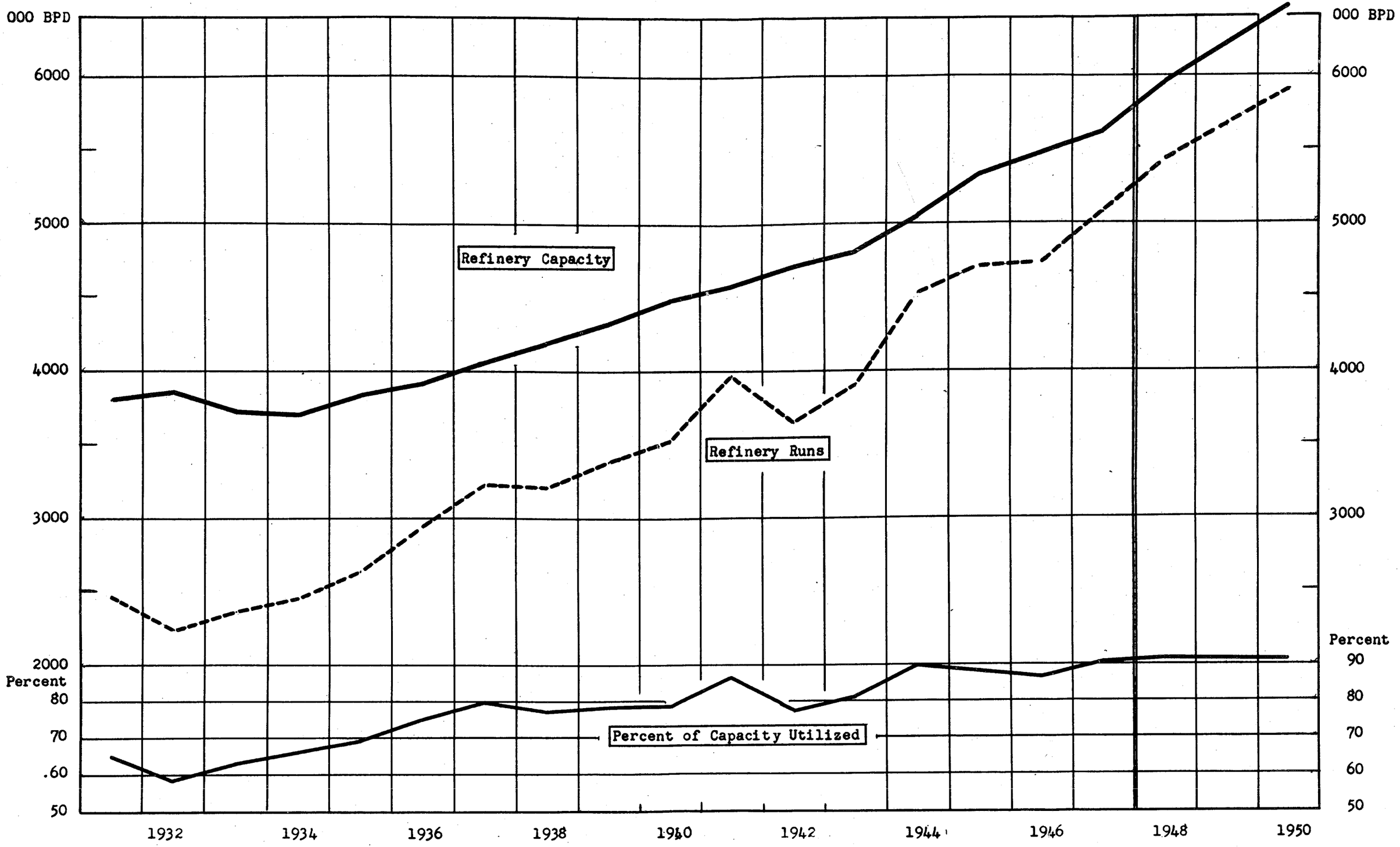
ESTIMATED STEEL REQUIREMENTS
U. S. (DOMESTIC) PETROLEUM REFINING INDUSTRY
TONS

	1948			1949			
	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	Total
Tubular Goods:							
Tubing							
Carbon Steel	6,458	7,766	8,504	8,364	8,367	6,530	45,989
Alloy Steel	4,014	5,022	5,483	5,406	5,376	4,224	29,525
Pipe							
16" and larger	5,620	6,861	7,452	7,328	7,381	5,759	40,401
6-5/8" to 14"	27,882	34,364	37,468	36,648	36,722	28,644	201,728
2" to 5" (Seamless)	16,231	19,816	21,530	21,232	21,114	16,572	116,495
3-1/2" and smaller	8,354	10,050	11,014	10,828	10,159	8,496	58,901
Plate:							
3/16" to 5/8" thick	44,450	63,015	63,400	62,100	67,225	47,528	347,718
5/8" and thicker	25,475	36,214	35,655	37,608	39,703	27,724	202,379
Structural Shapes	31,847	44,115	47,353	45,343	44,790	29,291	242,739
Sheets							
16 ga to 3/16"	835	1,042	1,224	1,178	1,200	770	6,249
Galvanized	1,026	1,316	1,529	1,473	1,492	969	7,805
Bar Stock	7,486	9,610	11,165	10,773	10,890	7,086	57,010
Miscellaneous Types	918	1,192	1,377	1,325	1,345	870	7,027
Total Steel Mill Products	180,596	240,383	253,154	249,606	255,764	184,463	1,363,966
Forgings and Castings	18,940	24,127	25,963	26,284	25,845	20,483	141,642

TOTAL DOMESTIC DEMAND AND EXPORTS OF REFINED PRODUCTS VS. REFINERY RUNS
000 BARRELS PER DAY



REFINERY CAPACITY VS. REFINERY RUNS
000 BARRELS PER DAY



SURVEY OF STEEL REQUIREMENTS

U. S. (DOMESTIC) PETROLEUM REFINING INDUSTRY
FOR PERIOD
APRIL 1, 1948 - SEPTEMBER 30, 1949

Two approaches were made in deriving the steel requirements of the Petroleum Refining Industry (Domestic U. S.):

I. INDUSTRY ESTIMATE

Direct contact was made to a large group of the refining industry representing approximately 65% of the country's refining capacity. The industry was requested to submit their estimated steel tonnage requirements, by quarters over the period, and broken down in proper categories as required for presentation to the steel industry.

Despite the lack of time in which to make exhaustive and detailed individual analysis of their requirements, the respective refining units solicited have made an estimate of their requirements - which estimates have been used directly in preparing the combined estimated steel tonnage requirements of the industry for the period and submitted herewith.

As mentioned above, the section of the refining industry contacted represented some 65% of the refining capacity of the country. In order to fully protect the remaining portion of the industry which included the smaller refining units, and which could not be contacted for lack of time, the requirements as submitted by the part of Industry responding were increased proportionately by categories to a full 100% of refining capacity.

At the meeting of the Chairmen of the Subcommittees of the N.P.C.'s Committee on Petroleum Industry Steel Requirements held in Washington, D.C., February 10, 1948, it was agreed that the estimated steel requirements would be broken down for presentation to the steel industry in accordance with the listing given by Melvin W. Cole, Iron and Steel Division, Office of Industrial Cooperation, Commerce Department, and which was attached to the minutes of the Committee meeting.

The Committee agreed that the industry's equipment requirements would be translated into the products listed and that all additional steel mill products would also be shown as well as castings and forgings.

The Estimate of Steel Requirements submitted herewith has been broken down into the categories requested as they relate to the Refining Industry as far as possible at this time. Castings and forgings have been combined as a single item since no division was possible at this time.

The Committee considers the total of 1,363,996 tons of steel and 141,642 tons of forgings and castings, as a fair preliminary estimate of the domestic petroleum refining industry's requirements over the period April 1, 1948 - Sept. 30, 1949.

This tonnage covers the estimated requirements for:

1. New crude refining plant capacity
2. New lubricating oil manufacturing capacity
3. Plant maintenance and changes in existing capacity

Information was also solicited and received as to the industry's contemplated increase in crude refining and lube oil manufacturing capacity. This information was secured to check against the required refining capacity as shown by projected statistical demand, for products and required crude running to meet the demand, for the years 1948, 1949, and 1950.

The 65.02% of the refining capacity of the industry responding contemplate additions to refining capacity as follows:

1948	201,000	Barrels/Day
1949	299,000	" "
1950	107,000	" "
Total	607,000	" "

The above represents 74.2% of the projected 818,000 B/D of additional refining capacity required through 1950. Based on information available from various other sources, indications are that the remaining 35% of the industry plans to add sufficient capacity between now and the end of 1950 to meet the total required 818,000 barrels per day of additional refinery capacity shown above.

II. STATISTICAL SURVEY

In addition to making the survey by direct contact with a majority of the refining industry, a statistical study was made of industry steel requirements.

These calculations were based on and checked by the consumption of steel products by the refining units of several large integrated companies relative to their total industry consumption of steel products.

The breakdown of steel classifications, such as plate, tubular goods, structural shapes, bar stocks, and miscellaneous items, was likewise based on industry experience.

In statistically deriving future steel requirements, known unit tonnages were used to calculate steel requirements for new crude plant capacity, additional crude plant capacity, additional lubricating oil manufacturing capacity, and for ordinary plant upkeep and changes.

The crude refining capacities projected through 1950 from the Oil and Gas Division's (U. S. Dept. of Interior) projected demand figures for the same period, were used in formulating the refining industry's steel requirements for the period April 1, 1948 - Sept. 30, 1949. To the tonnage estimated for new crude capacity construction was added estimated tonnages for

1. Known additions to lubricating oil manufacturing facilities.
2. Refinery upkeep and changes desired, as explained above, by unit experience figures.

The sum total of these tonnages was set out and distributed by quarters, on the basis that for large plan construction steel would be produced over six quarters preceding plant completion. This appears a correct experience figure under existing conditions.

The total tonnages per quarter were further broken down into steel mill classifications as requested of the Committee. Such breakdown was made as the result of examination of the steel components of a number of typical refinery units as well as complete plants. The breakdown for refinery maintenance and changes was

based on the experience over several years of several large refining groups.

The result of this statistical study parallels closely the tonnages as received directly from the industry as shown as follows:

As Received From	Total Tons For Period 4-1-48 - 9-30-49
Refining Industry	1,363,966
Statistical Survey	1,299,426

From the close relationship shown above, we feel justified that the requirements received from the Refining Industry represents a fair estimate.

The requirements shown for the Refining Industry represent a yearly increase of approximately 20% over the (statistically derived) estimate of the same group's steel tonnage receipts in 1947.

We conclude that in order to meet the increased crude refining capacity projected and to maintain total refining capacity in operating condition, the 1,363,966 tons of steel, as shown on the attached tabulation, will be required over the period April 1, 1948 - Sept. 30, 1949, and represents the industry's best estimate at this time.

STATISTICAL ANALYSIS
OF
REFINERY CAPACITY REQUIRED

It is indicated by this analysis that the additional refinery capacity required over the next several years will be as follows:

(000 Bbls. Daily)

	Additional Capacity	
1948	Total for Quarter	Cumulative Total
1st Q.	69	135*
2nd Q.	78	213
3rd Q.	66	279
4th Q.	34	313
1949		
1st Q.	105	418
2nd Q.	56	474
3rd Q.	55	529
4th Q.	56	585
1950		
1st Q.	72	657
2nd Q.	56	713
3rd Q.	61	774
4th Q.	44	818

* 66 carried over from 4th Q. 1947

Capacity as of Dec. 31, 1947, is computed by the American Petroleum Institute as 5,815,000 barrels per day. If the above additions are made, capacity as of Dec. 31, 1950,will be 6,633,000 barrels per day.

Basically, the determination of refining capacity requirements was made by subtracting from the total domestic and export demands for petroleum for the United States (as supplied by

the Oil & Gas Division), the crude oil exports, the amount of product which would be supplied direct, such as natural gasoline, crude oil to fuel, and the imports of products; the balance being that amount of demand which must be supplied from refinery runs. The resulting figure of "refinery runs required" was divided by 90%, representing a reasonable level of performance; the net figure, therefore, represented the amount of capacity which would be required if refinery runs could average 90% of rated capacity. The sequence of figures on Table I is slightly different than that indicated above and shows somewhat more directly how refinery runs and capacities are arrived at.

The basis of arriving at forecasts of each of the several elements in this calculation follows:

1. Total Demand for Crude Oil and Products

A projection of total domestic and export demand for crude oil and products was obtained from the Oil & Gas Division of the Department of the Interior, and is as follows:

1948	6,250,000 Bbls/Day
1949	6,550,000 " "
1950	6,800,000 " "

Exports of crude oil, as estimated by the Subcommittee, were subtracted from the above figures to derive total domestic demand and exports of petroleum products. This represents the demands which must be supplied from refinery operations except as shown below. The figures shown for exports of refined products in 1948-49-50 were also estimated by the Subcommittee.

2. Stock Changes

Another element in the supply-demand picture is the fluctuations in product inventories. For the purpose of this estimate we have assumed that products will be added to storage in each year of the forecast period. Product storage is not excessive at the moment nor has it been at any time during the past year, and with increasing demands some increase in inventories is to be considered not only desirable but necessary.

3. Supply

The three elements of supply with which we are concerned in this calculation are: (a) product demands supplied direct from either crude oil or natural gasoline and allied products, (b) imports of petroleum products, and (c) refinery runs of crude oil.

A. Direct Supply

The direct supply which is shown in total on the attached statement is actually composed of the following items.

1. Natural gasoline and allied products, which are blended with refinery produced gasoline, or sold direct as such or in the form of liquefied petroleum gases.

2. Crude Oil which is transferred direct to fuel oil and sold as the latter.

3. Crude oil "used as such", representing field transfer losses and fuel consumed on leases.

The estimates on natural gasoline and allied products are based upon the current rate of production plus some consideration for the additions to natural gasoline capacity

projected over the next several years. In this category has also been included synthetic petroleum products, such as those to be produced from Carthage Hydrocol and Hugoton Synthol plants.

The estimates on crude oil transferred to fuel oil and used as such are based on current experience. The latter is a fairly constant figure and bears some relationship to crude oil production. However, the figure on transfers to fuel oil are influenced by other factors, such as the price relationship between crude and fuel, but the figure used represents a reasonable expectancy over the period shown.

B. Imports

Imports of petroleum products are strictly an estimate based on the trends which have been developing over the years. It is, of course, composed chiefly of residual fuel oil but does anticipate increasing amounts of distillate fuel oils and occasional quantities of light products, such as gasoline and kerosene.

C. Refinery Runs Required

The combination of the above factors, as shown on the attached table, will show the level of refinery runs required. This figure is, therefore, derived and does not in itself represent an estimate.

4. Refinery Capacity Required

Refinery capacity required has been computed on the assumption that actual refinery runs would not average higher

than 90% of rated capacity. Actual experience, as indicated by the bottom line on Chart 2, would justify this conclusion. This basis was, therefore, used for computing the capacity required by the end of the period. Actually, however, because of the sizable additions which will be made during the period under review, and inasmuch as the capacity required at the end of the period is compared with the average runs for the quarter, the average yearly figure will run somewhat higher, as shown by Chart 2 and also on Table I.

The reasoning behind the above conclusions can be further supported when consideration is given to the problem as a whole, taking into consideration such factors as economics, operating problems, the geographic differences, crude supplies, etc.

5. Actual Capacity, End of Period

This figure at the end of the 4th Q. 1947 is the American Petroleum Institute's official figure; for each subsequent period it is computed as follows: The actual capacity at the end of the previous period plus the additional capacity required in that period; this assumes that the additional capacity required in any period will have been added by the end of the subsequent period.

6. Additional Refinery Capacity Required

This is merely the arithmetical difference between the actual capacity at the end of the period and the total capacity required.

TABLES AND CHARTS

Table I gives the detailed data used in arriving at the additional refinery capacity required; it also shows the historical picture from 1931 to 1947.

Chart 1 illustrates the total domestic demand for crude oil and products plus the export demand for refined products compared with the level of refinery runs required. This chart also shows annual data for 1931 through 1947 and the forecast data for 1948 through 1950.

Chart 2 illustrates the comparison of refinery runs required with total refining capacity from 1931 through 1947 and forecast for 1948 through 1950. Also shown is the percentage of refinery capacity utilized each year.

A P P E N D I X D

MARKETING SUBCOMMITTEE

R E P O R T

of

MARKETING SUBCOMMITTEE

of

NATIONAL PETROLEUM COUNCIL'S COMMITTEE

on

PETROLEUM INDUSTRY STEEL REQUIREMENTS

Harry J. Kennedy, Chairman
C. C. Benedict
Dayton Clark
Gordon Duke
P. W. Engles
C. J. Foster
John W. Frey
J. Parks Gwaltney
Harry Holland
Lionel L. Jacobs
K. C. King
R. A. Niles
K. W. Rugh
John Sample
W. G. Skelly
C. J. Wescott

February 27, 1948

Mr. Russell B. Brown, Chairman
National Petroleum Council's Committee
on Petroleum Industry Steel Requirements
1110 Ring Building,
Washington, D. C.

Dear Mr. Brown:

A meeting of the Marketing Sub-Committee was held in Chicago on February 23, with attendance as follows:

MEMBERS PRESENT

Mr. Harry J. Kennedy, Chairman, Continental Oil Co., Ponca City, Okla
Mr. Dayton Clark, Gulf Oil Corp., Pittsburgh, Pa.
Dr. John W. Frey, American Petroleum Institute, Washington, D. C .
Mr. C. J. Westcott, Westcott Oil Company, Boise, Idaho
Mr. K. W. Rugh, Phillips Petroleum Co., Bartlesville, Okla.
Mr. W. G. Skelly, Skelly Oil Co., Tulsa, Okla.
Mr. Gordon Duke, Southeastern Oil, Inc., New York, N. Y.
Mr. C. J. Foster, Deep Rock Oil Corp., Chicago, Ill.
Mr. Lionel L. Jacobs, Atlantic Coast Oil Conference, Inc., Philadelphia, Pa.
Mr. R. A. Niles, Standard Oil Co. (Ind.), Chicago, Ill.
Mr. C. C. Benedict, Socony-Vacuum Oil Co., New York, N.Y.
Mr. P. W. Engles, Shell Oil Co., New York, N. Y.
Mr. Harry Holland, The Texas Co., New York, N.Y.

MEMBERS ABSENT

Mr. John Sample, General Petroleum Corp., Los Angeles, Calif.
Mr. J. Parks Gwaltney, National Council of Independent Petroleum Associations, Durham, No. Car.
Mr. K. C. King, Wisconsin Petroleum Marketers Association, Madison, Wisconsin

OTHERS PRESENT

Mr. John Boatwright, Standard Oil Co., (Ind.), Chicago, Ill.
Mr. John M. Robinson, Butane Gas Co., Woodworth, La.
Mr. R. F. Pielsticker, Skelly Oil Co., Tulsa, Okla.
Mr. H. S. Bell, Southeastern Oil, Inc., New York, N.Y.
Mr. Sigurd Scholle, Southeastern Oil, Inc., New York, N.Y.
Mr. Chas. Russell, Rapid Thermogas Co., Des Moines, Iowa
Col. R. W. Hird, Continental Oil Co., Ponca City, Okla.
(serving as secretary)

(In addition, observers included representatives of supplier organizations and representatives of the press).

The report of the "working group" of the Marketing Sub-Committee was reviewed and discussed and certain minor changes were made. This report, as revised, has been adopted by the Sub-Committee.

Please find attached:

1. Copy of the report as revised and adopted
2. Copy of tabulations indicating steel requirements for:

a. Marketing Division (conventional facilities)
b. Packages
c. L. P. G. Branch

This report, with its attachements, constitutes the report of the Marketing Sub-Committee.

In accordance with your letter of February 17, I and other members of the Marketing Sub-Committee will attend the meeting of March 2nd with representatives of the Secretary of the Interior.

Yours very truly,

/s/ Harry J. Kennedy,

HARRY J. KENNEDY, Chairman
National Petroleum Council's
Marketing Sub-Committee on
Petroleum Industry Steel
Requirements.

REVISED REPORT OF THE "WORKING GROUP" OF THE MARKETING SUB-COMMITTEE OF THE NATIONAL PETROLEUM COUNCIL'S COMMITTEE ON PETROLEUM INDUSTRY STEEL REQUIREMENTS

The Committee

The working group of the marketing subcommittee included;

Col. R. W. Hird, Continental Oil Company
Representing Harry J. Kennedy

Mr. Harry Holland, The Texas Company

Mr. C. C. Benedict, Socony-Vacuum Oil Company

Mr. P. W. Engels, Shell Oil Company

Mr. R. A. Niles, Standard Oil Company (Indiana)

Mr. Dayton Clark, Gulf Oil Corpporation

The Problem

The objective of this subcommittee was to determine steel requirements for the petroleum industry in accordance with the request of the Department of Interior. The problem is expressed in Mr. Max W. Ball's letter of February 13, 1948, to Mr. Russell B. Brown as follows:

> "---what is desired from your committee is a recommendation of the amount of steel which should be delivered by the steel mills to fabricators and consumers for use in the petroleum industry by calendar quarters, beginning April 1, 1948, and ending September 30, 1949, to enable the petroleum industry to ease inflationary pressures by bringing the supply of petroleum products into balance with prospective demand as soon as possible.
>
> "The recommendation should be broken down into the major functional divisions of the petroleum industry and under each such functional division into such detail as to type of steel as was indicated by the Department of Commerce's representatives as the meeting."

To the working group, the chairman of the marketing sub-committee interpreted the problem to be to establish the quantity of steel required for:

1. Essential expansion, replacement, and maintenance of:

   A. Terminals (1)
   B. Blending, compounding, and packaging plants (1)
   C. Motor transport (2)

2. Essential extension, replacement, and maintenance of:

   A. Bulk plants
   B. Service stations

3. Packages necessary for distribution of essential petroleum products.

4. Replace, maintain, and provide additional essential:

   A. Farm storage tanks
   B. L. P. G. Consumer storage tanks
   C. Residential, industrial, and commercial heating oil storage tanks.

THE PHILOSOPHY

In approaching these problems, it is believed that we can properly defend recommendations for steel for use only in reducing the supply problems of the petroleum industry. This would include essential replacement in the case of most consumer equipment and essential replacement and extensions in the case of bulk plants and service stations but that, to fulfill the increasing demand, expansion can be justified for terminals, blending, compounding, and packaging plants and the tank truck fleet. Furthermore, it is considered that, in view of the requirement for expansion of food production, additional essential farm storage tanks and L.P.G. consumer storage tanks should

(1) Exclusive of those operated as parts of refineries.
(2) Of 2,000-gallon capacity and less.

be recommended to the extent needed to get to the consumer any additional supplies which are made available. We wish to emphasize the point that the recommendations are directed toward supplying steel to help the industry meet demand, but not to recommend steel which would go into channels resulting in greater demand for products presently in short supply.

From such information as the committee now has, no provision has been made for implementing the allocation of steel. The committee, however, recommends, in the distribution of steel for the marketing branch of the petroleum industry, that it should be only for maintenance, replacement, extension and essential expansion.

DEFINITIONS

It was determined that certain definitions should be arrived at for the sake of this project as follows:

A. Service Station -
A service station is an outlet whose entire business or not less than 50 per cent of its dollar volume is done in direct sales to consumers of such products as are filled into vehicles which must be on the premises for each service.

B. Bulk Plant -
A bulk plant is a plant that receives, stores, and redistributes more than 50 per cent of its receipts by direct tank wagon delivery in its immediate marketing area.

C. Terminal -
A terminal is a plant that receives, stores and redistributes over 50 per cent of its receipts outside of its immediate tank wagon delivery area.

D. Extension -
Extension is the addition to existing facilities for the purpose of more efficiently meeting demands either in type or quantity of products.

E. Expansion -
(1) Essential expansion is the provision of new facilities in an area which cannot be adequately served by the total existing industry facilities in that area.

(2) Competitive expansion is the provision of new facilities in an area which is or could be adequately served by the total existing or essentially extended industry facilities in that area.

THE APPROACH

In order to do the job assigned in the time allowed, the working group's actions and the results obtained were basically formed with the following approaches:

A. Based on the considered judgment and experience of, and concurred in by all of, the subcommittee group.

B. Based on readily available data in the industry and from suppliers.

C. Anticipated requirements of those companies represented as known by the members of the working group.

It should be noted that during formulation of all figures, realizing that becasue of time allowed, they must be quick estimates, figures were checked by all means available within the above. For example, an item of requirement developed under approach A was checked under approach B or vice versa and then checked under approach C by weighted consideration of individual company requirements adjusted by the factor of the company's volume against national volume.

GENERAL CONSIDERATIONS

In an attempt to be as detailed as possible within the structure being herein developed, some readily apparent inadequacies developed. The most critical of these appear to be those shown below. A major contributory fact to such inadequacies was that those items questioned could not be classified within the materials classification sheet given us. Further, there was an incomplete understanding of those items or tonnages considered as being furnished

the petroleum industry by other industries as complete units or partial units. The items listed, we believe for the reasons given, have either been not included in their entirety or are patently inadequate in total tonnage.

A. Forgings
B. Castings
C. Conduits
D. Rod stock

It is suggested that when the above questions are more clearly defined, it will be necessary to increase tonnages accordingly.

L.P.G. INDUSTRY

The nature of the requirement for the L.P.G. branch of the industry is such that figures could not be arrived at in the same manner as for the more conventional phases of the industry. For that reason, a number of representatives of the L.P.G. industry are meeting on Tuesday, February 24th, with Mr. Ken Rugh (of Phillips Petroleum Company), who was one of the original working group, as a specialist on L.P.G. matters. At that meeting, it is anticipated that a figure can be developed to be added to the figures of the rest of the industry.

/s/ R. W. Hird
R. W. HIRD

RWH-DC

QUARTERLY REQUIREMENTS FOR STEEL IN THE MARKETING DIVISION OF THE PETROLEUM INDUSTRY IN TONS PER QUARTER FOR LAST THREE QUARTERS OF 1948 AND THE FIRST THREE QUARTERS OF 1949

	Structural Steel Shapes		Carbon Steel Bars		Hot Rolled Sheets 16 Gauge & Heavier		Cold Rolled Sheets &Hot Rolled Sheets 17 Gauge & Lighter		Galvanized Sheets		Plates 3/16" - 5/8"	
	1948-	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
Terminals & Blending, Compounding and Packaging Plants	2,480	2,480	47	47	595	595			60	60	27,924	27,924
Truck Tanks					2,718	2,718	20	20				
Bulk Plants	1,207	1,111			117	117	358	358	210	210	8,801	7,972
Other Storage (25% B.P.)	300	278			29	29	90	90	52	52	2,200	1,993
Service Stations	2,600	2,600	50	50	18,775	18,775	1,970	1,970	50	50	14,090	14,090
Farm Storage Tanks	3,500	3,500			3,827	3,827						
Heating Oil Consumer Storage Tanks					70,565	70,565					7,500	7,500
TOTAL	10,087	9,969	97	97	96,626	96,626	2,438	2,438	372	372	60,515	59,479

	Plates Over 5/8" Thick		Casing & Tubing - Carbon		Pipe 6 5/8"-14"		Pipe 2" to 5"		Pipe 3½" O.D.		Miscellaneous*	
	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
Terminals & Blending, Compounding and Packaging Plants	3,115	3,115			5,045	5,045			1,742	1,742	6,160	6,160
Truck Tanks							322	322			460	460
Bulk Plants							987	906			1,750	1,600
Other Storage (25% B.P.)							246	226			440	400
Service Stations			2,720	2,720			1,887	1,887	2,945	2,945	6,750	6,750
Farm Storage Tanks											1,100	1,100
Heating Oil Consumer Storage Tanks							7,806	7,806			12,870	12,970
TOTAL	3,115	3,115	2,720	2,720	5,045	5,045	11,248	11,147	4,687	4,687	29,520	29,340

Total Tons Per Quarter, All Categories	1948	1949
	226,480	225,035

* To cover all other categories such as cast steel, gray iron, forgings, malleable, etc., which are estimated to be 15% of total of other requirements.

February 26, 1948

QUARTERLY REQUIREMENTS FOR STEEL IN THE LIQUEFIED PETROLEUM GAS BRANCH OF THE MARKETING DIVISION OF THE PETROLEUM INDUSTRY IN TONS PER QUARTER FOR LAST THREE QUARTERS OF 1948 AND THE FIRST THREE QUARTERS OF 1949

	Structural Steel Shapes		Carbon Steel Bars		Hot Rolled Sheets 16 Gauge & Heavier		Galvanized Sheets		Plates 3/16" - 5/8"	
	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
Farm & Home Consumer cylinders & tanks & cylinder & tank housings					27,885	28,035			95,000	95,000
Truck tanks and equipment	130	130			99	99			1,105	1,105
Bulk Plants	187	187	125	125			47	47	47	47
Industrial & Utility (includes terminals)	450	450	—	—	—	—	45	45	225	225
TOTAL	767	767	125	125	27,984	28,134	92	92	96,377	96,377

	Plates 5/8" thick		Pipe 6 5/8"-14"		Pipe 2" - 5"		Pipe 3½" O.D. or Smaller		Miscellaneous*	
	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
Farm & Home Consumer cylinders & tanks & cylinder & tank housings							7,292	7,293	19,500	19,500
Truck tanks and equipment							50	50	210	210
Bulk Plants	3,287	3,287					125	125	570	570
Industrial & Utility (includes terminals)	16,500	16,500	180	180	67	67	40	40	2,620	2,620
TOTAL	19,787	19,787	180	180	67	67	7,507	7,508	22,900	22,900

Total Tons Per Quarter, All Categories

1948	1949
175,786	175,937

*To cover all other categories such as cast steel, gray iron, forgings, malleable, etc , which are estimated to be 15% of total of other requirements.

February 26, 1948

Units =No. of Cans
Tons = 2,000 lbs.
Gauge Steel & Lighter.

QUARTERLY REQUIREMENTS FOR STEEL IN THE MARKETING DIVISION OF THE PETROLEUM INDUSTRY IN TONS PER QUARTER FOR LAST THREE QUARTERS OF 1948 AND THE FIRST THREE QUARTERS OF 1949

Packages - exclusive of Military & Export Requirements

	Conversion Factor Units Per Ton	1948 2nd Quarter Units	2nd Quarter Tons	3rd Quarter Units	3rd Quarter Tons	4th Quarter Units	4th Quarter Tons	Total Units	Total Tons
10 Gallon Cans	587	67,000	114	67,000	114	45,000	77	179,000	305
5 " "	880	650,000	1,875	1,650,000	1,875	1,100,000	1,250	4,400,000	5,000
2 " "	1,559	3,837,000	2,461	3,837,000	2,461	2,558,000	1,641	10,232	6,563
1 " "	2,353	1,075,000	457	1,075,000	457	716,000	304	2,866,000	1,218
5 Quart Cans	2,055	23,400,000	11,387	23,400,000	11,387	15,600	7,591	62,400,000	30,365
2 " "	3,720	144,000	39	144,000	39	96,000	26	384,000	104
1 " "	5,566	317,100,000	56,971	317,100,000	56,971	211,400,000	37,981	845,600,000	151,923
25 Pound	1,013	1,050,000	1,037	1,050,000	1,037	700,000	691	2,800,000	2,765
10 " "	1,873	666,000	356	666,000	356	444,000	237	1,776,000	949
5 " "	2,833	1,334,000	463	1,334,000	463	889,000	308	3,557,000	1,234
3 " "	3,923	104,000	27	104,000	27	70,000	18	278,000	72
1 " "	7,466	3,808,000	510	3,808,000	510	2,539,000	340	10,155,000	1,360
32 Ounce	5,258	641,000	122	641,000	122	428,000	81	1,710,000	325
16 " "	6,707	876,000	131	876,000	131	584,000	87	2,336,000	349
12 " "	7,467	255,000	34	255,000	34	170,000	23	680,000	91
8 " "	11,915	642,000	54	642,000	54	428,000	36	1,712,000	144
6 " "	14,516	178,000	12	178,000	12	119,000	8	475,000	32
4 " "	16,741	3,600,000	215	3,600,000	215	2,400,000	143	9,600,000	573
3 " "	20,089	14,400,000	717	14,400,000	717	9,600,000	478	38,400,000	1,912
1 " "	38,699	5,400,000	188	5,400,000	188	3,600,000	125	14,400,000	501
TOTAL			77,170		77,170		51,445		205,785

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SEE FOLLOWING PAGE FOR 1949 FIGURES

	Conversion Factor Units Per Ton	1949 1st Quarter Units	1st Quarter Tons	2nd Quarter Units	2nd Quarter Tons	3rd Quarter Units	3rd Quarter Tons	Total Units	Total Tons
10 Gallon Cans	587	- 67,000	114	101,000	172	101,000	172	269,000	458
5 " "	880	1,320,000	1,500	1,980,000	2,250	1,980,000	2,250	5,280,000	6,000
2 " "	1,559	3,070,000	1,969	4,604,000	2,953	4,604,000	2,953	12,278,000	7,875
1 " "	2,353	859,000	365	1,290,000	548	1,290,000	548	3,439,000	1,461
5 Quart Cans	2,055	18,720,000	9,109	28,080	13,664	28,080	13,664	74,880,000	36,437
2 " "	3,720	115,000	31	173,000	46	173,000	46	461,000	123
1 " "	5,566	253,680,000	45,577	380,520,000	68,365	380,520,000	68,365	1,014,720,000	182,307
25 Pound Cans	1,013	840,000	829	1,260,000	1,244	1,260,000	1,244	3,360,000	3,317
10 " "	1,873	533,000	285	799,000	427	799,000	427	2,131,000	1,139
5 " "	2,883	1,067,000	370	1,601,000	555	1,601,000	555	4,269,000	1,480
3 " "	3,923	84,000	21	125,000	32	125,000	32	334,000	85
1 " "	7,466	3,047,000	408	4,570,000	612	4,570,000	612	12,187,000	1,632
32 Ounce Cans	5,258	514,000	98	769,000	146	769,000	146	2,052,000	390
16 " "	6,707	701,000	105	1,051,000	157	1,051,000	157	2,803,000	419
12 " "	7,467	204,000	27	306,000	41	306,000	41	816,000	109
8 " "	11,915	514,000	43	770,000	65	770,000	65	2,054,000	173
6 " "	14,516	143,000	10	214,000	15	214,000	15	571,000	40
4 " "	16,741	2,880,000	172	4,320,000	258	4,320,00	258	11,520,000	688
3 " "	20,809	11,520,000	573	17,280,000	860	17,280,000	860	46,080,000	2,293
1 " "	28,699	4,320,000	151	6,480,000	226	6,480,000	226	17,280,000	603
TOTAL			61,757		92,636		92,636		247,029

QUARTERLY REQUIREMENTS FOR STEEL IN THE MARKETING DIVISION OF THE PETROLEUM INDUSTRY

IN TONS PER QUARTER FOR LAST THREE QUARTERS OF 1948 AND THE FIRST THREE QUARTERS OF 1949

Units = No. of Packages
Tons = 2,000 lbs.

GAUGE	PACKAGE SIZE	PRODUCTION 1947 (DEC. EST.)	PETROLEUM INDUSTRY USE %	PETROLEUM INDUSTRY USE Units	CONVERSION FACTOR UNITS PER TON	1948 2nd QUARTER Units	1948 2nd QUARTER Tons	1948 3rd QUARTER Units	1948 3rd QUARTER Tons	1948 4th QUARTER Units	1948 4th QUARTER Tons	TOTAL Units	TOTAL Tons
16	* 55 Gallon Drums	426,555	68	290,057	20,833	95,719	4,595	95,719	4,595	63,812	3,063	255,250	12,253
16	* 55 Gallon Drums	587,932	68	399,794	29,412	137,929	4,690	137,929	4,690	91,953	3,126	367,811	12,506
							9,285		9,285				
18	* 55 Gallon Drums)	22,608,368	68	15,373,690	37,037	5,768,134	155,740	5,768,134	155,740	3,843,423	103,772	15,379,691	415,252
18	400 # " ")												
20	14 Gallon Drums	5,780,000	35	2,023,000	125,000	758,525	6,068	758,525	6,068	505,750	4,046	2,022,800	16,182
20	100 lb.Grease Drums	5,330,000	98	3,263,000	111,111	1,223,775	11,014	1,223,775	11,014	815,850	7,343	3,263,400	29,371
20#	100 lb.Grease Drums	240,000	98	235,200	125,000	88,200	706	88,200	706	58,800	470	235,200	1,882
24	5 Gallon Pails	33,501,000	22	7,370,220	320,000	2,653,279	8,291	2,653,279	8,291	1,768,853	5,528	7,075,411	22,110
28	5 Gallon Pails	3,340,000	22	734,800	363,636	264,528	727	264,528	727	176,352	485	705,408	1,939
24#	5 Gallon Pails	7,500,000	22	1,650,000	320,000	594,000	1,856	594,000	1,856	396,000	1,238	1,384,000	4,950
24#	25lb. Pails	5,000,000	35	1,750,000	444,444	630,000	1,418	630,000	1,418	420,000	945	1,680,000	3,781
							185,820		185,820		123,827		495,467

* Estimates based on re-use of 55 gallon drums.

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following page for 1949 figures.

QUARTERLY REQUIREMENTS FOR STEEL IN THE MARKETING DIVISION OF THE PETROLEUM INDUSTRY

IN TONS PER QUARTER FOR LAST THREE QUARTERS OF 1948 AND THE FIRST THREE QUARTERS OF 1949

Packages - exclusive of Military and Export Requirements

GAUGE	PACKAGE SIZE	PRODUCTION 1947 (DEC. EST.)	PETROLEUM INDUSTRY USE		CONVERSION FACTOR	1949							
						2nd QUARTER		3rd QUARTER		4th QUARTER		TOTAL	
			%	Units	UNITS PER TON	Units	Tons	Units	Tons	Units	Tons	Units	Tons
16	* 55 Gallon Drums	426,555	68	290,057	20,833	70,193	3,369	105,291	5,054	105,291	5,054	280,775	13,477
16	* 55 Gallon Drums	587,932	68	399,794	29,412	105,746	3,595	158,618	5,393	158,618	5,393	422,982	14,381
							6,964		10,447		10,447		27,858
18	* 55 Gallon Drums)	22,608,368	68	15,373,690	37,037	4,227,765	114,150	6,344,947	171,314	6,344,947	171,314	16,917,659	456,778
18	400 # " ")												
20	14 Gallon Drums	5,780,000	35	2,023,000	125,000	556,325	4,451	834,377	6,675	834,377	6,675	2,225,079	17,801
20	100 lb. Grease Drums	5,330,000	98	3,263,000	111,111	897,435	8,077	1,346,153	12,115	1,346,153	12,115	3,589,741	32,307
20#	100lb. Grease Drums	240,000	98	235,200	125,000	64,680	517	97,020	776	97,020	776	258,720	2,069
24	5 Gallon Pails	33,501,000	22	7,370,220	320,000	2,122,624	6,633	3,183,935	9,950	3,183,935	9,950	8,490,494	26,533
28	5 Gallon Pails	3,340,000	22	734,800	363,636	211,622	582	317,434	873	317,434	873	846,490	2,328
24#	5 Gallon Pails	7,500,000	22	1,650,000	320,000	475,200	1,485	712,800	2,228	712,800	2,228	1,900,800	5,941
24#	25lb. Pails	5,000,000	35	1,750,000	444,444	504,000	1,134	756,000	1,701	756,000	1,701	2,016,000	4,536
							137,029		205,632		205,632		548,293

* Estimates based on re-use of 55 gallon drums.

February 24, 1948

A P P E N D I X E

NATURAL GAS SUBCOMMITTEE

Preliminary Estimate

of

STEEL REQUIREMENTS OF NATURAL GAS INDUSTRY

For 6 Quarters Beginning April 1st, 1948 and Ending Sept. 30, 1949

(From Outlet of Producing Wells to Inlet of City Gate Measuring Stations)

Prepared & Submitted

By

NATURAL GAS SUBCOMMITTEE

of

NATIONAL PETROLEUM COUNCIL'S COMMITTEE

on

PETROLEUM INDUSTRY STEEL REQUIREMENTS

N. C. McGowen - CHAIRMAN
D. A. Hulcy

The assignment of this sub-committee is to prepare an estimate of the steel requirements of the Natural Gas Industry in the United States from the outlet of the producing wells to the inlet of the city gates, for the six calendar quarters beginning April 1st, 1948 and ending Sept. 30th, 1949. Steel for the drilling of gas wells is included in the estimate prepared by the committee on Production Requirements and accordingly is omitted from this report. Steel for natural gas distribution systems is included in the estimate prepared by the American Gas Association which includes an estimate of the steel requirements of natural gas, mixed gas, and manufactured gas distribution systems, and the natural gas industry requirements for distribution is accordingly omitted from this report. Requirements of the natural gas industry in Canada and Mexico are not included in this report. Applications on file with the Federal Power Commission but not authorized by that Commission, which would require in excess of one million tons of line pipe 16" and larger have not been included in this report.

In the preparation of this estimate some one hundred companies were contacted. These companies, with their subsidiaries and affiliates, represent approximately 90 percent of the physical property used in natural gas gathering and transmission in the United States. A reply was received from each of the contacts. Some companies, including many of the larger operators, submitted their estimates in complete detail and by quarters.

The replies of the individual companies were summarized by nominal diameters of pipe. The requirements for steel for purposes other than line pipe were summarized in instances in which these data were given, and in replies where only line pipe requirements were given an estimate was made of the other requirements by the use of factors.

It was found, as shown by the table attached, that the Natural Gas Industry, in the six quarters beginning with April 1st, 1948 and ending with September 30th, 1949, requires 2,139,000 tons of pipe of which 1,720,000 tons is 16" and larger. For uses of steel other than for pipe, the Natural Gas Industry requires 78,400 tons during the same period, giving a total of 2,217,400 tons of steel in the six quarters.

ESTIMATED STEEL REQUIREMENTS

NATURAL GAS GATHERING AND TRANSMISSION

TONS

	1948			1949			
	2nd Quarter	3rd Quarter	4th Quarter	1st Quarter	2nd Quarter	3rd Quarter	TOTAL
Structural Shapes	3,700	3,700	3,700	3,700	3,700	3,700	22,200
Carbon Steel Bars	1,200	1,100	1,100	1,100	1,100	1,100	6,700
Sheets:							
16 ga. to 3/16"	1,100	1,100	1,100	1,100	1,100	1,100	6,600
Galvanized	300	300	200	200	200	200	1,400
Plate:							
3/16" to 5/8"	1,400	1,400	1,400	1,400	1,400	1,300	8,300
Over 5/8"	1,300	1,300	1,300	1,300	1,300	1,200	7,700
Line Pipe:							
16" and larger	286,700	286,700	286,700	286,700	286,600	286,600	1,720,000
6-5/8" to 14"	61,400	61,400	61,300	61,300	61,300	61,300	368,000
4" to 5" (Seamless or Welded)	5,800	5,800	5,700	5,700	5,700	5,700	34,400
3-1/2" & smaller (Seamless or Welded)	2,800	2,800	2,800	2,800	2,700	2,700	16,600
Sub-Total	365,700	365,600	365,300	365,300	365,100	364,900	2,191,900
Forgings and Castings	4,300	4,300	4,300	4,200	4,200	4,200	25,500
TOTAL - -	370,000	369,600	369,600	369,500	369,300	369,100	2,217,400

A P P E N D I X F

FOREIGN SUBCOMMITTEE

R E P O R T

of

FOREIGN SUBCOMMITTEE

of

NATIONAL PETROLEUM COUNCIL'S COMMITTEE

on

PETROLEUM INDUSTRY STEEL REQUIREMENTS

John R. Suman, Chairman
R. G. Follis
Ardon B. Judd

30 ROCKEFELLER PLAZA
NEW YORK 20, N.Y.

February 28, 1948

JOHN R. SUMAN

Mr. Russell Brown, Chairman
Steel Requirements Committee
National Petroleum Council
Washington, D. C.

Dear Mr. Brown:

In connection with Petroleum Program Steel Requirements, estimates of steel to be obtained from U.S. sources for American owned companies in their foreign operations have been made. The enclosed statements summarize estimated steel requirements by quarterly periods for various types of steel, subdivided between Western Hemisphere and Eastern Hemisphere. The estimates are made on the basis of the quarters in which the steel will be exported.

No requirements have been included for the Argentine as no American companies seem to have requirements for these periods.

Tonnages for Trans-Arabian Pipe Line and Middle East Pipe Line are included. As far as we know, the ownership of Middle East Pipe Line is approximately 50% American, and of Trans-Arabian Pipe Line 100% American.

We have included the needs of all the companies we could think of operating in the two hemispheres whose ownership is predominately American, even though the company may be a foreign corporation.

In getting this data together, we did not use questionnaires as time did not permit, and we had a legal opinion this might not be desirable. Having knowledge of the announced refinery building program abroad of the American companies, we used unit steel requirement figures furnished by experts who advised that this method was in common use. Unit figures were also used in calculating steel requirements for the producing and marketing interests. We have made spot checks with several operators in various countries and almost in every instance figures furnished us checked with our unit calculations.

We understand Mr. Gamble has reported to Mr. Dow the tanker steel requirements, both foreign and domestic, and would like to call your particular attention to the fact these figures are not included in our estimates.

Steel required for drums and containers filled here for export are not included since they are covered in the domestic requirements.

Yours very truly,

(S) JOHN R. SUMAN

Enc.

PETROLEUM PROGRAM STEEL REQUIREMENTS

WESTERN HEMISPHERE
(EXCLUDING U.S.A. AND MEXICO)

Short Tons

Material	2nd Qtr. 1948	3rd Qtr. 1948	4th Qtr. 1948	1st Qtr. 1949	2nd Qtr. 1949	3rd Qtr. 1949	Totals
Structural Steel Shapes	13,290	15,158	14,393	13,239	13,685	12,564	82,329
Carbon Steel Bars (incl. Concrete Reinf. Rods)	7,772	7,310	7,079	3,959	3,779	3,777	33,676
Billets	40	40	40	40	40	40	240
Hot Rolled Sheets 16 ga. and heavier	264	310	390	358	401	379	2,102
Cold Rolled Sheets	162	223	237	335	129	99	1,185
Galvanized Sheets	618	627	642	635	710	721	3,953
Plates 3/16" to 5/8" inclusive	15,475	15,595	22,323	16,619	15,600	14,209	99,821
Plates over 5/8" thick	2,483	4,426	4,607	5,007	3,631	3,257	23,411
Casing & Tubing Carbon	29,580	29,580	29,580	29,840	29,840	29,840	178,260
Casing & Tubing Alloy	8,650	8,650	8,650	8,860	8,860	8,860	52,530
Drill Pipe	1,577	1,577	1,577	1,777	1,777	1,777	10,062
Line Pipe 16" and over	22,421	14,666	10,636	8,560	8,379	8,177	72,839
Line Pipe 6-5/8" to 14" incl.	18,433	21,893	19,475	16,504	16,160	18,017	110,482
Line Pipe 2" to 5" (seamless)	2,428	3,235	2,303	2,151	2,013	2,012	14,142
Line Pipe 3-1/2" OD & smaller (welded or seamless)	2,162	3,466	2,677	2,667	1,774	1,745	14,491
TOTALS	125,355	126,756	124,609	110,551	106,778	105,474	699,523
X Steel-All Other	4,760	6,050	5,047	4,709	3,610	3,460	27,636
GRAND TOTAL	130,115	132,806	129,656	115,260	110,388	108,934	727,159

Notes: X Covers machinery, wire rope, valves, fittings, etc.

PETROLEUM PROGRAM STEEL REQUIREMENTS

EASTERN HEMISPHERE
(EXCLUDING U.S.S.R.)

Short Tons

Material	2nd Qtr. 1948	3rd Qtr. 1948	4th Qtr. 1948	1st Qtr. 1949	2nd Qtr. 1949	3rd Qtr. 1949	Totals
Structural Steel Shapes	18,227	17,722	17,082	13,900	21,195	20,736	108,862
Carbon Steel Bars and Reinf. Rods	2,862	1,707	1,264	3,155	5,312	6,445	20,745
Billets	-	4	2	1	1	-	8
H.R. Sheets 16 ga. & heavier	12,580	12,626	12,581	12,744	12,767	12,672	75,970
C.R. Sheets	197	204	203	383	462	350	1,799
Galvanized Sheets	952	681	688	697	698	614	4,330
Plates over 3/16" to 5/8" incl.	14,897	17,467	19,603	25,012	28,719	45,988	151,686
Plates over 5/8" thick	6,604	10,142	12,259	8,391	8,589	10,720	56,705
Casing & Tubing Carbon	11,935	9,287	8,607	9,437	8,817	9,107	57,190
Casing & Tubing Alloy	1,550	1,050	1,050	1,050	1,050	1,050	6,800
Drill Pipe	2,680	2,156	1,716	2,216	1,856	2,046	12,670
Line Pipe 16" & larger	(X) 54,760	(X) 67,133	(X) 66,702	(X) 44,792	* 51,000	* 51,000	335,387
Line Pipe 6-5/8" to 14" incl.	7,945	8,461	7,075	13,559	15.414	23,848	76,302
Line Pipe 2" to 5" Diameter (Seamless)	1,974	1,689	1,473	1,410	2,702	2,703	11,951
Line Pipe 3-1/2" OD & smaller (Welded or Seamless)	1,056	1,028	840	1,052	2,052	2,247	8,275
TOTALS	138,219	151,357	151,145	137,799	160,634	189,526	928,680
X Steel and All Other	12,099	9,784	10,880	12,564	11,598	10,878	67,803
GRAND TOTAL	150,318	161,141	162,025	150,363	172,232	200,404	996,483

Notes:

(X) Covers Trans-Arabian Pipe Line
* Covers Middle East Pipe Line
X Covers machinery, wire rope, valves, fittings, etc.

RECAPITULATION

PETROLEUM PROGRAM STEEL REQUIREMENTS

EASTERN AND WESTERN HEMISPHERE

(EXCLUDING U.S.A. AND U.S.S.R.)

Short Tons

	2nd Qtr. 1948	3rd Qtr. 1948	4th Qtr. 1948	1st Qtr. 1949	2nd Qtr. 1949	3rd Qtr. 1949	Totals
EASTERN HEMISPHERE	150,318	161,141	162,025	150,363	172,232	200,404	996,483
WESTERN HEMISPHERE	130,115	132,806	129,656	115,260	110,388	108,934	727,159
						GRAND TOTAL	1,723,642