REPORT

OF THE

COMMITTEE ON PETROLEUM INDUSTRY STEEL REQUIREMENTS

OF THE

NATIONAL PETROLEUM COUNCIL

APRIL 27, 1949

National Petroleum Council
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C O P Y C O P Y

INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA

Washington, D. C.

April 26, 1949

Mr. Walter S. Hallanan, Chairman
National Petroleum Council
Suite 601 - 1625 K Street, N. W.
Washington, D. C.

Dear Mr. Hallanan:

Transmitted herewith is the report of your Committee on Petroleum Industry Steel Requirements prepared in response to your letter of December 14, 1948.

This report reviews the accomplishments and steel requirements of the petroleum industry and contains the result of the Committee's study of the problems of shortages, exportation and maldistribution of steel materials insofar as they relate to petroleum.

Inasmuch as the steel supply situation has improved greatly as shown in this report, and the outlook is for continued improvement, it is believed that this report fulfills the responsibility of the Committee and I would like to suggest that the Committee be discharged subject to the approval of this report by the Council.

Very truly yours,

/S/ R. B. Brown

Russell B. Brown

Encl.

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REPORT OF THE COMMITTEE ON PETROLEUM INDUSTRY STEEL REQUIREMENTS OF THE NATIONAL PETROLEUM COUNCIL APRIL 1949

Introduction

This Committee was appointed in January 1948 as a means of furnishing to the Oil and Gas Division of the Interior Department, 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. At that time, the Director of the Oil and Gas Division specified that what was desired was "the amount of steel . . . 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." In response to that request, the Committee submitted a detailed estimate of steel requirements on March 16, 1948.

On December 14, 1948 the assignment of the Committee was enlarged to study "the problems of shortages, exportation and maldistribution of steel materials insofar as they relate to petroleum and to report thereon with such recommendations as to the Council may seem appropriate."

This report reviews the accomplishments and steel requirements of the petroleum industry in the light of the original January 1948 assignment. It also contains the result of the Committee's study of the assignment as enlarged in December 1948 to cover shortages, exportation and maldistribution.

1948 Accomplishments

The oil supply problems that confronted the industry early in 1948 and gave rise to this Committee's work, have been completely overcome during 1948. In short,

the original goal of "bringing petroleum supply and demand into balance" has been reached.

A year ago, the Oil and Gas Division set a target of 6,250,000 barrels daily as the estimated 1948 United States demand for petroleum, including exports, that should be met to relieve inflationary pressures. Actual demand in 1948 averaged 6,129,000 barrels or 2 percent below this forecast. The petroleum industry met this demand in full. The actual supply averaged 6,420,000 barrels daily or 4.7 percent above demand and working inventories during the year, were increased by 106.5 million barrels of crude oil and refined products. As a result, industry operations have been reduced in the early part of 1949.

To accomplish these results, the industry set new activity records in expanding activities and facilities. A total of 38,803 wells were completed in the United States during 1948, or an increase of 17 percent over the previous year's completions. Domestic production of crude oil and natural gas liquids averaged 5,907,000 barrels daily or more than 8 percent above the 1947 output. Over 4 billion barrels were added to estimated proved oil reserves during the past year - almost twice the volume consumed. Transportation facilities of all kinds were greatly expanded and no longer constitute the bottleneck they did during the 1947-48 winter. Refining capacity was enlarged by over 300,000 barrels daily and is now sufficient to handle the necessary volume without exceeding efficient operating rates. Marketing facilities are adequate. Natural gas distribution systems have been greatly enlarged and will be expanded still further in 1949 to meet the growing demand for this product as a source of energy. Foreign activities have been increased to the extent that the tight supply situation in foreign, as well as domestic, markets has been eliminated.

These accomplishments, within the short span of one year, are evidence of the petroleum industry's ability to make effective use of the materials needed in

its operations. In order to carry out its record volume of operations in 1948 in supplying 77 percent more oil than in the prewar period 1936-39, the industry required and actually received record supplies of new materials and equipment during the past year.

Summary of 1949 Steel Requirements

The Committee has reviewed the estimates of steel requirements as presented in its March 1948 report. These requirements covered the first three quarters of 1949 or the period from January 1st through September 30th of this year. As a guide to the Committee's review, the Oil and Gas Division of the Interior Department on February 10, 1949 furnished revised estimates of petroleum demands. These estimates are as follows:

	Total United States Petroleum Demand (including exports)	
	Estimate for March 1948 Report	Revised estimate for this report
	(1000 B/D)	(1000 B/D)
Year 1949	6,550	6,471
Year 1950	6,800	6,770

Giving consideration to the best information on the probable activities of the industry in 1949 and to the fact that total oil supplies in December 1948 were approximately equal to the above estimated petroleum demand for 1950, it appears that the industry's program of operations for 1949, upon which the revised estimates of steel requirements are based, will be entirely adequate to meet the above predicted oil demands if they materialize.

The 1949 estimated steel requirements in each branch of the petroleum industry are analyzed in later sections of this report. No detailed revision of the estimates shown in the March 1948 report has been made, but the industry's steel needs have been carefully reviewed for any significant changes in requirements and the general effect of such changes.

Exclusive of the related needs for tankers, barges, tank cars, truck tanks, farm and home storage and containers when comparing anticipated 1949 industry activities with those of last year, it is estimated that total steel requirements on an overall basis will be approximately the same as the amount actually received in 1948. This results from decreased needs, as compared with actual receipts during 1948, for domestic refining and domestic crude and product pipelines offset by increases over 1948 receipts for natural gasoline and pressure maintenance plants and for natural gas transmission lines. Domestic producing operations, domestic marketing plant facilities and total American-owned foreign operations are expected to require approximately the same amount of steel as actually received in 1948 although foreign producing operations will be somewhat lower than in 1948 with somewhat reduced steel needs.

On the same overall basis, the total of the revised 1949 requirements are about 22 percent less than was originally estimated in the March 1948 report for the year 1949. This reduction from the original estimates is due to decreased requirements for domestic refining, domestic crude and product pipe lines and foreign production activities offset in part by increased needs for natural gasoline and pressure maintenance plants. Domestic producing operations, domestic marketing plant facilities and natural gas transmission lines are expected to require approximately the same amount of steel as the 1949 estimate shown in the Committee's March 1948 report.

Steel Supply, Distribution and Exportation

In accordance with its enlarged assignment, the Committee has studied the matter of shortages of steel materials, the probable supply of these materials, the possibility of difficulties in the distribution, and the question of exportation of these materials.

During 1948, shortages of certain steel products particularly tubular goods and plate caused serious difficulties in distribution and imposed a burden on many petroleum operators. In general, the steel supply situation improved steadily during the past year and particularly during recent months. Whereas the industry was hard-pressed to obtain sufficient steel materials in almost every phase of its operations during 1947 and most of 1948, it can now obtain them without serious delay in most cases. This does not mean that every steel item is immediately available to fill every order but rather that the industry's needs on an overall basis are generally being met. Although the overall steel situation appears in balance for 1949, there are still individual cases where operators are not yet able to obtain their full requirements through normal commercial channels and still find it necessary to obtain materials through conversion and other arrangements. The trends of steel supply and the revised estimates of petroleum industry needs indicate that these individual hardship cases should diminish and may be eliminated entirely in the reasonably near future. In the meantime, the Committee recommends that each operator and company in the petroleum industry, individually and voluntarily, should make every effort to assist distress cases involving immediate and urgent needs for materials and equipment.

With regard to the question of materials, the Council has stated its position in the report "A National Oil Policy for the United States" which was adopted subsequent to the assignment of this Committee to study the problems of shortages, exportation and maldistribution. Pertinent extracts from this policy statement are as follows:

> "To be effective, a national oil policy should have the following objectives: . . . . . (3) It should maintain conditions, within the free enterprise system, most likely to assure

adequate supplies of essential materials equitably available to all units in the industry in both peace and war."

* * * * * * * *

"The following general principles are fundamental to a sound national oil policy: (1) The national security and welfare require a healthy domestic oil industry.

"Continuing supply to meet our national oil needs depends primarily on availability from domestic sources. Due consideration should be given to the development of foreign oil resources, but the paramount objective should be to maintain conditions best suited to a healthy domestic industry which is essential to national security and welfare. To this end, adequate and equitable availability of essential materials is a fundamental requisite."

* * * * * * * *

In the light of this policy and in view of the outlook for steel supplies and requirements for the petroleum industry, the Committee believes that there is no need for additional voluntary agreements for the allocation of steel materials to the petroleum industry and that the exportation of steel to American companies for their own use is an industry problem for which government export controls do not provide a proper solution.

Further comments on steel supply and distribution in the various branches of the petroleum industry appear in later sections of this report.

DOMESTIC PRODUCTION - CRUDE PETROLEUM

Drilling operations in the United States are estimated to continue at approximately the same level during 1949 as in 1948 in the search for and development of the new crude oil reserves needed to offset the continuously declining productive capacities of older wells and fields and thus to maintain sufficient productive capacity to meet the expected demands for crude oil. During 1948, nearly 135 million feet of hole and 38,803 wells averaged 3,470 feet in depth were drilled in the United States. During 1949, about 134 million feet of new well footage should

be drilled. At an expected average depth of 3,525 feet, the new wells to be drilled in 1949 should number about 38,100, which is about 700 less than in 1948, as shown in the following tabulation:

Year	New Well Footage Drilled (million feet)	New Wells Completed	Average Depth (feet)
1946	101.1	30,230	3,345
1947	112.8	33,147	3,404
1948	134.7	38,803	3,470
1949 (Estimated)	134	38,100	3,525
1st Q.		8,100	
2nd Q.		9,600	
3rd Q.		10,700	
4th Q.		9,700	

The above forecast of 1949 operations was determined by applying several alternative methods of calculation and checking the results against the best information available on the industry's planned activities for the coming year. It is believed that this level of activity will result in sufficient availability to meet foreseeable oil requirements during 1949.

1949 Steel Requirements

The estimated steel requirements for oil and gas drilling development, and production operations necessary during 1949 in order to provide the aforementioned production are presented in Appendix Table A by quarters during the year and by mill steel products. Oil country tubular goods requirements are 1,501,000 tons for the year, line pipe 390,100 tons, and all other steel products 829,665 tons, totaling in all 2,720,765 tons of mill steel for the year - the same total 1949 tonnage as was estimated in the March 1948 Report.

Referring to Appendix Table B, it is indicated that the domestic petroleum industry received delivery of 1,515,000 tons of oil country tubular goods during 1948 with which it drilled 134,700,000 feet of hole for an average expenditure of

11.2 tons of oil country tubular goods per 1,000 feet of new holes drilled. As shown in this Table, current estimates from the U. S. Department of Commerce indicate that there may be as much as about 1,700,000 tons of oil country tubular goods, after exports, available to the domestic petroleum industry for drilling during 1949. This amounts to 12.7 tons per 1,000 feet of new drilling footage forecast for 1949 as compared with an actual need of about 11.2 tons per 1,000 feet drilled. It is likely that the figures shown in Appendix Table B on production of oil country tubular goods for the years 1948 and 1949 include conversion pipe to the extent of possibly 160,000 tons in each year. However, it is to be noted that even without the estimated 160,000 tons of conversion pipe there apparently will be available to the domestic industry 1,543,000 tons of conventionally manufactured oil country tubular goods during 1949, barring work stoppages as compared with an anticipated overall need of 1,501,000 tons.

Supply and Distribution

While there now seems to be evidence that the supply of oil country tubular goods is catching up with the demand, the same cannot be said of the anticipated supply of line pipe, despite the fact that the line pipe supply also has increased greatly during recent years. The heavy demand for line pipe arises, of course, out of the unprecedented construction of pipe lines, principally for handling and transporting natural gas. As far as the drilling program is concerned, however, it now appears that there will soon be an adequate supply of pipe for the anticipated and desired volume of operations. Local and temporary shortages may occur at times in areas of rapidly increasing or heavy new drilling activity until facilities to serve such conditions properly are established.

The entire materials and equipment supply problem has shown marked improvement since early last year. Moreover, it appears that if the steel industry is not beset by serious labor difficulties and work stoppage, there will be a further increase in the production of pipe to the extent that the supply of conventionally

manufactured oil country tubular goods available in 1949 will be sufficient to meet overall anticipated requirements for oil country tubular goods. This apparently will not be true of line pipe, despite anticipated further substantial increased production, because of the heavy demands for the building of pipe lines. However, the overall situation has improved to the extent that local and temporary materials shortages for drilling, development and production purposes can probably now be alleviated locally and without great delay under normal dealing and buying between suppliers and operators. Therefore, it is recommended that the National Petroleum Council should adopt a resolution urging that each operator and supplier, individually and voluntarily, should exert every effort to assist distress cases where materials and equipment supplies may be needed immediately under emergency conditions.

DOMESTIC PRODUCTION - NATURAL GASOLINE AND PRESSURE MAINTENANCE PROJECTS

According to the best available information, the following natural gasoline and pressure maintenance projects were in various stages of completion at the beginning of 1949:

State	No. of Projects
Arkansas	4
California	12
Iowa	1
Kansas	3
Louisiana	9
Mississippi	1
Wyoming	2
New Mexico	4
Oklahoma	12
Texas	99
Total	147

Of this total, 24 plants had received substantially all of their steel requirements in 1948 for completion during the early part of 1949. Fifty-two plants are sufficiently far advanced to require the remainder of their steel in the first

quarter of 1949. We have estimated that 30 plants will require steel during the second quarter, 25 during the third quarter, and 16 during the last quarter of 1949.

1949 Steel Requirements

Using the tonnage requirements on the 62 projects covered by questionnaires last year and assuming the same proportinate steel requirements, the 1949 steel requirements have been calculated and are shown in Appendix Table C. Comparing these requirements with those shown in the March 1948 report, there is an indicated increase in the need for steel amounting to about 180 percent on an annual basis. This increase is, of course, due to the substantially increased number of plants scheduled. Ninety-nine plants are being constructed in Texas alone and all indications are that these are largely for conservation purposes, instigated by the Railroad Commission of Texas to eliminate the flaring of casinghead gas. All reports of projects under construction have been carefully checked to avoid duplication.

Supply and Distribution

As stated in the section of this report "Domestic Production - Crude Petroleum", the materials and equipment supply problem has greatly improved since last year. Even with the above increases in the number of projects, it now appears that tne steel needs will be met without critical shortages and subject to the probability of continuing difficulty in meeting promptly all line pipe requirements.

DOMESTIC TRANSPORTATION

The following section of this report covers the five principal media of petroleum transportation, namely: pipelines, tankers, barges, tank cars, and tank trucks.

Pipe Lines

In March 1948 a detailed survey was made of crude oil and product pipe line companies' steel requirements for the period April 1, 1948 to September 30,

1949. All of the planned pipe line construction for the period April 1, 1948 to date has been carried out.

The Line Pipe situation has improved markedly in recent months. Deliveries have been advanced at least a full quarter with the result that many lines are now being laid ahead of schedule. In addition, there have been recent substantial cancellations of both line pipe and tankage steel on order for delivery later this year. It appears, therefore, that the requirements for delivery during 1949 will be less than half of the quantity originally estimated for 1949 in the Committee's report of March, 1948. Furthermore, the Committee is advised that all petroleum pipe lines now scheduled for construction during 1949 have an assured supply of sufficient steel to complete the scheduled work.

Tankers

In the March 1948 report it was estimated that 371,000 short tons of steel other than for machinery would be required for tanker construction and repairs in the United States, and 377,000 short tons in foreign yards during the period April 1, 1948 / September 30, 1949, an aggregate of 748,000 short tons. As pointed out at that time, the estimate did not take into consideration steel which would be required if further tanker construction was undertaken. To provide for this, it was suggested that 150,000 short tons of additional steel be included, thus increasing the total requirements to an estimated 898,000 short tons; 521,000 required for the United States and 377,000 for foreign yards.

These requirements were based upon the world-wide tanker construction program as foreseen at that time which indicated the probable completion of the equivalent of 87 T-2s between April 1, 1948 and September 30, 1949, allowing for 5,155 short tons of steel per vessel for plates (including YODER shapes formed of plating) shapes, bar-stock and pipes, 150,000 short tons for possible additional contracts as indicated above and an estimated of 300,000 short tons for steel

requirements in connection with tanker repairs.

Actual deliveries of tankers since April 1, 1948 amounted to 38 T-2 equivalents.

It is estimated that during 1949 tanker deliveries of the equivalent of 106 T-2s, both here and abroad, will be made. On the assumption that three-quarters of those estimated for delivery this year will be completed by September 30, there is now an indicated total of 118 T-2 equivalents which will have been built during the 18 months period ending September 30, of this year.

On the basis of these latest estimates, the steel requirements as set forth in the March 1948 report should be revised as follows:

	United States	Foreign	Total
For Tanker Constr.	258,000	350,000	608,000
For Tanker Repairs	175,000	125,000	300,000
	433,000	475,000	908,000

To the best of our knowledge the steel used for tanker construction in Europe up to the present time has come from sources other than the United States.

A voluntary allocation plan to supply steel for tankers is now in effect. Information from shipbuilders and the Shipbuilding Council of America indicates that this voluntary plan is favored as a means of meeting the steel supply problems in connection with tankers.

Barges

Based upon figures submitted by the American Waterways Operators Association, the Committee originally estimated the requirements of steel for petroleum barges at approximately 58,000 tons per quarter. Figures which have been submitted to the Office of Defense Transportation by barge manufacturers since that time, however, indicate that deliveries during 1948 were only about 15,000 tons per quarter. There has been a marked slackening in the demand for petroleum barges as

well as dry cargo barges with the result that the Commerce Department has reduced the total allocation from 25,000 tons a month to 11,202 tons for the month of June. There is no provision at the present time for an allocation beyond that time and there is a strong possibility that the allocation program will be discontinued entirely after June. Barge manufacturers now have on hand firm orders for only 12 petroleum barges during the month of June which it is estimated will require about 4,000 tons of steel. Based on this figure, the Committee estimates that the total requirements for steel for petroleum barges will be approximately 12,000 tons per quarter during 1949.

Tank Cars

According to information supplied to us by the Office of Defense Transportation, tank cars were delivered at the rate of 570 per month during 1948. Deliveries for the first six months averaged 566 per month and during the second 6 months they averaged 585 per month. Deliveries for the first 3 months of 1949 were as follows:

> January - 591: February - 470; March - 552; As of April 1, 1949, car manufacturers had on their books, orders for 4,791 cars (less than 10 months requirements at current rates of production).

It is estimated that production will continue to decline and the average for the year 1949 will be less than the average in 1948. It is the opinion of the Committee that a voluntary allocation program for tank cars is no longer necessary.

Tank Trucks

In the Committee's previous report, it was estimated that tank trucks (2,000 gallon or more capacity) would be delivered at the rate of approximately 740 units per quarter during the last three quarters of 1948 and the first three quarters of 1949. More recent figures indicate that a total of 3,550 units were delivered during the year 1948 -- or at the rate of 888 per quarter. Indications are that deliveries during 1949 will be at a slightly lesser rate and it is estimated by the Committee that they will be delivered at the rate of 700 per quarter. There appear to be no difficulties of supply in this field and buyers report that they are having no difficulty obtaining their requirements through the regular commercial channels.

DOMESTIC REFINING

To show the domestic petroleum refining industry's 1948 accomplishments, the following are given relative to refinery running, crude refining capacities and refined oil stocks:

Crude Runs to Refineries

(a)	1947 - Actual	5,074,000 barrels	daily
(b)	1948 - Estimated	5,445,000 "	"
(c)	1948 - Actual	5,548,000 "	"

Refining Capacities: *

(a)	1947 - as of 12-31-47	6,034,000 "	"
(b)	1948 - as of 12-31-48	6,346,900 "	"

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* From Report of N.P.C. Committee on Petroleum Refining Capacity, Jan. 13, 1949. It should be noted that whereas in the March 1948 report the crude refining capacity as of 12-31-47 was shown as 5,815,000 barrels daily, the figure of 6,034,000 barrels daily is now shown as the crude refining capacity as of 12-31-47. The latter figure results from a survey made later in 1948 by, and as reported by, the N.P.C. Committee on Petroleum Refining Capacity dated January 13, 1949. In this report, the figures have been reoriented to accord with the latter base.

Stocks of Refined Products: (1,000 barrels)

	12-31-47	12-31-48	Increase
Gasoline	92,302	104,063	11,760
Kerosene	17,722	24,373	6,651
Dist. Fuel	51,081	77,151	26,070
Resid. Fuel	52,816	86,705	33,889
All Other	61,949	68,000	6,051
Total	275,871	360,292	84,421

Summarizing the above:

During 1948, the Domestic Petroleum Refining Industry:

(1) Ran to Stills 5,545,000 barrels daily

(2) Against estimated requirements of: 5,445,000 barrels daily

(3) Runs increased 2 percent over estimated requirements and 9.3% over 1947.

(4) The crude refining capacity increased 312,900 barrels daily during 1948, against an estimated - increase of 300,500 barrels daily.

(5) As a result of the high runs to stills, inventories of refined products increased, during 1948: 84,421,000 barrels, an increase of 30.5 percent over stocks as of December 31, 1947. The stocks of distillate and residual fuels, which were so critically short in supply in certain areas during the winter of 1947-48, increased 59,979,000 barrels during 1948, an increase of 57.8 percent over stocks as of 12-31-47.

The estimated mill steel requirements for the domestic refining industry as reported in March 1948 amounted to 909,100 tons on an annual basis. No survey has been made as to actual mill steel received during 1948 by the refining division of the industry. It is apparent, however, that sufficient steel has been received for plant maintenance, other plant requirements, and the completion of more additional refining capacity than was contemplated in January, 1948. It is concluded, therefore, that the domestic refining industry more than met the task set out for it, both as to crude run to stills and in additions to plant capacity. To do this the industry must have received steel in sufficient quantities, and whatever individual delays or shortages may have appeared at times, were not critical to the industry as a whole.

1949 Steel Requirements

As shown above, the industry developed more refining capacity during 1948 than was contemplated at the beginning of the year. A recent survey, as reported January 13, 1949 by the Council's Committee on Petroleum Refining Capacity, indicates that the amount of additional refining capacity to be completed during 1949 will be somewhat less than was contemplated for 1949 when the steel estimates were made in January 1948.

The new estimated refinery runs and refinery capacities for 1949 and 1950 are as follows:

	1949	1950
	(thousands barrels daily)	
(a) Estimated refinery runs	5,656	5,910
(b) Estimated refinery capacity, required at 90% operating ratio	6,284	6,567
(c) Estimated refining capacity, which will be available	6,458 *	6,614
(d) Estimated refining capacity, required at end of period	6,382	6,672
(e) Estimated refining capacity, completed at end of period	6,569 *	6,672
(f) Estimated additional refining capacity placed in operation during year (Refining capacity as of 12-31-48, 6,346,900)	222.5 *	103

* From Jan. 13, 1949 report of N.P.C. Committee on Petroleum Refining Capacity.

It will be noted that the estimated refinery runs for 1949 are 2.0 percent above 1948 actual and fractionally less than the estimate for 1949 shown in the March 1948 report of this Committee.

Refining capacity is estimated to be more than ample to run presently estimated 1949 crude at 90 percent operating ratio.

A sampling survey of 1949 estimated steel requirements was made covering a wide range of the domestic petroleum refining industry from coast to coast for the purpose of determining if any significant change in estimated steel requirements had developed since last year's estimates were prepared.

Only total tons of steel requirements were sought. The results of the sample survey and the use of experience factors applied to revised 1949-1950 estimated petroleum demands and estimated refining construction, indicate the following amounts of steel requirements for 1949 in comparison with those estimated for 3 quarters of 1949 in the March 1948 Report:

1949	March 1948 Estimate (tons)	Percent Estimate (tons)	Percent Change
1st Quarter	249,606	187,540	- 25%
2nd Quarter	255,764	186,500	- 27%
3rd Quarter	184,463	164,730	- 11%
4th Quarter	No Estimate *	148,730	
Total for Year	*	687,500	- 24%

* Based on an average of the six quarter estimate of Jan. 1948, a twelve month total would be 909,100 tons.

These reductions, in general, apply proportionately to each of the steel products shown in the March 1948 report.

Supply and Distribution

The original purpose of the N.P.C. Committee on Petroleum Industry Steel Requirements assignment was to estimate the steel needed -- "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 --" For the domestic refining industry this purpose has been accomplished for 1948 and will be attained in 1949 on the basis of present indicated petroleum demands, refinery

capacity, steel requirements, and steel availability.

To the general question as to total supply of steel materials being received by the domestic refining industry, an accurate answer to the above could only be made after canvassing the whole industry. However, judging by the marked success experienced by domestic refineries during 1948 in meeting demands for products in excess of those contemplated at the time of the March 1948 report on steel requirements, and the large increase in stocks of petroleum products and, further, since crude refining capacity was increased in greater extent than contemplated during 1948, the conclusion that mill steel supplies received by the refining industry were adequate for plant maintenance, repairs and expansion appears justified. A survey of part of the industry representative of both large and small units and from coast to coast substantiates the above conclusion.

Published information indicates increased supplies of steel for 1949. The contemplated program of refinery expansion is somewhat less than for 1948, and it is therefore probable that steel supplies should be adequate for refinery purposes during 1949, barring unforeseen contingencies.

There are no known items of equipment of materials which, insofar as pertains to the domestic refining industry, present critical problems of distribution.

DOMESTIC MARKETING

The improvement in the supply of steel products for the marketing phase of the industry during the past year has been very encouraging.

In marketing, generally, no serious delays are being experienced in the delivery of any of the steel products required with the exception of pipe, plate for terminal tankage, and those steel products required by the L.P.G. Division of the Industry.

Insofar as pipe is concerned few installations are held up for lack of it. Within recent months a number of offers of pipe at mill prices have been made to

some users and it is believed that this item may soon be deleted from the list of critically short items affecting marketers. Heavy plate for terminal tankage remains slow; however this type of construction is not fast moving at best, and requirements for facilities of this type do not develop so rapidly that advance planning cannot provide the required tankage.

The shortages of steel for the L.P.G. Division are, to a considerable degree, the kinds of shortages that are inherent in a young industry growing by leaps and bounds.

The great progress has been made during the last twelve months in the marketing phase is evidenced by the fact that many items such as underground tanks, bulk plant tanks, pumping units, and bulk plant and service station equipment have either become immediately available or can be procured with much less delay than was the case one year ago.

1949 Steel Requirements

The estimates of steel required for marketing as shown in the March 1948 report were most conservative. They were confined to essential replacements in all categories and essential replacements and extensions in a few items. The need for steel for these purposes is continuing in nature and, accordingly, does not require frequent revision.

In general, therefore, the requirements set out in the March 1948 report remain unchanged as essential minimum needs. It is believed that the industry actually received in 1948 approximately the same total quantity shown in last year's report as required.

Supply and Distribution

As indicated above, there are no critical problems of steel supply in the domestic marketing industry and therefore no critical distribution difficulties in connection with these materials.

NATURAL GAS TRANSMISSION

In the estimate of March 1948, it was shown that the natural gas industry would require 2,088,000 tons of line pipe (in all sizes from 6-inch up) for the six quarters ended September 30, 1949. This is at the annual rate of 1,390,000 tons. It appears that approximately 1,020,000 tons of pipe, of line pipe sizes (all sizes from 6-inch up), were delivered in the calendar year 1948 for uses of natural gas pipe lines (gathering and transmission lines). Of this total, approximately 715,000 tons were used in the construction of natural gas projects which had been approved by the FPC, and 305,000 tons in natural gas projects over which the FPC did not have jurisdiction. The total line pipe produced in all sizes from 6-inch up was approximately 2,220,000 tons, of which perhaps 1,200,000 tons were used for oil pipe lines, distribution lines within city gates, water lines, refinery piping, export, etc.

The following is a summary for the calendar year 1948 for all sizes of line pipe from 6-inch up:

Total Production		2,220,000 tons
Delivered for Natural Gas Projects		1,020,000 tons
Interstate Projects	715,000 tons	
Intrastate Projects	305,000 tons	
Balance for All Other Purposes		1,200,000 tons
March, 1948, Estimate of Requirements of Natural Gas Industry on Annual Basis		1,390,000 tons
Delivered to Natural Gas Industry		1,020,000 tons
Deficiency on Annual Basis		370,000 tons

Steel Requirements - 1949

A review of the March 1948 estimates of the 1949 requirements was made by (1) contacting a few of the larger natural gas pipe line companies to get their ideas of the availability of large diameter (16-inch and over) line pipe and of small diameter (6-inch to 14-inch) line pipe, based on their experience in

negotiating for the purchase of pipe tonnage; (2) contacting representatives of pipe manufacturers; and (3) studying the Federal Power Commission releases on projects approved by that Commission, and on projects before the Commission for certificates of convenience and necessity. Formal contacts of all of the natural gas companies, such as were used in the preparation of the original estimate of March, 1948, were not used.

Projects approved by the Federal Power Commission but not completed, principally because of the shortage of large diameter line pipe, require an estimated 1,200,000 tons of pipe in addition to the pipe already delivered as of December 31, 1948. For uses in gathering lines in producing fields to supply gas for these lines, and for other intrastate projects not subject to FPC jurisdiction, it is estimated that 500,000 tons of line pipe is now required, making a total current requirement of about 1,700,000 tons. In addition to projects approved up to December 31, 1948, there are now filed with the FPC requests for certificates of convenience and necessity covering projects with an estimated total requirement of some 2,600,000 tons. The gathering lines to supply these main trunk lines, along with other intrastate projects, are currently estimated at 750,000 tons. A summary of the above is as follows:

Projects Approved by FPC as of Dec. 31, 1948	1,200,000 tons
Intrastate Projects	500,000 tons
Total	1,700,000 tons
Projects Pending before FPC, Dec. 31, 1948	2,600,000 tons
Resulting Intrastate Projects	750,000 tons
Total Pending Projects	3,350,000 tons
Total of Above	5,050,000 tons

Attention is directed to the fact that certificates for some of the pending projects may be refused by FPC and also that some requests for certificates may be withdrawn, as in at least two instances it appears from the FPC filings that

requests for certificates have been filed which would duplicate service to the same markets. The estimated tonnage quoted above is for all of the projects filed, and no effort has been made to predict the outcome of the requests for certificates nor to predict the construction schedules of the companies making applications if their requests are granted. However, the above figures indicate a requirement at least as large as that estimated in the March 1948 report. In view of the scheduled 1949 pipe production, it appears that the demand for steel pipe for natural gas will not be met in full. It also appears that the greater part of pipe tonnage represented in the applications will eventually be required.

Supply and Distribution

It appears now that line pipe in sizes 6" to 14" will become more readily available in 1949, and supply and distribution problems will be less critical. For the larger sizes, however, the indicated shortage will probably be reflected in continuing difficulties in obtaining these materials.

The anticipated output of line pipe, while substantially higher than in 1948, will not be equal to the combined 1949 demand for producing activities and oil lines plus the entire amount required for completion of all gas transmission lines now approved by F.P.C. However the amount available for gas transmission lines should allow construction at a considerable higher rate than in 1948.

AMERICAN-OWNED FOREIGN OPERATIONS

At the beginning of 1948 foreign crude oil production was less than foreign consumption of products. By the end of 1948, due to the intensive effort to increase producing capacity, production reached a level above foreign product consumption in spite of increases in the latter. At the end of 1948 a considerable amount of foreign production was shutback for lack of outlet and the rate of increase in development of new productive capacity began to taper off.

Foreign refining capacity is still inadequate to provide for foreign consumption of products and there has been no decrease in the rate of installation of new foreign refining capacity.

Steel Requirements - 1949

At the request of the Committee, the Oil and Gas Division of the Department of Interior submitted a questionnaire to all American owned oil companies operating abroad (50% or more American capital), concerning their steel requirements abroad for 1949. The consolidated totals were made available by the Division. Appendix Table D shows these estimates, rounded off to the nearest 500 tons, compared with the estimates submitted in the March 1948 report. It will be recalled that the original estimates were for the first three quarters of 1949. For the purpose of comparison, these have been converted to annual rates.

The present estimates for 1949 are lower by 16% or 183,500 tons of total steel. By areas this was 114,600 tons (25%) in the Western Hemisphere and 68,900 tons (9.1%) in the Eastern Hemisphere. By categories, the latest estimates are lower by the following amounts:

	Short Tons	%
Oil Country Tubular Goods	21,800	10.3
Line Pipe (Under 16")	24,200	14.2
Line Pipe (16" and Over)	16,200	7.1
Steel, All Others	121,300	22.8

It is also of interest to note that the present estimate of 1949 requirements is 194,600 tons (16.9%) less than the original estimate for the year 1948 (converting the estimates for the second, third and fourth quarters of that year to annual rates).

Supply and Distribution

The Subcommittee is not aware of any present or future difficulties in obtaining the steel materials needed by American owned foreign oil companies to carry out their planned operations. Such difficulties as occurred in 1948 were principally the result of delays in authorizing export licenses.

APPENDIX

TABLES

APPENDIX TABLE A

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

Item	Year 1949				
	1st Q.	2nd Q.	3rd Q.	4th Q.	Total
Oil Country Tubular Goods:					
Carbon	261,000	309,000	345,000	312,000	1,227,000
Alloy	58,000	69,000	77,000	70,000	274,000
Subtotal	319,000	378,000	422,000	382,000	1,501,000
Line Pipe, etc:					
Carbon	76,000	90,000	100,700	91,000	357,700
Alloy	6,900	8,200	9,100	8,200	32,400
Subtotal	82,900	98,200	109,800	99,200	390,100
All Other Steel:					
Bars, cold and hot rolled	44,700	52,800	59,000	53,300	209,800
Ingots, billets	40,800	48,300	53,800	48,700	191,600
Plate	21,000	24,900	27,700	25,000	98,600
Sheet and Strips	27,800	33,000	36,700	33,200	130,700
Castings	18,200	21,600	24,000	21,700	85,500
Structural Shapes	19,600	23,200	25,900	23,400	92,100
Rails	350	410	460	420	1,640
Tin Plates	220	260	285	260	1,025
Wire Rod and Wire	4,000	4,700	5,250	4,750	18,700
Subtotal	176,670	209,170	233,095	210,730	829,665
Grand Total - All Steel	578,570	685,370	764,895	691,930	2,720,765

APPENDIX TABLE B

INDICATED SUPPLY OF STEEL TUBULAR GOODS FOR THE OIL AND GAS INDUSTRY
(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
1938-41	1,041	737	1,778	128	64	977	10.5
1942-45	844	1,001	1,845	177	58	786	10.2
1946	1,095	974	2,069	180	77	1,018	10.1
1947	1,410	1,476	2,886	-	130	1,280	11.3
1948	1,675 *	2,221	3,896	-	160	1,515	11.2
1949 Est.	1,803 *	2,554	4,357	-	100	1,703	12.7

* Probably includes about 160,000 tons of conversion pipe.

Source: American Iron and Steel Institute and U. S. Dept. of Commerce

APPENDIX TABLE C

ESTIMATED STEEL REQUIREMENTS FOR NATURAL GAS, PRESSURE MAINTENANCE AND GAS CONSERVATION PLANTS AND PROCESSING EQUIPMENT

(In Short Tons)

Item	1949				
	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Line Pipe	69,354	80,016	66,680	42,675	258,725
All Other Steel:					
Bars, cold and hot rolled	4,281	4,939	4,116	2,634	15,970
Ingots, Billets	3,867	4,461	3,718	2,379	14,425
Plate	24,029	27,723	23,103	14,786	89,641
Sheet & Strip	304	350	292	187	1,133
Castings	31,073	35,849	29,874	19,120	115,916
Structural Shapes	4,212	4,860	4,050	2,592	15,714
Rail	41	48	40	26	155
Tin Plate	925	1,068	889	569	3,451
Wire Rod & Wire	14	16	13	8	51
Sub-Total	68,746	79,314	66,095	42,301	256,456
GRAND TOTAL ALL STEEL	138,100	159,330	132,775	84,976	515,181

APPENDIX TABLE D

ESTIMATED FOREIGN PETROLEUM STEEL REQUIREMENTS

AMERICAN OWNED COMPANIES - (50% OR MORE AMERICAN CAPITAL)

Calendar Year 1949

		SHORT TONS		
	Estimate	W. Hemisphere	E. Hemisphere	Total
1. Oil Country Steel Tubular Goods (Seamless & Welded, Carbon & Alloy Casing, Tubing & Drill Pipe)	A	138,500	50,400	188,900
	B	161,900	48,800	210,700
2. Line Pipe: (16" O.D.) Seamless and Welded	A	74,700	71,800	146,500
	B	84,000	86,700	170,700
3. Line Pipe: (16" and Over) Seamless and Welded	A	20,700	192,300	213,000
	B	33,500	195,700	229,200
4. STEEL, ALL OTHER: (Includes all semi-finished steel mill products (except tubular above) such as Bars, Rods, Plate, Sheets, Shapes, etc., also include all towers, tanks, and vessels)	A	97,600	313,900	411,500
	B	166,700	366,100	532,800
TOTALS	A	331,500	628,400	959,900
	B	446,100	697,300	1,143,400

A - Present estimate from consolidated questionnaires submitted to companies by Oil & Gas Division, February 1949.

B - Former estimate from foreign Steel Sub-committee Report of February 28, 1948.