



TRINIDAD AND TOBAGO

ANNUAL ADMINISTRATION REPORT
FOR THE YEAR
1968

MINISTRY OF PETROLEUM AND MINES

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ERRATA

Table of Contents read "Royalty Assessment" instead of Royal Assessment.

Page 1 Table 1 Line 2 Col. 4 read 151, 444, 945 instead of 157, 444, 945.

Page 26 Appendix III Under the head Salt Water read "% of Total liquids produced" instead of % of Total Oil.

Page 27 Appendix IIIA Total Private Production 1967 read 4, 033, 509 instead of 1, 033, 509.

Page 34 Appendix VIII Trinidad Northern Areas Limited Col. 16 read 25. 6 instead of 19. 9.

Totals and Averages for Second Half Year Col. 16 read 27. 0 instead of 27. 9.

Years Totals and Averages Col. 16 read 27. 3 instead of 27. 7.

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DEVELOPMENTS IN THE TRINIDAD AND TOBAGO PETROLEUM INDUSTRY - 1968

SUMMARY

Operations in the oil industry in Trinidad and Tobago during 1968 were in general maintained at the high level attained during the preceding years. Results, as summarised in Table I below, were indeed, quite satisfactory. Appendix I at the end of this report presents a summary of the Annual Statistics for the nation over the period 1959 - 1968.

TABLE I - SUMMARY OF DATA FOR TRINIDAD AND TOBAGO PETROLEUM INDUSTRY

| | 1965 | 1966 | 1967 | 1968 |
|--|-------------|-------------|-------------|-------------|
| Crude Oil prod. (bbls.) | 48,858,937 | 55,604,058 | 64,994,582 | 66,903,906 |
| Nat. gas prod. (Mscf.) | 111,502,617 | 118,927,017 | 140,338,345 | 157,444,945 |
| Average GOR (Scf/bbl.) | 2,282 | 2,138 | 2,160 | 2,264 |
| CHPS (Nat. gasoline) prod. (bbls.) | 196,778 | 187,962 | 191,995 | 163,670 |
| Refinery Capacity | 360,000 | 390,000 | 405,000 | 430,000 |
| Refinery Throughput | 137,165,210 | 144,193,269 | 138,924,636 | 151,282,098 |
| Total Wells completed | 222 | 272 | 221 | 175 |
| Average depth of comp. wells (ft.) | 4,823 | 4,427 | 4,328 | 5,356 |
| Total footage | 1,058,736 | 1,187,202 | 928,210 | 942,686 |
| Oil and gas wells comp. | 201 | 247 | 197 | 151 |
| Percent success | 91.0 | 91.0 | 90.3 | 86.9 |
| Proven crude oil reserves (million bbls.) | 521 | 580 | 612 | N.A.* |
| Acreage Developed | 38,590 | 40,420 | 42,175 | 43,630 |
| Average Rigs running | 15.0 | 15.0 | 9.5 | 8.2 |

* An accurate reserve figure is not available at the present time.

The most significant result was the discovery by the Pan American Trinidad Oil Company, of a large deep gas-condensate field off the East Coast of Trinidad.

The discovery of new oil and gas fields has been, for some time now, an urgent need of the country. Realising this, the Government itself, with United Nations assistance, took the initiative in carrying out.

during 1968, a seismic survey of the marine area between the islands of Trinidad and Tobago. The results of this survey have been most encouraging confirming the existence of appreciable sedimentary thicknesses and excellent geological structures.

To complement its action in this field Government is also using its best efforts to encourage exploratory drilling on land. Texaco, in particular, has very actively responded to this call. However, no new field was discovered on land during the year and apart from the East Coast find, the reserves of which cannot yet be fully evaluated, only in Soldado was any significant amount of new oil brought into production. Thus, new reserves did not keep pace with production and the country's known proven reserves have been reduced.

Development drilling has slowed somewhat, but already it is more than apparent that, in this sector, activity in 1969 will improve considerably.

Crude oil production in 1968 exceeded that for the previous year by 2.6 per cent, natural gas production showed an increase of 7.9 per cent and Refinery throughput was 8.9 per cent higher. In the field of fluid injection, the first polymer flood to be undertaken in the country was started by BP in their Apex Fyzabad field. Several new intermittent steam injection, steamflood and gas injection projects were inaugurated during the year.

Trinidad and Tobago continued to attract new investors in petroleum operations and two additional companies were registered in this country in 1968. Panoil Trinidad Ltd. and Belpetco Trinidad Ltd. became joint licensees of acreage in the Gulf of Paria, acquired from Premier Consolidated Oilfields Ltd.

On the political scene, Government has manifested its awareness of the need for greater participation in the workings of the industry by deciding to form a National Petroleum Company.

Further, in order to implement its new oil policy which has been under discussion for more than a year, it is expected that new Petroleum Legislation will be enacted about the middle of 1969.

Pending the finalisation of this legislation, no new Crown leases or licenses were issued during 1968. However, negotiations were in progress among private oil companies for farm-outs and assignments of idle acreage, and the first half of 1969 should see some leases change hands, hopefully, to the economic benefit of the country.

GEOLOGICAL AND GEOPHYSICAL ACTIVITY:

With the urgent need for the discovery of new petroleum reserves, the Government, with the aid of the United Nations initiated a major geophysical operation during the year when they conducted a seismic survey of 3,000 square miles of marine territory off the North Coast of Trinidad (see Figure I) The actual survey was performed by Geophysical Services Incorporated (G. S. I.) and was of the marine reflection reconnaissance type utilizing the air gun, as a source of shock waves, so as not to damage marine life in the area. One thousand and sixty line-miles were shot and the data was digitally recorded and processed utilizing 12-fold stacking and C. D. P. with deconvolution applied before stacking. The survey lasted for 2 party-months.

Results of the survey received so far have been very promising and have reinforced the likelihood of obtaining commercial oil production from that area. Copies of the final report will be made available to interested parties following which exploratory licenses will be granted on the basis of competitive bidding.

TEXACO TRINIDAD INC. conducted marine seismic surveys in five areas off the coast of Trinidad during late 1968. A total of 683 line-miles were shot in the San Fernando Bay, off Galeota Pt., along the South Coast, in the Gulf of Paria, and off the North East coast of the island (see Figure I). The survey was done by Geophysical Services Incorporated using a similar technique and energy source as above.

Texaco also did eighteen party-months of surface geological work mainly in the Guayaguayare Lizard Springs/Maloney area and the Cedar Grove/Mayaro area.

PAN AMERICAN TRINIDAD OIL COMPANY conducted two (2) detailed marine digital seismic surveys on their lease off the South East of Trinidad. One was conducted in January in which 493 line-miles were surveyed. The other was done in December where 737 line-miles were shot. Deep digital recording techniques and 12-fold stacking were employed by the contractors, G.S.I.

The deepest well in the history of Trinidad and Tobago was drilled by Pan American Trinidad Oil Company off the East Coast. The well, East Mayaro I, which was plugged back and abandoned, was drilled to a total depth of 16,860 feet in April.

MOBIL OIL CORPORATION conducted a single line survey, approximately 100 kilometers in length during December. The survey line extended from the Dragon's Mouth on the North west coast, through the Gulf of Paria, then eastwards along the South coast out to the 100 fathom line. (see Figure I).

The survey was conducted by Mobil personnel aboard Mobil's chartered vessel, the FRED H. MOORE, and included magnetic, gravity, and seismic operations.

The types and amount of work involved are summarised in Table II.

DRILLING

COUNTRY : TRINIDAD

1968

TABLE II. PARTY-MONTHS OF GEOLOGICAL AND GEOPHYSICAL EXPLORATION IN 1968

| Company or Area | Surface Geology | Seismograph | Total |
|-----------------------------|-----------------|-------------|-------|
| PAN-AM Trinidad Oil Company | | .75 | .75 |
| TEXACO Trinidad Inc. | 18 | 1.5 | 19.5 |
| MOBIL OIL Company | | 0.03 | 0.03 |
| GOV'T T.&T. & U.N.D.P. | | 2 | 2 |
| Totals | 18 | 4.28 | 22.28 |

EXPLORATORY DRILLING

Nineteen sixty-eight saw a marked increase in exploratory drilling activity with an average of three (3) rigs being involved in exploration throughout the year. In drilling 26 wells, these rigs accounted for 196,174 feet or 20.8 per cent of the total footage drilled. Of the 26 wells drilled, 23 were completed; 9 of these were successful thus achieving a success ratio of 43.5 per cent.

The East Coast was the scene of much marine drilling activity when PAN AMERICAN TRINIDAD OIL COMPANY carried out operations from their Blue Water No. 3 barge, drilling five (5) new field wildcats of average depth 14,800 feet. Three of these wells produced large quantities of natural gas and condensate in the latter part of 1968. Drilling activity is continuing to delineate the extent of the reserves of this new field. Figure II shows the location of Exploratory and Semi-Exploratory wells Drilled in 1968.

The search for oil in the Northern Basin was once more resumed when a new operator BELPETCO Trinidad Ltd. drilled their first well, Couva Marine No. 3, on acreage acquired from Premier Consolidated Oilfields Ltd. (P. C. O. L.) in the Gulf of Paria. This well was abandoned at 8,062 feet as a dry hole. Their second well, Couva Marine No. 3X, which was deviated to the target area of Dominion Oil Company's Couva Marine 1A, was a successful black oil producer.

TRINIDAD NORTHERN AREAS LTD. exploration efforts were confined to the drilling of two semi-exploratory wells in their Soldado field. One of these wells S. 284 was drilled on strike with the presently developed S. 238 area; it is now successfully producing from the target Morne L'Enfer Sands in the East Soldado field. The other well, S. 283, was drilled to the North of the East Soldado field in a position analogous to that of the North Soldado accumulation. Although a well-developed Manzanilla sand section was encountered, there was not enough oil sand to warrant completing this well as a producer.

Texaco's attempts to arrest declining production were reflected by an aggregate of 86,220 feet or some 300 per cent increase in exploratory footage drilled on land in 1968. In their Guayaguayare field where the greatest amount of exploratory drilling activity occurred, 10 exploratory wells were drilled. Seven of these were extension wells, of which, however, only three, GY-546, GY-548 and GY-587 were successful.

Roseau 1, a new field wildcat, was drilled at approximately $1\frac{1}{2}$ miles from the Guayaguayare Maloney field to exploit the Gros Morne Sands which are productive in the already established Guayaguayare fields. This well discovered a gas sand but production declined too rapidly for the well to be considered an economic producer.

The search for the Nariva Sands which are present in the Brighton and Tabaquite fields resulted in the drilling of Pointe-a-Pierre 1, midway between these fields. The well encountered only a thin watered section of the sands sought.

Texaco's AT-84 which was drilled in the Trinity lease and P.C.O.L.'s Congo River I were both designed to test stratigraphically trapped Herrera sands on the south flank of the Siparia Ortoire Basin. No resistive sands were found in either of these wells.

P.C.O.L.'s only other exploratory well - Icacos 11 - which was drilled in the southwestern end of the island was abandoned because all of the objective sands encountered were wet.

Table III summarizes exploratory drilling activity for 1968.

DEVELOPMENT DRILLING

In 1968, the level of development drilling activity was much lower than that attained in 1967. For the year under consideration development drilling totalled 746,512 feet as compared to 834,531 feet in 1967. The success ratio of 93.4 per cent was better than that of 1967, since only 10 of the 152 development wells completed in 1968 were abandoned.

Table IV presents a Summary of Development Drilling by areas. Partly responsible for the decrease in development drilling footage was the cessation of drilling activities by British Petroleum Trinidad Ltd. which had drilled and completed 28 wells in 1967 but undertook no drilling in 1968.

Texaco drilled 31 less development wells in 1968 than in the previous year. During the first nine months of the year this company concentrated their development drilling efforts in their Guayaguayare field, but emphasis was shifted to the Palo Seco field in the last quarter of the year. As Table IV shows, the Palo Seco and Guayaguayare areas (Areas 4 and 10) were together responsible for about 67 per cent of all development footage drilled. The success ratio attained in these areas was 91.2 per cent.

In area 5, Forest Reserve, 16 development wells were drilled which were all successful.

There was also development drilling activity in Brighton (Area 3), and Barrackpore (Area 8).

All twenty-one development wells drilled by T.N.A. in the Soldado area were successful.

Monthly analyses of all drilling and work-over activity conducted in the country during 1968 are contained in Appendices II and II A.

CRUDE OIL PRODUCTION

Crude oil produced in Trinidad and Tobago during 1968, amounted to 66,903,906 barrels. This average production rate of 182,797 barrels per day was 2.6 per cent higher than the average rate which obtained in 1967.

This percentage increase is rather less than the percentage increases of 16.9 and 13.8 recorded in the two previous years but is no cause for alarm. While it was anticipated that the country's production for 1969 will be less than for 1968, there are already definite indications of the decline being arrested and a reversal of the trend attained before the end of the new year.

Since September, 1965, the oil production rate increased steadily until February, 1968 when it attained a maximum of 192,400 b/d. The decline that has since set in has been steady and sharp so that for the month of December, 1968, production averaged 172,174 b/d registering a fall of 20,227 b/d or 10.5 per cent in ten months.

As may be seen from Figure III, this production pattern has been completely dominated by the behaviour of Texaco's Navette oil pools in Guayaguayare. In late 1965, as a result of infill drilling in the first Navette pool, production in the area started on the upward trend. Then, with the discovery of further pools in this area in early 1966 and an extremely rapid rate of development, Guayaguayare's production soared from 6,974 b/d in December, 1965 to a peak of 36,329 b/d in February, 1968. By December the same year, ten months later, this field's production averaged 20,192 b/d, having declined in this period by 16,137 b/d or 44.4 per cent.

In contrast to the behaviour of landfields in general and Guayaguayare in particular, Trinidad Northern Area's (TNA's) Soldado Field in the Gulf of Paria continued to demonstrate a steady and healthy growth rate. Here, in December, 1968, production averaged 70,127 b/d compared with 63,066 one year earlier.

Although marine production, at 43.4 per cent of total, still lags behind that from land fields, well productivity in the former areas has been increasing over the past few years from 214.5 barrels per day per well in 1966 to 229.1 in 1967 to 243.6 in 1968. The corresponding figures for land-based wells have been 30.9, 35.7 and 34.7. Land production in 1968 was 5 per cent below that of the previous year while marine production was 15 per cent higher.

TABLE III. SUMMARY OF WILDCAT DRILLING IN TRINIDAD AND TOBAGO - 1968

| Operator | Well Name | Index Map Reference | Basis for Location | LAHEE Explor. Class | Compl. Date | Total Depth (Feet) | Name and/or Age of Deepest Formation | Results/Remarks |
|----------|--------------------|---------------------|--------------------|---------------------|-------------|--------------------|--------------------------------------|-----------------|
| P.A.T.O. | S.E.G. 1 | B 37 | Seis | B 3 | Feb. 28 | 15,535 | Cipero (Oligocene) | Temp. Abandoned |
| | EM 1 | G 40 | Seis | C 3 | April 26 | 16,860 | Cipero (Oligocene) | Dry |
| | S.E.P. 1 | C 42 | Seis | C 3 | June 9 | 13,418 | Cipero (Oligocene) | Dry |
| | S.E.G. 2 | D 36 | Seis & SSG | B 3 | Aug. 29 | 13,309 | Cipero (Oligocene) | Temp. Abandoned |
| | OPR 2 | I 33 | Seis | B 3 | Nov. 1 | 15,963 | Cruse (Miocene) | Temp. Abandoned |
| | S.E.G. 3 | C 36 | Seis & SSG | A 2c | - | 13,648 | Cruse (Miocene) | Completing |
| P.C.O.L. | IC II | E 5 | Seis & SSG | C 2b | April 28 | 7,500 | Cruse (Miocene) | Dry |
| | CR I (Congo River) | F 16 | Seis & SSG | C 2c | July 26 | 6,700 | Cipero (Oligocene) | Dry |
| T.N.A. | S 283 | H 8 | Seis & SSG | C 2c | Nov. 26 | 6,523 | Brasso (Miocene) | Dry |
| | S 284 | H 8 | Seis & SSG | B 1 | Dec. 8 | 4,400 | Morne L'Enfer | Oil Producer |
| BELPETCO | CM 3 | N 13 | Seis & SSG | C 1 | Dec. 3 | 8,062 | Manzanilla (Miocene) | Dry |
| T.T.I. | Gy 546 | H 24 | Seis & SSG | B 1 | March 14 | 4,800 | Gros Morne (Miocene) | Oil Producer |
| | Gy 548 | I 24 | Seis & SSG | B 2c | April 2 | 6,274 | Gros Morne (Miocene) | Oil Producer |
| | Gy 549 | H 24 | Seis & SSG | C 1 | May 7 | 2,500 | Gros Morne (Miocene) | Dry |
| | Gy 550 | H 24 | Seis & SSG | C 1 | May 7 | 4,000 | Gros Morne (Miocene) | Dry |
| | Gy 551 | H 24 | Seis & SSG | C 1 | May 7 | 6,300 | Gros Morne (Miocene) | Dry |
| | Gy 561 | H 24 | Seis & SSG | C 2c | May 7 | 5,500 | Gros Morne (Miocene) | Dry |

TABLE III. SUMMARY OF WILDCAT DRILLING IN TRINIDAD AND TOBAGO - 1968 - Cont'd

| Operator | Well Name | Index Map Reference | Basis for Location | LAHEE Explor. Class | Compl. Date | Total Depth (Feet) | Name and/or Age of Deepest Formation | Results/Remarks |
|----------|-------------------|---------------------|--------------------|---------------------|-------------|--------------------|--------------------------------------|-----------------------------------|
| T.T.I. | Gy 587 | I 24 | Seis & SSG | B 1 | Aug. 23 | 6,700 | Gros Morne (Miocene) | Oil Producer |
| | Gy 591 | I 22 | Seis & SSG | C 1 | Sept. 6 | 5,813 | Cruse (Miocene) | Dry |
| | Gy 592 | I 24 | Seis & SSG | C 1 | Sept. 8 | 4,382 | Gros Morne (Miocene) | Dry |
| | Gy 601 | I 25 | Seis & SSG | A 2c | - | - | - | Drilling at 9,057 ft. on 31-12-68 |
| | AT 84 | H 21 | Seis & SSG | A 3 | - | - | - | Drilling at 5,604 ft. on 31-12-68 |
| | Pointe-a Pierre 1 | K 15 | Seis & SSG | C 3 | Aug. 16 | 6,271 | (Eocene) | Dry |
| | ROS 1 (Roseau) | J 24 | Seis & SSG | B 3 | - | 7,517 | Karamat (Miocene) | Closed in Tested - Gas |
| | P.S. 321 | F 11 | Seis & SSG | B 1 | Sept. 9 | 5,002 | Morne L'Enfer (Miocene) | Oil Producer |
| | P.S. 324 | F 12 | Seis & SSG | B 1 | Sept. 23 | 6,500 | Cruse (Miocene) | Oil Producer |

TABLE IV. SUMMARY OF DEVELOPMENT DRILLING IN TRINIDAD AND TOBAGO 1968

| *Area No. | Producers Compl. | Dry Holes Compl. | Total Compl. | Ft. Drilled | Rigs Active 31.12.68 |
|-----------|------------------|------------------|--------------|-------------|----------------------|
| 1 | 22 | - | 22 | 152,858 | 2 |
| 2 | - | - | - | - | - |
| 3 | 8 | - | 8 | 41,735 | - |
| 4 | 43 | 1 | 44 | 249,166 | 4 |
| 5 | 16 | - | 16 | 42,835 | - |
| 6 | - | - | - | - | - |
| 7 | - | - | - | - | - |
| 8 | 2 | 1 | 3 | 9,869 | 1 |
| 9 | - | - | - | - | - |
| 10 | 51 | 8 | 59 | 250,049 | - |
| 11 | - | - | - | - | - |
| 12 | - | - | - | - | - |
| 13 | - | - | - | - | - |
| 14 | - | - | - | - | - |
| TOTAL | 142 | 10 | 152 | 746,512 | 7 |

* For definition of areas see Table IVA

TABLE IVA. KEY TO AREA - NUMBERS USED ON MAP (Fig. II) ON TABLE IV AND IN TEXT

| Area No. | Description |
|----------|--|
| 1 | Soldado, North Marine, Couva Marine. |
| 2 | Pt. Ligoure, F.O.S., Area IV, Pt. Fortin West and Central, Guapo, Parrylands, Cruse. |
| 3 | Brighton (Land & Marine), Vessigny, Merrimac, Rousilac. |
| 4 | Palo Seco, Los Bajos, Erin. |
| 5 | Forest Reserve, Fyzabad, Pt. Fortin East, New Dome, San Francique. |
| 6 | Quarry, Coora, Quinam, Morne Diablo. |
| 7 | Oropouche. |
| 8 | Penal, Barrackpore, Wilson, Siparia, Mandingo. |
| 9 | Moruga West, Rock Dome, Inniss, Trinity, Moruga North, Catshill, Balata, Bovallius. |
| 10 | Guayaguayare, Lizard Springs, Moruga East. |
| 11 | Palmiste, Galeota (east coast) |
| 12 | South Marine (south coast) |
| 13 | Tabaquite & Pointe-a-Pierre. |
| 14 | Icacos. |

In general, production decline in Trinidad for the older wells is of the order of 15-20 per cent per year. Achieving an increase in or maintenance of the production level is heavily dependent upon a very successful and sustained drilling activity. In 1968, for example, 7.1 million barrels of oil for 11.1 per cent of total production was derived from new wells, and additional boost to production came from wells recompleted in 1968 which yielded 2.4 million barrels or 3.7 per cent of total. Figure IV illustrates graphically the contributions of new and recompleted wells to the country's production in 1968, while Table V gives a detailed comparison between the 1968 and 1967 production of all the fields in the country.

Appendices III and IIIA present averages of the monthly crude oil production by methods and by operating companies for the year 1968.

Daily Average Crude Oil productions by months for all companies are presented in Appendix IIIB. A breakdown by marine, offshore and land areas is also given in Appendix IIIC.

SUMMARY OF FLUID INJECTION OPERATIONS IN TRINIDAD AND TOBAGO DURING 1968

A record production of 6,768,805 barrels of crude oil was derived from all the wells under the influence of fluid injection in the territory during 1968. The corresponding total for the previous year was 6,623,961 barrels.

In Table VI, the injection and production statistics for each type of fluid injection, natural gas, water and steam are summarized for the period 1964-1968. These statistics assumed for the second year running that the wells originally considered under the influence of gas injection in the Main Soldado Field are still under this influence during the year under review.

In the field of Water Injection, the BP Group broke new ground in Trinidad during November by initiating a polymer or "pusher" - flood employing the popular Dow's process. At the end of the year, the flood

TABLE V. OIL PRODUCTION (IN BARRELS) - TRINIDAD AND TOBAGO

| FIELD | Area No. | Discovery Year | Total Wells Drilled | Age of Producing Formation | Annual Production | | Cumulative production thru' December, 1968 (x 1000) |
|--|----------|----------------|---------------------|----------------------------|-------------------|-------------------|--|
| | | | | | 1967 | 1968 | |
| Shell Trinidad Limited: | | | | | | | |
| Balata East and West | 9 | 1952 | 48 | Miocene | 72,356 | 48,922 | 1,829 |
| Catshill | 9 | 1950 | 112 | Miocene | 743,657 | 625,289 | 17,725 |
| Inniss | 9 | 1956 | 33 | Miocene | 173,049 | 136,487 | 5,038 |
| Rock Dome | 9 | 1962 | 3 | Miocene | - | - | 16 |
| Penal | 8 | 1936 | 257 | Miocene | 1,493,379 | 1,288,116 | 50,220 |
| New Dome | 5 | 1928 | 31 | Miocene | 23,344 | 18,636 | 2,975 |
| Point Fortin East | 5 | 1929 | 109 | Miocene | 574,876 | 533,519 | 17,705 |
| San Francique | 5 | 1929 | 27 | Miocene | 25,198 | 22,459 | 5,708 |
| Los Bajos | 4 | 1918 | 29 | Miocene | 2,100 | - | 546 |
| Erin | 4 | 1963 | 4 | Miocene | 104,832 | 74,491 | 704 |
| Area IV and Guapo | 2 | 1963 | 156 | Miocene | 272,930 | 228,616 | 31,817 |
| Parrylands 2,3 | 2 | 1918 | 199 | Miocene | 208,976 | 184,529 | 19,556 |
| Parrylands 1, 4, 5 | 2 | 1913 | 142 | Miocene | 239,692 | 221,754 | 12,610 |
| Point Fortin Central | 2 | 1916 | 94 | Miocene | 109,892 | 79,369 | 11,346 |
| Point Fortin West | 2 | 1907 | 204 | Miocene | 211,874 | 186,138 | 17,159 |
| COMPANY TOTAL: | | | 1,448 | | 4,256,155 | 3,648,325 | 194,954 |
| Trinidad Northern Areas: | | | | | | | |
| F.O.S. - F.T. | 2 | 1954 | 16 | Miocene | 75,357 | 73,781 | 1,359 |
| Soldado | 1 | 1955 | 290 | Miocene | 20,345,675 | 24,146,852 | 145,714 |
| COMPANY TOTAL: | | | 306 | | 20,421,032 | 24,220,633 | 147,073 |
| Texaco Trinidad Inc. | | | | | | | |
| Guayaguayare | 10 | 1902 | 620 | Miocene | 8,970,599 | 10,920,228 | 54,976 |
| Trinity | 9 | 1956 | 92 | Miocene | 952,716 | 600,485 | 11,216 |
| Barrackpore | 8 | 1911 | 265 | Miocene | 990,950 | 794,235 | 19,597 |
| Oropouche | 8 | 1944 | 40 | Miocene | 75,201 | 101,678 | 2,457 |
| Morne Diablo/Quinam | 6 | 1926 | | Miocene | 102,948 | 80,273 | 6,734 |
| Forest Reserve | 5 | 1913 | 1,704 | Miocene | 6,804,687 | 6,262,138 | 209,820 |
| Palo Seco | 4 | 1929 | | Miocene | 6,924,388 | 6,273,341 | 60,719 |
| Brighton | 3 | 1908 | 577 | Miocene | 4,698,743 | 4,626,374 | 56,103 |
| COMPANY TOTAL: | | | 3,305 | | 29,520,232 | 29,658,752 | 421,622 |
| Premier Consolidated Oilfields Limited: | | | | | | | |
| Bovallius | 9 | 1954 | 6 | Miocene | - | - | 189 |
| Rock Dome | 9 | 1955 | 11 | Miocene | 6,340 | 513 | 134 |
| Siparia | 8 | 1957 | 5 | Miocene | 50,926 | 37,701 | 675 |
| Fyzabad | 5 | 1918 | 252 | Miocene | 71,383 | 79,935 | 12,298 |
| San Francique | 5 | 1929 | 71 | Miocene | 92,292 | 79,382 | 2,482 |
| Palo Seco | 4 | 1915 | 83 | Miocene | 12,815 | 12,648 | 1,529 |
| Couva Marine | 1 | 1963 | 3 | Miocene | 61,271 | 14,336 | 169 |
| Icacos | 14 | 1965 | 12 | Miocene | 120,792 | 99,110 | 222 |
| COMPANY TOTAL: | | | 443 | | 415,819 | 323,625 | 17,698 |

TABLE V. OIL PRODUCTION (IN BARRELS) - TRINIDAD AND TOBAGO

| FIELD | Area No. | Discovery Year | Total Wells Drilled | Age of Producing Formation | Annual Production | | Cumulative production thru' December, 1968 (x 1000) |
|-----------------------------|----------|----------------|---------------------|----------------------------|-------------------|------------|--|
| | | | | | 1967 | 1968 | |
| B. P. Group | | | | | | | |
| 1. A. T. O. Ltd. | | | | | | | |
| Fyzabad | 5 | 1920 | 805 | Miocene | 2,459,718 | 2,215,234 | 126,203 |
| Quarry | 6 | 1938 | | Miocene | 203,689 | 172,085 | 14,345 |
| COMPANY TOTAL: | | | 805 | | 2,663,407 | 2,387,319 | 140,548 |
| 2. K. T. O. Ltd. | | | | | | | |
| Guapo | 2 | 1922 | 421 | Miocene | 810,752 | 789,153 | 31,474 |
| 3. T. P. D. Co. Ltd. | | | | | | | |
| Moruga East | 10 | 1953 | 59 | Miocene | 67,363 | 69,218 | 1,685 |
| Moruga North | 9 | 1956 | 18 | Miocene | 42,206 | 36,870 | 771 |
| Moruga West | 9 | 1957 | 129 | Miocene | 275,837 | 213,883 | 7,637 |
| Coora/Quarry | 6 | 1936 | 591 | Miocene | 2,068,930 | 1,696,764 | 70,031 |
| Palo Seco/Erin (Mc. Kenzie) | 4 | 1926 | 863 | Miocene | 3,601,961 | 2,962,595 | 58,926 |
| North Marine | 1 | 1959 | 15 | Miocene | 151,191 | 290,047 | 705 |
| COMPANY TOTAL: | | | 1,675 | | 6,207,488 | 5,269,377 | 139,755 |
| T. C. O. Ltd. | | | | | | | |
| Balata Central | 9 | 1949 | 6 | Miocene | 10,124 | 9,883 | 356 |
| Wilson | 8 | 1936 | 72 | Miocene | 505,041 | 405,241 | 17,492 |
| Cruse | 2 | 1913 | 150 | Miocene | 177,931 | 186,774 | 24,647 |
| Tabaquite | 13 | 1911 | 218 | Miocene | 6,601 | 4,824 | 1,329 |
| COMPANY TOTAL: | | | 446 | | 699,697 | 606,722 | 43,824 |
| GRAND TOTAL: | | | | | 64,994,582 | 66,903,906 | 1,136,948 |

registered satisfactory operation with increased oil output rates. The addition of patented polymers to the injection water is carefully designed to increase the viscosity of the injected sea-water and thereby improve the Mobility - Ratio for the project resulting in correspondingly increased displacement efficiency. Unfavourable mobility ratios utilized in past local water - flooding experiments have proven disastrous in virtually all projects to date. After several years of sea-water injection into Trinidad's oldest water flooding projects which were commissioned by the former leasees Trinidad Leaseholds (T. L. L.) in 1956, Texaco abandoned all three projects in the Guayaguayare Gros Morne Sds. when the water-cuts in these projects had exceeded 80 per cent.

Table VII presents summaries by company, of water, steam and gas injection statistics, for the year 1968. Brief notes on steam and gas injection activities follow.

Table VIII summarises water-injection statistics by projects for 1968.

STEAM INJECTION

Texaco's steam injection activity continued in their Forest Reserve Field at practically the same level as that of the previous year. Production of crude oil from all its steam - injection projects totalled

658,419 barrels. The volume of steam injected during the year amounted to 994,048 barrels which compared reasonably well with the statistics for 1967 of 652,819 barrels of oil recovered for an injection of 1,124,005 barrels of steam. The percentage of water produced in these operations declined from 45.9 in 1967 to 36.8 in 1968 reflecting improved efficiency in their operational technique.

Reasonably early and rather encouraging response in continuous steam injection or steam drive experiments have justified its expansion in pilot projects and the conversion of the push-pull type steam injection technique in at least two of Texaco's projects in their Forest Reserve Field. By the year end, about one-third of the oil production from steam injection operations was derived from steam flooding operations.

Table IX presents a summary of the island's steam injection activity by company and projects for 1968.

During 1968, the BP Group injected a total of 78,390 barrels of water as 65 per cent quality steam into 2 projects consisting of 4 wells in its N.W. Palo Seco Field and 11 wells in its K.T.O. Guapo Field. Total oil produced from the wells in these "Huff and Puff" or Intermittent Steam injection operations amounted to 295,507 barrels with an average water-cut of 18 per cent which is extremely low. The oil recovery from steam injection operations for the previous year was 235,476 barrels for an injection of 88,673 barrels of water; the water-cut then averaged 13 per cent.

GAS INJECTION

Despite a decrease in Texaco's annual gas injection rate from 14,456 in 1967 to 13,075 million s.c.f. in 1968, the annual oil offtake rate from these projects increased from 2,333,468 to 2,681,507 barrels. This improved index of efficiency was also evidenced in the reduction of G.O.R.'s from 5,587 to 5,345 scf/bbl. over the same period.

In Forest Reserve alone, there were 9 projects in operation. There was one project, each, in the Brighton and Guayaguayare fields. In the Forest Reserve area during 1968, Texaco produced almost two million barrels of oil from its gas injection projects. The Upper Cruze Repressuring Area (U.C.R.A.) continued to operate satisfactorily with a slight decline in both oil production and G.O.R. The total oil produced from this project for the year was over 459,000 barrels. The Upper Cruze Western Extension (U.C.W.E.) project which performed extremely well in previous years exhibited rapidly increasing G.O.R.'s with declining oil production. The annual oil offtake for this project was over 526,000 barrels.

The BP Group injected a total of 4,415 million s.c.f. during 1968 compared with its total of 5,134 million s.c.f. in the previous year. Annual crude oil production rates from the reservoirs under the influence of gas injection were 870,703 and 762,251 respectively for 1968 and 1967. Reduction in quantities of gas injected was due to:-

Diversion of gas from injection projects to gas-sales and gas-lifting operations, and unfavourable economics obtaining in some projects.

In BP's T.P.D. projects, an average of 6.74 M.s.c.f. were injected per barrel of oil recovered; whereas in its Apex projects a comparatively lower figure of 4.58 M.s.c.f./bbl. was obtained thereby reflecting much better displacement efficiency.

Lack of gas availability in Moruga West curtailed injection activity in the MW/H1/108 reservoir resulting in a considerable reduction in rates of oil recovered and an increasing G.O.R. trend.

In the T.N.A. Soldado Field gas was injected into Upper Cruze Zones 3 and 4 in the Crestal area of the Main Field utilising the discovery well Soldado 1^b as an injection well in place of wells 61 and 76 which were formerly injection wells. Gas was also injected into a unit in the South Eastern part of the Main Field through wells 103 and 105. Oil recovered during 1968 from wells originally under the gas injection influence in the Crestal area amounted to 1,958,483.

A gas injection Summary by Company and Area is presented in Table X. Figure V is a graphical presentation of fluid injection statistics for the period 1957 to date.

NATURAL GAS PRODUCTION AND UTILIZATION

With the island's overall gas oil ratio increasing from 2,159 scf/bbl in 1967 to 2,264 in 1968, the volume of natural gas produced was 7.9 per cent higher at 151,445 million cubic feet. This represents an average daily increase of 30 million cubic feet over the 1967 rate of which the Soldado field, still under active development, provided 85 per cent. Of the total 414 million cubic feet produced daily, 69 million came from high pressure wells in the deep gas-condensate fields in the Penal - Wilson - Barrackpore area.

TABLE VI. SUMMARY OF FLUID INJECTION OPERATIONS IN TRINIDAD AND TOBAGO FOR PERIOD 1964 - 1968

| YEAR | PROJECTS | | | INJECTION STATISTICS | | | | CRUDE OIL PRODUCTION STATISTICS | | | | Oil Ex-pressed as a % of T'dad's total oil production |
|------|--|-------|-------|----------------------|---|--------------|--------------|---|--------------------------|--------------------------|--------------|---|
| | Number of projects in operation at end of the year | | | Gas (MMCF) | Injection as a % of Trinidad's Total Gas Production | Water (bbls) | Steam (bbls) | Total Oil recovered from wells under project-influence in bbls. | | | | |
| | Gas | Water | Steam | | | | | Gas Injection Projects | Water Injection Projects | Steam Injection Projects | All Projects | |
| 1964 | 23 | 13 | - | 14,688 | 13.3 | 3,296,898 | - | 4,700,545 | 505,837 | - | 5,206,382 | 10.5 |
| 1965 | 28 | 17 | 15 | 13,787 | 12.4 | 3,687,473 | 1,084,489 | 4,426,542 | 927,175 | 407,866 | 5,761,583 | 11.8 |
| 1966 | 30 | 12 | 14 | 19,841 | 16.7 | 3,625,743 | 1,353,550 | 4,729,544 | 1,099,788 | 822,889 | 6,652,221 | 12.0 |
| 1967 | 27 | 4 | 10 | 22,633 | 16.1 | 2,906,151 | 1,321,088 | 5,188,386 | 466,180 | 969,395 | 6,623,961 | 10.2 |
| 1968 | 31 | 5 | 11 | 21,323 | 14.1 | 2,926,657 | 1,090,699 | 5,402,241 | 396,823 | 969,741 | 6,768,805 | 10.1 |

TABLE VII. SUMMARY OF FLUID INJECTION OPERATIONS FOR TRINIDAD AND TOBAGO 1968

A: GAS INJECTION:

| Name of Company | No. of Active Projects | Gas Injected (MSCF) | Oil Produced (Bbls) | Water Produced (Bbls) | Gas Produced (MSCF) | SCF/bbl. G.O.R. |
|-----------------|------------------------|---------------------|---------------------|-----------------------|---------------------|-----------------|
| TEXACO | 11 | 13,075,715 | 2,681,507 | 885,763 | 14,333,710 | 5,345 |
| S.T.L. | - | - | - | - | - | - |
| BP | 19 | 4,415,222 | 762,251 | 153,788 | 4,642,869 | 6,091 |
| T.C.O. | - | - | - | - | - | - |
| TRINMAR | 1 | 3,832,313 | 1,958,483 | 1,825 | 3,941,099 | 2,012 |
| TOTALS | 31 | 21,323,250 | 5,402,241 | 1,041,376 | 22,917,678 | 4,242 |

B: WATER INJECTION:

| Name of Company | No. of Active Projects | Water Injected (Bbls) | Oil Produced (Bbls) | Water Produced (Bbls) | Gas Produced (MSCF) | % Water |
|-----------------|------------------------|-----------------------|---------------------|-----------------------|---------------------|---------|
| TEXACO | 1 | 1,847,973 | 123,003 | 445,225 | - | 78.4 |
| BP | 3 | 905,375 | 228,085 | 193,399 | 369,842 | 45.9 |
| S.T.L. | 1 | 173,309 | 45,735 | 2,105 | 52,878 | 4.4 |
| TOTALS | 5 | 2,926,657 | 396,823 | 640,729 | 422,720 | 61.8 |

C: STEAM INJECTION:

| Name of Company | No. of Active Projects | Steam Injected (Bbls) | Oil Produced (Bbls) | Water Produced (Bbls) | Gas Produced (MSCF) | % Water |
|-----------------|------------------------|-----------------------|---------------------|-----------------------|---------------------|---------|
| TEXACO | 8 | 994,048 | 658,419 | 383,770 | 540 | 36.8 |
| S.T.L. | - | - | - | - | - | - |
| BP | 2 | 78,390 | 295,507 | 43,761 | - | 12.9 |
| P.C.O.L. | 1 | 18,261 | 15,815 | 24,706 | - | 61.0 |
| TOTALS | 11 | 1,090,699 | 969,741 | 452,237 | 540 | 31.8 |

The bulk of this high pressure gas was used as fuel chiefly by the Trinidad and Tobago Electricity Commission's power stations at Penal and Port of Spain as well as in the Refinery at Pointe-a-Pierre, in Federation Chemical's fertilizer-plant at Point Lisas, and in some smaller industrial plants in the North of the island which are rapidly converting their fuel oil furnaces to use natural gas.

Gas was vented or flared at an average rate of 172 million cubic feet/day. This represented 41.5 per cent of the gas produced and was 15.8 per cent higher than in 1967. However, 55.2 per cent of this venting occurred in the remote fields of Guayaguayare and Soldado and almost half of this amount was vented only after the pneumatic energy had been utilised in gas-lifting oil, in pumps for transporting oil to shore and as fuel. Towards the end of the year, compressors were installed in Texaco's Guayaguayare field and both gas injection and gas delivery into Pointe-a-Pierre were commenced. This additional utilisation resulted, in December, in a reduction of the volume of gas vented, to 149 mmcf/day. Further reductions are programmed for the new year. Although gas re-injected into the ground showed an increase towards the end of 1968 the overall quantity was, at 21,324 mmcf/day, some 2 per cent less than that for 1967.

The trend of gas production and utilisation over the last five years is given in Table XI and illustrated in Figure VI.

Additional graphical representations of the statistics for the petroleum industry are presented in figures VII - XIII covering: drilling, crude oil production, refinery throughput, natural gas production, crude oil imports, average crude oil value (for royalty evaluation) and annual crude oil production from 1908 to date.

Appendix IV summarises the production and utilisation of natural gas by months in Trinidad and Tobago for the year 1968.

TABLE VIII. WATER INJECTION SUMMARY BY PROJECTS YEAR 1968

| Company | Field | Project | Water Injected (Bbls) | Oil Produced (Bbls) | Water Produced (Bbls) | Gas Produced (Mscf) | % Water |
|----------|------------|-------------|-----------------------|---------------------|-----------------------|---------------------|---------|
| TEXACO | F/Reserve | FR Zone 9.3 | 1,847,973 | 123,003 | 445,225 | - | 78.4 |
| BP | Fyzabad | FM/UF/610/I | 57,235 | 18,219 | 1,079 | 15,716 | 5.6 |
| | | FS/LC/539/I | 445,383 | 209,866 | 192,320 | 354,126 | 47.8 |
| | | FM/UF/200/I | 402,757 | - | - | - | - |
| BP | All Fields | | 905,375 | 228,085 | 193,399 | 369,842 | 45.9 |
| STL | Catshill | Co. 30 SDS. | 173,309 | 45,735 | 2,105 | 52,878 | 4.4 |
| ALL COS. | All Fields | | 2,926,657 | 396,823 | 640,729 | 422,720 | 61.8 |

TABLE IX. STEAM INJECTION SUMMARY BY PROJECTS YEAR 1968

| Company | Field | Project | Steam Injected (Bbls) | Oil Produced (Bbls) | Water Produced (Bbls) | Gas Produced (Mscf) | % Water |
|----------|------------|----------|-----------------------|---------------------|-----------------------|---------------------|---------|
| TEXACO | F/Reserve | I | - | 70,861 | 57,595 | - | 44.8 |
| | | IIA | 77,626 | 222,843 | 82,228 | - | 27.0 |
| | | IIB | 11,950 | 6,097 | 223 | - | 3.5 |
| | | III | 555,177 | 250,714 | 181,935 | - | 42.1 |
| | | IV | 157,650 | 70,072 | 48,697 | - | 41.0 |
| | | V | 463 | 19,565 | 6,074 | - | 23.7 |
| | | VI | 191,182 | 3,541 | 15 | - | 0.4 |
| | Brighton | Vessigny | - | 14,726 | 7,003 | 540 | 32.2 |
| TEXACO | All Fields | | 994,048 | 658,419 | 383,770 | 540 | 36.8 |
| BP | Palo Seco | LML'E/UF | 14,808 | 203,569 | 21,387 | - | 9.5 |
| | Guapo | UC | 63,582 | 91,938 | 22,374 | - | 19.6 |
| BP | All Fields | | 78,390 | 295,507 | 43,761 | - | 12.9 |
| P.C.O.L. | Fyzabad | Zenith | 18,261 | 15,815 | 24,706 | - | 61.0 |
| ALL COS. | All Fields | | 1,090,699 | 969,741 | 452,237 | 540 | 31.8 |

TABLE X. GAS INJECTION SUMMARY BY AREAS YEAR 1968

| Company | Field | Gas Injected (Mscf) | Oil Produced (Bbls) | Water Produced (Bbls) | Gas Produced (Mscf) | Gas Oil Ratio scf/bbl. |
|----------|--------------|---------------------|---------------------|-----------------------|---------------------|------------------------|
| TEXACO | F/Reserve | 10,470,900 | 1,980,088 | 818,843 | 12,665,076 | 6,396 |
| | Brighton | 1,764,477 | 118,226 | 37,742 | 238,760 | 2,020 |
| | Guayaguayare | 840,338 | 583,193 | 29,178 | 1,429,874 | 2,452 |
| TEXACO | All Fields | 13,075,715 | 2,681,507 | 885,763 | 14,333,710 | 5,345 |
| BP GROUP | Coora | 598,484 | 162,500 | 95,664 | 847,543 | 5,216 |
| | Quarry | 1,847,457 | 200,253 | 11,457 | 1,272,035 | 6,352 |
| | Moruga W. | 210,706 | 30,865 | 19,133 | 228,319 | 7,397 |
| | Palo Seco | 230,025 | 34,781 | 145 | 111,314 | 3,200 |
| | Fyzabad | 1,528,550 | 333,852 | 27,389 | 2,183,658 | 6,541 |
| BP GROUP | All Fields | 4,415,222 | 762,251 | 153,788 | 4,642,869 | 6,091 |
| T.N.A. | Soldado | 3,832,313 | 1,958,483* | 1,825 | 3,941,099 | 2,012 |
| ALL COS. | All Fields | 21,323,250 | 5,402,241 | 1,041,376 | 22,917,678 | 4,242 |

* This figure assumes that the wells originally considered to be influenced by gas injection are still under influence.

TABLE XI. NATURAL GAS PRODUCTION AND UTILIZATION - 1964-1968

| | 1964 | | 1965 | | 1966 | | 1967 | | 1968 | |
|--------------------------------|------------------|-------|------------------|-------|------------------|-------|------------------|-------|------------------|-------|
| | Millions of SCF* | %* | Millions of SCF* | %* | Millions of SCF* | %* | Millions of SCF* | %* | Millions of SCF* | %* |
| PRODUCTION | 110,732 | 100.0 | 111,503 | 100.0 | 118,927 | 100.0 | 140,338 | 100.0 | 151,445 | 100.0 |
| G.O.R. (scf/bbl) | 2,227 | | 2,282 | | 2,138 | | 2,159 | | 2,264 | |
| A. USED AS FUEL: | | | | | | | | | | |
| In Refineries | 20,499 | 18.5 | 22,714 | 20.4 | 25,257 | 21.2 | 28,304 | 20.2 | 29,257 | 19.3 |
| In Fields | 5,979 | 5.4 | 6,677 | 6.0 | 8,208 | 6.9 | 7,783 | 5.6 | 7,848 | 5.2 |
| In Other Industries | 11,414 | 10.3 | 12,126 | 10.9 | 15,227 | 12.8 | 17,759 | 12.7 | 19,294 | 12.8 |
| SUB TOTAL | 37,892 | 34.2 | 41,517 | 37.3 | 48,692 | 40.9 | 53,846 | 38.5 | 56,399 | 37.3 |
| B. OTHER COMPLETE UTILIZATION: | | | | | | | | | | |
| Used as Process Gas | 4,222 | 3.8 | 4,502 | 4.0 | 6,714 | 5.7 | 9,309 | 6.6 | 10,603 | 7.0 |
| Injected into formation | 14,688 | 13.3 | 13,866 | 12.4 | 19,841 | 16.7 | 22,625 | 16.1 | 21,323 | 14.1 |
| Converted into C.H.P.S. | 210 | 0.2 | 206 | 0.2 | 219 | 0.2 | 204 | 0.1 | 173 | 0.1 |
| SUB TOTAL | 19,120 | 17.3 | 18,574 | 16.6 | 26,774 | 22.6 | 32,138 | 22.8 | 32,099 | 21.2 |
| C. VENTED: | | | | | | | | | | |
| After use of pneumatic energy | 22,781 | 20.6 | 24,078 | 21.6 | 23,224 | 19.5 | 30,877 | 22.0 | 31,257 | 20.6 |
| Without use | 30,939 | 27.9 | 27,334 | 24.5 | 20,237 | 17.0 | 23,478 | 16.7 | 31,690 | 20.9 |
| SUB TOTAL | 53,720 | 48.5 | 51,412 | 46.1 | 43,461 | 36.5 | 54,355 | 38.7 | 62,947 | 41.5 |

Note: S. C. F. * = Standard Cubic Feet.
 %* = per cent of total natural gas production

REFINING AND PETROCHEMICAL MANUFACTURE

The highest growth rate in the local petroleum industry was recorded by the Refining Sector. Modifications to existing topping plants at the two major refineries in Trinidad raised the rated capacity to 430,000 barrels per day. This represented a 6.2 per cent increase over the capacity during 1967 which stood at 405,000 barrels.

A comparison of actual throughputs for the two years reveals that during 1968 there was an increase of 8.9 per cent over the previous year; but, in 1967, there was a short fall in crude runs to the stills due to scheduled shutdowns and decreased imports during the Middle East Crisis. This accounts for the rather large increase. A better criterion therefore would be to compare the years 1968 and 1966 when throughputs were 151,282,098 and 144,193,269 barrels respectively, an increase of 4.9 per cent.

Declining rates of indigenous crude oil production which began in March of 1968 and carried on throughout the year coupled with the increased refinery capacity brought about a re-emphasis of crude oil imports. Whereas in 1967 these imports were decreasing as indigenous crude production increased, during 1968 imports were on the upward trend again to such an extent that, in December, imports totalled 8,790,035 barrels, an amount unsurpassed since April 1966. The December figure also includes the first shipment of foreign crude to Shell's Point Fortin Refinery; Shell is the second company in Trinidad importing crude oil. Shell is expected to continue these imports in the future.

MOVEMENT OF CRUDE OIL AND PRODUCTS

The overall pictures of crude oil movement and product disposal is summarised as follows:-

CRUDE OIL BALANCE

| Availability | Million Barrels | | Disposal | Million Barrels |
|----------------------|-----------------|-------------|------------------------|-----------------|
| Stock on 1st January | | 3,260,931 | Exports | 6,982,784 |
| Production | 67,067,583 | | Local Consumption | 17,125 |
| Less Loss | 1,048,485 | 66,019,098 | Delivered to Refinery | 151,282,098 |
| Imports | | 91,446,715 | Stock on 31st December | 2,444,737 |
| | | 160,726,744 | | 160,726,744 |

Total imports of crude oil for the year were 91,446,715 barrels or 60.4 per cent of the total refinery throughput. The import of crude oil from Venezuela, the largest supplier was 75.6 million barrels or 82.7 per cent of total imports followed by Libya with 6.5 million barrels or 7.1 per cent of total imports. A national balance by months for Crude Oil and C.H.P.S. for the year 1968 is presented in Appendix VII.

Primary refined products made the biggest gains during the year with Fuel Oil increasing by almost 10 million barrels to a record production of 85,337,455 barrels, which amounted to 58.06 per cent of total production. Comparable statistics for the more normal year of 1966 were 80,351,883 barrels representing a gain of only 6.2 per cent. Aviation Turbine Fuels had a production of 16,302,409 barrels. Comparable figures for 1967 and 1966 were 11,886,315 and 13,378,412 barrels respectively.

The other classes of products varied slightly from 1967 but petro-chemical intermediates showed a drop of some 28,000 barrels in production, contrary to previous trends. Total production of these intermediates was 1,514,575 barrels.

As in the past, the greater part of the Refinery production was exported to world markets. The value of exports of crude oil and petroleum products for 1968 was \$333.7 million or 31.4 per cent of total exports of which \$10.5 million were attributed to crude oil alone. A detailed breakdown of destination of crude oil and refined products is given at Appendix V. Total exports of refined products, 145,573,340 barrels represents 99.04 per cent of total production. Local consumption was 1.96 per cent or 2,883,596 barrels. The excess of 1.00 per cent over total production is explained by a net decrease in stocks.

A balance of Refined Products is summarized hereunder. For details see Appendix VI:

REFINED PRODUCTS BALANCE

| Availability | Million Barrels | | Disposal | Million Barrels |
|----------------------|-----------------|-------|------------------------|-----------------|
| Stock on 1st January | | 6.3 | Shipments | 135.1 |
| Imports | | 1.9 | Bunkers | 10.5 |
| Crude Delivered | 151.3 | | Local Consumption | 2.9 |
| Refinery Gas & Loss | 4.3 | | | |
| | 147.0 | | | |
| Products obtained | | 147.0 | Stock on 31st December | 6.7 |
| | | 155.2 | | 155.2 |

The volume of sales of excisable products amounted to 1,713,546 barrels. The excisable sales of gasolene amounted to 1,266,677 barrels an increase of 1.5 per cent compared to 1967. The excise duty on these sales was \$9,097,636.23. The excise tax on gasolene was increased from 12¢ and 18¢ for regular and premium gasolene respectively to 18¢ and 27¢ effective on 5th January, 1968.

Sales of bottled propane showed an increase of 11.7 per cent over the 1967 figure amounting to 22,271,772 lbs. on which excise duty at 2¢ per lb. yielded \$445,435.44.

Details of petroleum excisable products are listed hereunder:

| Premium Gas. (bbls.) | Regular Gas. (bbls.) | Gas/Diesel (bbls.) | Propane lbs. |
|----------------------|----------------------|--------------------|--------------|
| 357,047 | 909,630 | 446,869 | 22,271,772 |

NITROGENOUS FERTILIZERS

Scheduled Inspections of the plants at Federation Chemicals Ltd. entailed some shutdowns during the third quarter of the year. As a result, production of Ammonia, 501,000 short tons, averaged 1,368 short tons per day whereas capacity is rated at 1,530 short tons. The production in 1967 was 426,133 short tons.

The shutdowns also affected production of Ammonium Sulphate and Urea which had productions of 78,878 and 64,527 short tons respectively. These figures represented decreases of 4.7 per cent and 14.2 per cent over the previous year's production.

Natural gas utilized in the production of nitrogenous fertilizers showed an increase of 13.9 per cent, aggregating 10,603 million s.c.f. for the year. Total natural gas used in the plants was 19,039 million s.c.f.

ROYALTY ASSESSMENT

Appendix VIII presents a summary of crude oil assessed for Crown Royalty with prices and analyses for the year under review for the half yearly periods ending 30th June and 31st December.

Appendix IX presents a summary of the royalty assessed on crude oil, natural gasolene and natural gas produced on Crown Oil Mining leases for each of the half yearly periods during 1966, 1967 and 1968.

Appendix X summarises the quantities of Natural Asphalt extracted from the Pitch Lake and the quantities of derived products which were exported and consumed locally during 1966, 1967 and 1968.

ACCIDENTS STATISTICS

The total number of accidents reported to this Ministry in 1968 was 250 which compares adversely with 239 in 1967. In the production operations there was only one (1) fatal accident as against the relatively high total of 7 during the previous year. Of the total number of accidents three (3) did not involve injuries to personnel.

The decline in fatal accidents could be partly attributed to the vigilance exercised both by the Ministry and the Oil Companies. The introduction of a new system for inspecting and reporting on field activities was found to be beneficial both to the Ministry and the Oil Companies.

The accident frequency and severity rates for the Trinidad Oil Industry compares most favourably with those for other oil producing countries.

A summary of accidents by Companies is set out hereunder as follows:

ACCIDENT STATISTICS FOR 1968

| Company | Field | Total | Fatal | Serious | | | Minor | | |
|--|-----------------|-------|-------|---------|----|----|-------|----|----|
| | | | | D | P | O | D | P | O |
| BP (Trinidad) Ltd. Group. | All | 55 | 1(P) | - | 16 | 3 | - | 26 | 9 |
| Belpetco Trinidad Ltd. | All | - | - | - | - | - | - | - | - |
| Pan American Trinidad Oilfields Ltd. | All | - | - | - | - | - | - | - | - |
| Premier Consolidated Oilfields Ltd. Ltd. | All | 2 | - | 1 | - | - | 1 | - | - |
| Shell Trinidad Ltd. | All | 3 | - | - | 3 | - | - | - | - |
| Trinidad Canadian Oils Ltd. | All | - | - | - | - | - | - | - | - |
| Trinidad Northern Areas Ltd. | All | 11 | - | - | 1 | 1 | 1 | 2 | 6 |
| Texaco Trinidad Inc. | Barrackpore | 11 | - | 2 | 3 | 2 | 1 | 3 | - |
| | Brighton | 14 | - | 6 | - | 2 | 3 | - | - |
| | Forest Reserve- | | | | | | | | |
| | Palo Seco | 108 | - | 8 | 24 | 6 | 19 | 35 | 14 |
| | Guayaguayare | 46 | - | 9 | 3 | 4 | 16 | 5 | 9 |
| | Total | 179 | - | 25 | 30 | 14 | 39 | 43 | 25 |
| Industry Totals | - | 250 | 1 | 26 | 50 | 18 | 41 | 71 | 40 |

D - Drilling;

P - Production;

O - Others.

LEASES AND LICENCES

P.A.T.O. acquired 512,100 acres by Reg. Deed No. 2394/68 on the East Coast of Trinidad in the high seas. The total acreage of Crown oilrights under lease decreased from 2,627,991 at the end of 1967 to 2,525,563 acres at the end of 1968.

During the year, T.P.D. surrendered 4,041 acres of land leases, A.T.O. 1,888 acres of land leases. P.C.O.L. assigned 103,035 marine acres to Belpetco and Panoil.

The following is an outline of the leasing situation in the Territory as at 31st December, 1968.

Crown Oilrights

| | A | R | P |
|---|------------------|----------|------------|
| Crown Leases - Crown surface - | 223,294 | 2 | 16' |
| " " - Private surface - | 50,090 | 1 | 20 |
| Exploration Licences | - | - | - |
| Marine Licences | 2,158,074 | 0 | 00 |
| TOTAL CROWN OILRIGHTS | 2,431,458 | 3 | 36 |
| Private Oilrights | | | |
| Private Leases - | 94,104 | 1 | 09½ |
| TOTAL ACREAGE OF ALL LANDS UNDER LEASE | 2,525,563 | 1 | 05½ |

A detailed survey of Crown and Private Leases and Licences, is set out on a Company basis in Table XII.

POLITICAL ACTIVITY PROPOSED OIL LEGISLATION

Negotiations between representatives of Government and Oil Companies operating in Trinidad and Tobago continued during 1968 and a draft petroleum law will be published in the first half of 1969 for public comment. The law will include the terms and conditions for future petroleum exploration and production licences.

ESTABLISHMENT OF NATIONAL PETROLEUM COMPANY

The Government of Trinidad and Tobago has announced the formation of a National Petroleum Company which will engage in all activities related to the oil industry, and will aim to co-operate with other oil companies in exploiting oil for the benefit of the nation.

The Government has also agreed to the formation of a Joint Corporation with the Tesoro Petroleum Corporation of Texas on a 50-50 partnership basis. The Government will appoint the Chairman and an equal number of members of the Board of Directors.

The Corporation will operate the assets of BP after their acquisition by Government; will enter into production and exploration operations, and invest in petroleum and petrochemical ventures in Trinidad and Tobago.

TABLE XII. OIL RIGHTS UNDER LEASE AS AT 31ST DECEMBER, 1968

| Company | Crown Oilrights | | | | | | | | | | | | Private Oil Rights | | | Total Acreage Under Lease | | |
|--|-----------------|----|----|-----------------|----|----|---------|----|----|-----------------|----|----|--------------------|----|----|---------------------------|---|----|
| | Land Leases | | | | | | | | | Marine Licences | | | | | | | | |
| | Crown Surface | | | Private Surface | | | Total | | | | | | | | | | | |
| | A. | R. | P. | A. | R. | P. | A. | R. | P. | A. | R. | P. | A. | R. | P. | | | |
| BP GROUP Trinidad Petroleum Develop- ment (T.P.D.) | 13,004 | 2 | 31 | 5,657 | 2 | 29 | 18,662 | 1 | 20 | 225,000 | 0 | 00 | 3,238 | 2 | 06 | 246,900 | 3 | 26 |
| Kern Trinidad Oilfields Ltd. (K.T.O.) | 347 | 2 | 23 | 602 | 0 | 28 | 949 | 3 | 11 | 975 | 0 | 00 | 1,004 | 3 | 21 | 2,929 | 2 | 32 |
| Apex (Trinidad) Oilfields Ltd. (A.T.O.L.) | 2,308 | 0 | 27 | 2,272 | 3 | 21 | 4,581 | 0 | 08 | - | - | - | 282 | 1 | 10 | 4,863 | 1 | 18 |
| BP GROUP'S TOTAL | 15,660 | 2 | 01 | 8,532 | 2 | 38 | 24,193 | 0 | 39 | 225,975 | 0 | 00 | 4,525 | 2 | 37 | 254,693 | 3 | 36 |
| DOMINION OIL LIMITED (D.O.L.) | - | - | - | 10 | 3 | 08 | 10 | 3 | 08 | 120,755 | 0 | 00 | - | - | - | 120,765 | 3 | 08 |
| PREMIER CONSOLIDATED OIL- FIELDS LIMITED (P.C.O.L.) | 11,797 | 1 | 21 | 2,790 | 3 | 26 | 14,588 | 1 | 07 | - | - | - | 11,836 | 3 | 06 | 26,425 | 0 | 13 |
| ESTATE OF TIMOTHY ROODAL | - | - | - | 9 | 2 | 12 | 9 | 2 | 12 | - | - | - | - | - | - | 9 | 2 | 12 |
| BELPETCO | - | - | - | - | - | - | - | - | - | 103,035 | 0 | 00 | - | - | - | 103,035 | 0 | 00 |
| TRINIDAD NORTHERN AREAS LIMITED (T.N.A.) | 32 | 3 | 33 | - | - | - | 32 | 3 | 33 | 236,209 | 0 | 00 | - | - | - | 236,241 | 3 | 33 |
| TRINIDAD CANADIAN OIL- FIELDS LIMITED (T.C.O.) | 6,996 | 2 | 31 | - | - | - | 6,996 | 2 | 31 | - | - | - | 35 | 2 | 00 | 7,032 | 0 | 31 |
| TEXACO TRINIDAD INC.(T.T.I.) | 125,215 | 2 | 00 | 33,506 | 2 | 32 | 158,722 | 0 | 32 | 15,344 | 0 | 00 | 73,219 | 0 | 12 | 247,285 | 1 | 04 |
| SHELL TRINIDAD LTD. (S.T.L.) | 63,591 | 2 | 10 | 5,239 | 2 | 24 | 68,831 | 0 | 34 | - | - | - | 4,487 | 0 | 29 | 73,318 | 1 | 23 |
| PAN AMERICAN TRINIDAD OIL COMPANY (PAN-AM) | - | - | - | - | - | - | - | - | - | 1,456,756 | 0 | 00 | - | - | - | 1,456,756 | 0 | 00 |
| TOTAL | 223,294 | 2 | 16 | 50,090 | 1 | 20 | 273,384 | 3 | 36 | 2,158,074 | 0 | 00 | 94,104 | 1 | 04 | 2,525,563 | 1 | 00 |

Explanation - A.R.P. Acres, Roods & Perches.

MEMBERSHIP IN CARIFTA

Trinidad and Tobago became a member of the Caribbean Free Trade Association (CARIFTA) on 1st May, 1968, which will be of benefit to the local petroleum industry, since the agreement provides for the progressive elimination of fiscal charges on Petroleum Products in the other member states which do not produce similar petroleum products. For the first five (5) years, however, the petroleum products exported from Trinidad to the smaller Eastern Caribbean Common Market states will carry a protective duty in those States during which time the duty will be gradually and progressively reduced to zero by 1st May, 1973.

FISCAL CHANGES

The Finance Act of 1966 was amended to increase the rate of Corporation Tax from 44 per cent in 1967 to 45 per cent with effect from 1st January, 1968 - affecting oil and other companies equally. From this date also, withholding taxes on remittance of dividends and other distributions abroad from subsidiaries and non residents were reduced.

UN INTER - REGIONAL SEMINAR

The United Nations conducted an Inter-Regional Seminar on Petroleum Administration in Port of Spain during April which was attended by delegates representing some 27 nations. The seminar was hosted by the Government of Trinidad and Tobago.

STAFF

Present Staffing in the Ministry of Petroleum and Mines is illustrated in Appendix XI.

However, the Ministry continued to be plagued with Staff shortages and changes at all levels and the resulting personnel problems. However, Cabinet approved with effect from 1st January, 1968 certain essential additional staff which formed part of this Ministry's interim re-organization proposals.

2. The additional staff (approved by Cabinet) included the following:-

Economist III, Geologist I, Mining Inspector, Three Petroleum Engineers, Three Petroleum Engineering Assistants, Geologist Assistant, Two Draughtsman I, Administrative Officer II, Three Clerical Officers, Clerk/Stenographer I/II, Messenger.

However, most of the above mentioned technical positions were not filled due to the unavailability of personnel.

3. Throughout the year, there was a spate of departures at all staff levels from the Ministry due to:-

Staff going on leave, Resignations; Transfers; Retirement.

4. Apart from the numerous and frequent changes in all grades of Clerical and Typing staff, the following technical posts were affected by these movements:-

Economist III (Transferred), Legal Assistant (Resigned), Petroleum Engineer I (Resigned), 3 Petroleum Engineering Assistants (Resigned), Geologist Assistant (Resigned), Accountant III/IV. (Resigned)

5. The Ministry also undertook a study of the Report submitted by the Management Consultants Peat, Marwick and Mitchell in respect of the Organization Survey of the Ministry. The objectives of the Ministry have been redefined and the immediate skilled manpower needs assessed. A critical problem which has to be resolved in implementing the re-organization and which will enable the Ministry to play a more dynamic role in the development of the oil industry will be the recruitment and retention of staff of high quality. A new framework is to be established which will give the Ministry flexibility of action and the capacity to take decisions quickly as circumstances warrant.

The first priority will be to satisfy the manpower or staffing requirements of the Ministry which has been in an acutely unsatisfactory condition before and since 1963. Undue reliance has had to be placed on the services of overseas experts but this need must be reduced by the accelerated development of nationals. It is anticipated that if the positions recommended in the organization are filled, there will be no substantial change in the establishment over the next five-year period, unless there is a considerable expansion of operating activities by new or existing oil companies and mining operators.

CONFERENCES, TRAINING AND OTHER ACTIVITIES

Some important visits, in which Ministry staff and overseas experts were involved during the year 1968.

VISITS AND FIELD TRIPS

1. The Permanent Secretary Mr. R. A. Thomas visited British Honduras to advise that Government on the future development of its petroleum industry.
2. Geological field trips were made by officials of the Ministry, including the Minister of Petroleum and Mines, to neighbouring Venezuela to study the characteristics of the huge gypsum deposit and the stratigraphic relationship of gypsum to underlying and overlying deposits with a view to tracing the deposit in Trinidad.
3. A Volumetric and analytical survey of the Porcellanite deposits in South Trinidad was undertaken jointly by the United Kingdom Technical Assistance and the geological staff of the Ministry, Messrs. Harms, and Hinds. Dr. R. Bristow of the Institute of Geological studies led the team.

SEMINARS AND SCHOLARSHIPS

4. The Chief Petroleum Engineer Mr. O. O. Fernandes attended a symposium in Curacao on Investigations and Resources of the Caribbean Sea for adjacent Regions organised by UNESCO & FAO - specialised agencies of the United Nations.
5. A U. N. fellowship was granted to Mr. John Scott, Geologist, to pursue studies in Marine Geophysics in Houston, Texas, including the data obtained from the Seismic Survey off the North Coast of Trinidad.
6. The offer was made by the Ministry of Mines and Hydrocarbons, Venezuela, and accepted by the Government of Trinidad and Tobago of two scholarships in Petroleum Engineering at the Zulia State University in Venezuela. Messrs. Ransome and Elliot, two Engineering Assistants of the Ministry of Petroleum and Mines were the recipients of these scholarships.
7. A Seminar was held at the Ministry of Petroleum and Mines and organised jointly by the Ministry of Petroleum and Mines and the University of Oriente, Venezuela, in which all operating oil companies in Trinidad participated. The theme was "Pressure Buildup and Flow Tests in Wells." Dr's. Sandra (Oriente University) and Nielsen (Pennsylvania State University U. S. A.) conducted the course.
8. At the International Seminar on Petroleum Administration in Developing Countries held in Port of Spain in April, Trinidad and Tobago were represented by two full time delegates, Mr. R. A. Thomas the Permanent Secretary and Mr. O. O. Fernandes the Chief Petroleum Engineer. A Paper entitled "A background paper on the Petroleum Industry and Government's Administration" was presented by the Permanent Secretary of the Ministry of Petroleum and Mines at this seminar.

July 1969

Ministry of Petroleum and Mines

APPENDIX I. ANNUAL STATISTICS OF PRODUCTION, DRILLING, REFINING - EXPORTS AND IMPORTS - 1968

| Item | Unit | Percentage Difference 1968-1967 | 1968 | 1967 | 1966 | 1965 | 1964 | 1963 | 1962 | 1961 | 1960 | 1959 |
|--|-------------|---------------------------------------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| PRODUCTION | | | | | | | | | | | | |
| 1. Crude Oil | 1000's bbls | + 2.9 | 66,904 | 64,995 | 55,603 | 48,859 | 49,731 | 48,678 | 48,876 | 45,768 | 42,357 | 10,919 |
| 2. Natural Gasoline or C. H. P. S. | do. | - 14.6 | 164 | 192 | 188 | 197 | 200 | 170 | 194 | 199 | 202 | 218 |
| 3. Total Crude Oil and Natural Gasoline (1+2) | do. | + 2.9 | 67,068 | 65,187 | 55,791 | 49,056 | 49,931 | 48,848 | 49,070 | 45,967 | 42,559 | 41,137 |
| 4. From Crown Oil Rights | do. | + 3.9 | 63,345 | 60,961 | 51,648 | 45,274 | 46,100 | 45,013 | 44,302 | 41,102 | 37,784 | 36,128 |
| 5. From Private Oil Rights | do. | - 11.8 | 3,559 | 4,034 | 3,955 | 3,585 | 3,631 | 3,665 | 4,574 | 4,666 | 4,573 | 4,791 |
| 6. Total Imports | 1000's bbls | + 11.0 | 93,380 | 84,146 | 93,508 | 94,050 | 83,682 | 74,758 | 65,409 | 62,707 | 47,267 | 33,826 |
| 7. Imports of Refined Products (Lub. Oil) | do. | + 14.0 | 49 | 43 | - | 2 | 54 | 47 | | 46 | 43 | 39 |
| 8. Imports of Crude Oil for Refining | do. | + 13.7 | 91,447 | 80,437 | 93,228 | 93,398 | 83,223 | 74,131 | 65,168 | 62,510 | 45,324 | 31,350 |
| 9. Imports of Other Oils for Refining & Blending | do. | - 48.6 | 1,884 | 3,666 | 280 | 650 | 405 | 580 | 241 | 197 | 1,900 | 2,437 |
| 10. Total Exports | 1000's bbls | + 0.2 | 142,076 | 141,779 | 135,678 | 132,440 | 118,596 | 106,771 | 93,927 | 88,179 | 68,331 | 57,918 |
| 11. Exports of Crude Oil | do. | + 20.4 | 6,983 | 5,801 | 4,705 | 4,452 | 3,442 | 3,773 | 4,047 | 4,406 | 4,127 | 3,354 |
| 12. Exports of Refined Products | do. | - 0.7 | 135,093 | 135,978 | 130,973 | 127,988 | 115,154 | 102,998 | 89,880 | 83,773 | 64,204 | 54,564 |
| 13. Runs to Stills | 1000's bbls | + 8.9 | 151,282 | 138,925 | 144,193 | 137,165 | 127,548 | 119,692 | 109,256 | 103,755 | 81,955 | 68,061 |
| 14. No. of Wells Started | As Stated | - 17.4 | 176 | 213 | 273 | 225 | 192 | 226 | 282 | 286 | 298 | 290 |
| 15. Total No. of Wells Completed | do. | - 20.4 | 176 | 221 | 275 | 224 | 194 | 232 | 280 | 288 | 312 | 278 |
| 16. No. of Drilling Wells Completed as Oil Wells | do. | - 23.4 | 151 | 197 | 244 | 201 | 170 | 199 | 255 | 245 | 276 | 247 |
| 17. No. of Drilling Wells abandoned (etc) | do. | - 4.2 | 25 | 24 | 31 | 23 | 24 | 33 | 25 | 43 | 35 | 31 |
| 18. Total Footage Drilled (All Wells) | Feet | + 1.6 | 942,686 | 928,210 | 1,187,202 | 1,058,736 | 1,056,337 | 1,246,248 | 1,506,187 | 1,426,002 | 1,406,412 | 1,446,586 |
| 19. Footage Drilled on Crown Oil Rights | do. | + 5.5 | 928,915 | 880,839 | 1,078,133 | 1,012,922 | 1,006,636 | 1,214,166 | 1,360,450 | 1,234,023 | 1,320,132 | 1,357,416 |
| 20. Footage Drilled on Private Oil Rights | do. | - 70.9 | 13,771 | 47,371 | 109,069 | 45,814 | 49,701 | 32,082 | 145,737 | 191,979 | 86,280 | 89,170 |
| 21. Average Depth of Completed Drilling Wells (Item 15) | Feet | + 24.7 | 5,396 | 4,328 | 4,318 | 4,823 | 5,513 | 5,601 | 5,093 | 4,654 | 4,609 | 5,141 |
| 22. Total No. of Well Producing (Av. during year) | As Stated | - 1.3 | 3,381 | 3,427 | 3,377 | 3,227 | 3,206 | 3,128 | 3,273 | 3,244 | 3,202 | 3,210 |
| 23. No. of Wells Produced by Flowing (Av. during year) | do. | - 10.8 | 795 | 891 | 934 | 920 | 1,010 | 1,007 | 1,026 | 1,047 | 969 | 951 |
| 24. No. of Wells Produced by Artificial Lift (Av. during year) | do. | + 2.0 | 2,586 | 2,536 | 2,443 | 2,307 | 2,196 | 2,121 | 2,247 | 2,197 | 2,233 | 2,259 |
| 25. Average Daily Production per Producing Well | Barrel | + 4.0 | 54.1 | 52.0 | 45.1 | 41.5 | 42.4 | 42.6 | 40.9 | 38.7 | 36.1 | 34.9 |
| 26. Average Daily Production Flowing Well | do. | + 16.7 | 137.3 | 117.6 | 96.3 | 88.9 | 92.3 | 93.5 | 93.4 | 85.8 | 83.9 | 80.2 |
| 27. Average Daily Production per Artificial Lift Well | do. | - 1.4 | 28.5 | 28.9 | 25.6 | 22.6 | 19.4 | 18.5 | 33.0 | 16.2 | 15.4 | 15.8 |
| 28. Total Value of Domestic Exports | \$(000) | + 20.6 | 910,636 | 755,100 | 717,170 | 678,313 | 686,254 | 627,717 | 579,658 | 579,548 | 476,436 | 434,909 |
| 29. Total Value of Petroleum & Products (In Item 28) | do. | + 22.2 | 725,430 | 593,653 | 580,947 | 563,319 | 573,903 | 525,690 | 494,343 | 193,918 | 392,612 | 363,753 |
| 30. Total Value of Lake Asphalt and Products | do. | - 4.7 | 3,209 | 3,368 | 3,570 | 3,139 | 4,086 | 3,276 | 3,024 | 2,661 | 2,327 | 2,122 |
| 31. Total Natural Gas Produced | M. M. C. | + 7.9 | 151,445 | 140,338 | 118,927 | 111,503 | 110,732 | 99,386 | 99,948 | 102,335 | 87,652 | 91,963 |
| 32. Used as Fuel | do. | + 4.8 | 56,410 | 53,846 | 48,692 | 41,517 | 37,892 | 28,623 | 23,814 | 24,412 | 22,942 | 21,876 |
| 33. Replaced in Formation | do. | - 5.7 | 21,324 | 22,625 | 19,841 | 13,866 | 14,688 | 15,824 | 13,177 | 11,841 | 10,777 | 12,500 |
| 34. Losses, Not Collected, Vented etc. | do. | + 15.7 | 62,916 | 54,355 | 50,394 | 56,120 | 58,152 | 54,939 | 62,957 | 66,082 | 59,833 | 57,587 |

APPENDIX II. MONTHLY ANALYSIS OF DRILLING AND WORKOVER WELLS, 1968

| Month | Rig/ Month | New Wells Started | Drilling Wells Completed | | | | | | | | | | | Closed in | | Monthly Footage Drilled | | | Average Footage Drilled | | Old Wells | |
|---------------------------|---------------|-------------------------|--------------------------|--------------------|-------------------------------------|--------------------|--------------|--------------------|---------------------|--------------------|-------|--------------------|------------------|-----------|--------------------|-------------------------|---------|---------|----------------------------|--------------|------------------|----------------|
| | | | Oil & Gas Producers | | Injection & Observation Wells | | Abandoned | | | | Total | Aggregate Depth | Average Depth | No. | Aggregate Depth | Crown | Private | Total | /Day | /Rig /Day | Recom- pleted | Aban- doned |
| | | | No. | Aggregate Depth | No. | Aggregate Depth | Dry Holes | | Technical Causes | | | | | | | | | | | | | |
| | | | | | | | No. | Aggregate Depth | No. | Aggregate Depth | | | | | | | | | | | | |
| January | 8.0 | 12 | 12 | 64,232 | - | - | - | - | - | - | 12 | 64,232 | 5,352.6 | - | - | 68,576 | - | 68,576 | 2,212.1 | 276.5 | 23 | 8 |
| February | 7.9 | 11 | 6 | 30,231 | - | - | - | - | 1 | 15,535 | 7 | 45,766 | 6,538.0 | - | - | 63,942 | - | 63,942 | 2,204.9 | 279.1 | 23 | 7 |
| March | 8.3 | 16 | 9 | 45,555 | - | - | 3 | 12,800 | - | - | 12 | 58,355 | 4,862.9 | - | - | 72,001 | 2,517 | 74,518 | 2,403.8 | 289.6 | 21 | 13 |
| April | 8.7 | 20 | 19 | 82,990 | - | - | 3 | 29,860 | - | - | 22 | 112,850 | 5,129.5 | - | - | 80,821 | 4,983 | 85,804 | 2,860.1 | 328.7 | 24 | 21 |
| May | 7.8 | 15 | 14 | 63,070 | - | - | 2 | 9,200 | - | - | 16 | 72,270 | 4,516.9 | - | - | 75,815 | - | 75,815 | 2,445.6 | 313.5 | 24 | 6 |
| June | 8.7 | 14 | 12 | 58,692 | - | - | 1 | 13,418 | - | - | 13 | 72,110 | 5,546.9 | - | - | 93,431 | - | 93,431 | 3,114.4 | 358.0 | 35 | 5 |
| July | 9.0 | 17 | 12 | 63,526 | - | - | 2 | 11,700 | - | - | 14 | 75,226 | 5,373.3 | - | - | 80,140 | - | 80,140 | 2,585.2 | 287.2 | 37 | 25 |
| August | 9.0 | 15 | 18 | 100,888 | - | - | 3 | 16,271 | 1 | 13,309 | 22 | 130,468 | 5,930.4 | - | - | 77,563 | 6,271 | 83,834 | 2,765.8 | 307.3 | 39 | 4 |
| September | 8.9 | 18 | 12 | 56,475 | - | - | 4 | 17,545 | - | - | 16 | 74,020 | 4,626.3 | - | - | 87,194 | - | 87,194 | 2,906.4 | 326.6 | 36 | 6 |
| October | 8.9 | 13 | 14 | 68,862 | - | - | - | - | - | - | 14 | 68,862 | 4,918.7 | 1 | 1,570 | 77,718 | - | 77,718 | 2,507.0 | 281.7 | 30 | 11 |
| November | 9.8 | 13 | 8 | 46,596 | - | - | 1 | 6,523 | 1 | 15,963 | 10 | 69,082 | 6,908.2 | - | - | 82,765 | - | 82,765 | 2,758.8 | 281.5 | 24 | 8 |
| December | 9.5 | 12 | 10 | 43,963 | - | - | 1 | 8,062 | - | - | 11 | 521,025 | 4,729.5 | 2 | 11,100 | 68,949 | - | 68,949 | 2,224.2 | 234.1 | 17 | 3 |
| Total 1968 | 104.5 | 176 | 146 | 725,080 | - | - | 20 | 125,379 | 3 | 44,807 | 169 | 895,266 | 5,297.4 | 3 | 12,670 | 928,915 | 13,771 | 942,686 | 2,575.6 | 295.7 | 333 | 117 |
| Total 1967 | 113.5 | 213 | 197 | 865,396 | - | - | 21 | 88,100 | 3 | 2,870 | 221 | 956,366 | 4,327.5 | 1 | 3,819 | 880,839 | 47,371 | 928,210 | 2,543.0 | 268.9 | 394 | 56 |
| % Increase 1967 - 1968 | - 7.9 | -17.4 | -25.9 | 16.2 | - | - | -4.8 | + 42.3 | - | +1,460 | -23.5 | - 6.4 | + 22.4 | +200 | + 231 | + 5.5 | - 70.9 | + 1.6 | + 1.3 | +10.0 | -15.5 | +109 |
| Averages 1968 | 8.7 | 14.7 | 12.2 | 4,966.3 | - | - | - | 6,269.0 | - | 14,935.7 | 14.1 | 5,297.4 | - | - | 4,223.3 | 77,409 | 1,148 | 78,557 | - | - | 27.8 | 9.75 |
| Averages 1967 | 9.5 | 17.8 | 16.4 | 4,392.8 | - | - | - | 4,195.2 | - | 956.7 | 18.4 | 4,327.5 | - | - | 3,819 | 73,403 | 3,948 | 77,351 | - | - | 32.8 | 4.67 |

APPENDIX IIA. MONTHLY ANALYSIS OF FOOTAGE DRILLED - LAND AND MARINE, 1968

| Footage Drilled | January | February | March | April | May | June | July | August | September | October | November | December | Total |
|---------------------------|---------|----------|--------|--------|--------|--------|--------|--------|-----------|---------|----------|----------|---------|
| Marine | 21,510 | 25,591 | 26,289 | 27,325 | 23,706 | 27,429 | 18,036 | 23,176 | 31,364 | 23,413 | 29,260 | 22,794 | 299,893 |
| Land | 47,066 | 38,351 | 48,229 | 58,479 | 52,109 | 66,002 | 62,104 | 60,658 | 55,830 | 54,305 | 53,505 | 46,155 | 642,793 |
| Total | 68,576 | 63,942 | 74,518 | 85,804 | 75,815 | 93,431 | 80,140 | 83,834 | 87,194 | 77,718 | 82,765 | 68,949 | 942,686 |
| Daily Average Footage | 2212.1 | 2204.9 | 2403.8 | 2860.1 | 2445.6 | 3114.4 | 2585.2 | 2704.3 | 2906.5 | 2507.0 | 2758.8 | 2224.2 | 2575.6 |
| Daily Average Footage Rig | 276.5 | 279.1 | 289.6 | 328.7 | 313.5 | 366.4 | 287.2 | 300.4 | 326.6 | 281.7 | 281.5 | 234.1 | 236.3 |
| Marine % of Total Footage | 31.4 | 40.0 | 35.3 | 31.8 | 31.3 | 29.4 | 22.5 | 27.6 | 36.0 | 30.1 | 35.4 | 33.1 | 31.8 |

APPENDIX III. ANALYSIS OF MONTHLY PRODUCTION FOR THE YEAR ENDING 31ST DECEMBER, 1966

| Month | Flowing | | | | Gas/Air Lift | | | | Pumping | | | | Plunger Lift | | | | Salt Water | | | | Number of Wells Produced | Number of Idle Wells | Number of Wells Abd. | Number of Wells Drilling at Month End | Total Number of Wells Started | Daily Average Per Producing Wells | Total Oil Production | Breakdown of Total Production | | | | | | Average B.O.P.D. | Crown C.H.P.S. | Private C.H.P.S. | Total |
|--|-----------------|------------------|----------------|------------------------|-----------------|------------------|----------------|------------------------|-----------------|------------------|----------------|------------------------|-----------------|------------------|----------------|------------------------|-----------------|------------------|----------------|------------------------|--------------------------|----------------------|----------------------|---------------------------------------|-------------------------------|-----------------------------------|----------------------|-------------------------------|-----------------|-----------------------------|-------------------------------|-----------------|-----------------------------|------------------|----------------|------------------|---------|
| | Number of Wells | Quantity Barrels | % of Total Oil | Daily Average per well | Number of Wells | Quantity Barrels | % of Total Oil | Daily Average per well | Number of Wells | Quantity Barrels | % of Total Oil | Daily Average per well | Number of Wells | Quantity Barrels | % of Total Oil | Daily Average per well | Number of Wells | Quantity Barrels | % of Total Oil | Daily Average per well | | | | | | | | Crown | | | Private | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | Daily Av. Per Producing Wells | Number of Wells | Quantity Produced (Barrels) | Daily Av. Per Producing Wells | Number of Wells | Quantity Produced (Barrels) | | | | |
| January | 801 | 3,603,495 | 60.6 | 144.9 | 1095 | 1,693,535 | 28.5 | 49.8 | 1297 | 587,812 | 9.9 | 14.6 | 192 | 64,885 | 1.0 | 10.9 | 2026 | 1,297,872 | 17.9 | 20.7 | 3386 | 3545 | 2178 | 6 | 9115 | 56.7 | 5,949,727 | 65.2 | 2789 | 5,634,357 | 17.0 | 597 | 315,370 | 191,927 | 10,141 | 4485 | 14,626 |
| February | 809 | 3,421,881 | 61.3 | 145.9 | 1091 | 1,559,008 | 27.9 | 49.3 | 1295 | 543,305 | 9.8 | 14.5 | 179 | 55,428 | 1.0 | 10.7 | 2027 | 1,203,416 | 17.7 | 20.5 | 3374 | 3559 | 2185 | 8 | 9126 | 57.0 | 5,579,622 | 65.7 | 2779 | 5,294,760 | 16.5 | 595 | 284,862 | 192,400 | 9,337 | 4173 | 13,510 |
| March | 805 | 3,602,806 | 61.3 | 144.6 | 1095 | 1,626,464 | 27.7 | 48.0 | 1270 | 581,356 | 9.9 | 14.8 | 184 | 63,370 | 1.1 | 11.1 | 1897 | 1,313,667 | 18.3 | 22.6 | 3354 | 3591 | 2190 | 7 | 9142 | 56.5 | 5,873,996 | 64.9 | 2763 | 5,561,186 | 17.1 | 591 | 312,810 | 189,483 | 10,684 | 3845 | 14,529 |
| April | 793 | 3,399,036 | 60.7 | 142.9 | 1108 | 1,577,081 | 28.2 | 47.4 | 1270 | 558,806 | 10.0 | 14.7 | 182 | 64,135 | 1.1 | 11.7 | 1972 | 1,250,293 | 18.3 | 21.1 | 3353 | 3595 | 2205 | 9 | 9162 | 55.7 | 5,599,058 | 63.7 | 2770 | 5,297,518 | 17.2 | 583 | 301,540 | 186,635 | 9,687 | 3572 | 13,259 |
| May | 804 | 3,445,939 | 60.2 | 138.3 | 1114 | 1,626,465 | 28.4 | 47.1 | 1282 | 579,838 | 10.2 | 14.6 | 182 | 69,494 | 1.2 | 12.3 | 1988 | 1,211,513 | 17.5 | 19.7 | 3382 | 3578 | 2211 | 7 | 9177 | 54.6 | 5,721,736 | 62.6 | 2797 | 5,431,525 | 16.0 | 585 | 290,211 | 184,572 | 10,228 | 3831 | 14,059 |
| June | 809 | 3,179,358 | 58.1 | 131.0 | 1121 | 1,638,105 | 30.0 | 48.7 | 1288 | 586,768 | 10.7 | 15.2 | 171 | 64,660 | 1.2 | 12.6 | 1983 | 1,118,801 | 17.0 | 18.8 | 3389 | 3578 | 2214 | 10 | 9191 | 53.8 | 5,468,891 | 61.7 | 2799 | 5,179,554 | 16.3 | 590 | 289,337 | 182,296 | 10,664 | 3688 | 14,352 |
| PRODUCTION TOTAL 1st Jan. - 30th June | 804 | 20,652,515 | 60.4 | 140.9 | 1104 | 9,720,658 | 28.4 | 48.7 | 1284 | 3,437,885 | 10.1 | 14.7 | 182 | 381,972 | 1.1 | 11.5 | 1982 | 7,395,562 | 17.8 | 20.5 | 3374 | 3574 | 2214 | | 9191 | 55.7 | 34,193,030 | 64.0 | 2783 | 31,398,900 | 16.7 | 590 | 1,794,130 | 187,874 | 60,741 | 23594 | 84,335 |
| July | 822 | 3,361,254 | 59.0 | 131.9 | 1114 | 1,679,725 | 29.5 | 48.6 | 1297 | 587,581 | 10.3 | 14.6 | 173 | 68,012 | 1.2 | 12.7 | 2040 | 1,245,852 | 17.9 | 19.7 | 3406 | 3570 | 2226 | 6 | 9208 | 54.0 | 5,696,572 | 61.5 | 2833 | 5,405,017 | 16.4 | 573 | 291,555 | 183,761 | 10,760 | 3452 | 14,212 |
| August | 799 | 3,339,987 | 59.0 | 134.8 | 1141 | 1,664,720 | 29.4 | 47.1 | 1311 | 590,941 | 10.4 | 14.5 | 165 | 69,783 | 1.2 | 13.6 | 2092 | 1,281,225 | 18.4 | 19.8 | 3416 | 3564 | 2234 | 9 | 9223 | 53.5 | 5,665,431 | 61.1 | 2834 | 5,366,848 | 16.5 | 582 | 298,583 | 182,755 | 10,303 | 3830 | 14,133 |
| September | 802 | 3,196,010 | 59.4 | 132.8 | 1123 | 1,530,342 | 28.4 | 45.4 | 1328 | 587,644 | 10.9 | 14.8 | 166 | 68,058 | 1.3 | 13.6 | 2164 | 1,218,569 | 18.5 | 18.8 | 3419 | 3573 | 2241 | 8 | 9241 | 52.5 | 5,382,054 | 59.4 | 2855 | 5,086,569 | 17.5 | 564 | 295,485 | 179,402 | 9,981 | 3711 | 13,692 |
| October | 771 | 3,187,683 | 59.2 | 133.4 | 1118 | 1,537,823 | 28.6 | 44.4 | 1325 | 592,467 | 11.0 | 14.4 | 169 | 66,536 | 1.2 | 12.7 | 2097 | 1,231,381 | 18.6 | 18.9 | 3383 | 3610 | 2253 | 8 | 9254 | 51.3 | 5,384,509 | 57.9 | 2833 | 5,087,409 | 17.4 | 550 | 297,100 | 173,694 | 10,368 | 1875 | 12,243 |
| November | 766 | 3,100,227 | 59.1 | 134.9 | 1111 | 1,488,865 | 28.4 | 44.7 | 1322 | 597,272 | 11.4 | 15.1 | 161 | 58,563 | 1.1 | 12.1 | 2072 | 1,201,469 | 18.6 | 19.3 | 3380 | 3639 | 2259 | 9 | 9267 | 52.0 | 5,244,927 | 59.0 | 2804 | 4,959,848 | 17.1 | 556 | 285,079 | 174,831 | 9,077 | 3034 | 12,111 |
| December | 762 | 3,120,071 | 58.5 | 132.1 | 1133 | 1,548,961 | 29.0 | 44.1 | 1326 | 611,228 | 11.5 | 14.9 | 134 | 57,123 | 1.0 | 13.8 | 2142 | 1,262,431 | 19.1 | 18.7 | 3355 | 3644 | 2273 | 7 | 9279 | 51.3 | 5,337,383 | 58.5 | 2780 | 5,039,811 | 16.7 | 575 | 297,572 | 172,174 | 9,613 | 3331 | 12,944 |
| PRODUCTION TOTAL 1st July - 31st Dec. | 787 | 19,305,232 | 59.0 | 133.3 | 1123 | 9,450,436 | 28.9 | 45.7 | 1318 | 3,567,133 | 10.9 | 14.7 | 161 | 388,075 | 1.2 | 13.1 | 2101 | 7,440,927 | 18.5 | 19.2 | 3389 | 3599 | 2273 | | 9279 | 52.5 | 32,710,876 | 59.6 | 2823 | 30,945,502 | 16.9 | 566 | 1,765,374 | 177,776 | 60,102 | 19233 | 79,335 |
| YEARS PRODUCTION TOTAL | | 39,957,747 | 59.7 | | | 19,171,094 | 28.6 | | | 7,005,108 | 10.5 | | | 2,104 | | | | 14,836,489 | 18.2 | | | | 2273 | | 9279 | | 66,903,906 | | | 63,344,402 | | | 3,559,504 | 182,797 | 120,843 | 42827 | 163,670 |
| DAILY AVERAGES | | 109,174 | | | | 52,380 | | | | 19,139 | | | | 2,104 | | | | 40,537 | | | | | | | | 182,797 | | | 173,072 | | | 9,725 | | 330 | 117 | 447 | |
| AVERAGES DURING YEAR | 795 | | | 137.3 | 1113 | | | 47.1 | 1302 | | | 14.7 | 171 | | | | 2041 | | | 19.9 | 3381 | 3586 | | | | 54.1 | | 61.7 | 2803 | | 16.8 | 578 | | | | | |

APPENDIX IIIA. ANALYSIS OF PRODUCTION BY OPERATING COMPANIES

| Company | FLOWING | | | | GAS LIFT | | | | PUMPING | | | | PLUNGER LIFT | | | | SALT WATER | | | | Average No. of Wells Produced | Daily Average per producing Well | Total Oil Produced (Barrels) | Companies Production as a % of Total | CROWN PRODUCTION | | PRIVATE PRODUCTION | |
|--|----------------------|--------------------|------------|------------------------|----------------------|--------------------|------------|------------------------|----------------------|--------------------|------------|------------------------|----------------------|--------------------|------------|------------------------|----------------------|--------------------|------------|------------------------|-------------------------------|----------------------------------|------------------------------|--------------------------------------|----------------------|------------|----------------------|------------|
| | Average No. of wells | Quantity (Barrels) | % of Total | Daily Average per well | Average No. of wells | Quantity (Barrels) | % of Total | Daily Average per well | Average No. of wells | Quantity (Barrels) | % of Total | Daily Average per well | Average No. of wells | Quantity (Barrels) | % of Total | Daily Average per well | Average No. of wells | Quantity (Barrels) | % of Total | Daily Average per well | | | | | Production (Barrels) | % of Total | Production (Barrels) | % of Total |
| Apex Trinidad Oilfields Limited | 41 | 654,539 | 27.4 | 43.6 | 31 | 362,641 | 15.2 | 32.0 | 202 | 1,308,536 | 54.8 | 17.7 | 13 | 61,603 | 2.6 | 12.9 | 100 | 394,470 | 14.2 | 10.8 | 287 | 22.7 | 2,387,319 | 3.6 | 1,000,346 | 41.9 | 1,386,973 | 58.1 |
| Kern Trinidad Oilfields Limited | 64 | 521,487 | 66.1 | 22.3 | 25 | 106,885 | 13.5 | 11.7 | 49 | 160,781 | 20.4 | 9.0 | - | - | - | - | 97 | 229,212 | 22.5 | 6.5 | 138 | 15.6 | 789,153 | 1.2 | 334,335 | 42.4 | 454,818 | 57.6 |
| Trinidad Petroleum Development Company Limited | 151 | 2,389,077 | 45.3 | 43.2 | 171 | 1,466,516 | 27.8 | 23.4 | 136 | 705,340 | 13.4 | 14.2 | 158 | 708,444 | 13.5 | 12.3 | 299 | 1,007,376 | 16.0 | 9.2 | 616 | 23.4 | 5,269,377 | 7.9 | 4,985,124 | 94.6 | 284,253 | 5.4 |
| Texaco Trinidad Inc. | 278 | 14,027,191 | 47.3 | 137.9 | 805 | 13,391,162 | 45.2 | 45.5 | 473 | 2,240,399 | 7.5 | 12.9 | - | - | - | - | 1,169 | 8,928,963 | 23.1 | 20.9 | 1,556 | 52.1 | 29,658,752 | 44.3 | 28,829,957 | 97.2 | 828,795 | 2.8 |
| Shell Trinidad Limited | 75 | 1,243,120 | 34.1 | 45.3 | 26 | 504,667 | 13.8 | 53.0 | 271 | 1,900,538 | 52.1 | 19.2 | - | - | - | - | 160 | 1,287,643 | 26.1 | 22.0 | 372 | 26.8 | 3,648,325 | 5.4 | 3,279,508 | 89.9 | 368,817 | 10.1 |
| Premier Consolidated Oilfields Limited | 5 | 47,933 | 14.8 | 26.2 | 2 | 18,958 | 5.9 | 25.9 | 107 | 256,734 | 79.3 | 6.6 | - | - | - | - | 44 | 69,383 | 17.7 | 4.3 | 114 | 7.8 | 323,625 | 0.5 | 87,777 | 27.1 | 235,848 | 72.9 |
| Trinidad Canadian Oilfields Limited | 15 | 258,518 | 42.6 | 47.1 | 13 | 123,526 | 20.4 | 26.0 | 62 | 224,678 | 37.0 | 9.9 | - | - | - | - | 64 | 350,103 | 36.6 | 14.9 | 90 | 18.4 | 606,722 | 0.9 | 606,722 | 100.0 | - | - |
| Trinidad Northern Areas Limited | 166 | 20,815,882 | 85.9 | 342.6 | 40 | 3,196,739 | 13.2 | 218.4 | 2 | 208,012 | 0.9 | 284.2 | - | - | - | - | 108 | 2,569,339 | 9.6 | 65.0 | 208 | 318.2 | 24,220,633 | 36.2 | 24,220,633 | 100.0 | - | - |
| Total | 795 | 39,957,747 | 59.7 | 137.3 | 1,113 | 19,171,094 | 28.6 | 47.1 | 1,302 | 7,005,018 | 10.5 | 14.7 | 171 | 770,047 | 1.2 | 12.3 | 2,041 | 14,836,489 | 18.2 | 19.9 | 3,381 | 54.1 | 66,903,906 | 100.0 | 63,344,402 | 94.7 | 3,559,504 | 5.3 |
| Total 1967 | 891 | 38,249,896 | 58.8 | 117.6 | 971 | 18,687,323 | 28.8 | 52.7 | 1,364 | 7,142,069 | 11.0 | 14.3 | 200 | 915,294 | 1.4 | 12.5 | 2,078 | 13,051,031 | 16.7 | 17.2 | 3,426 | 52.0 | 64,994,582 | 100.0 | 60,961,073 | 93.8 | 1,033,509 | 6.2 |

NATURAL GASOLINE C. H. P. & PRODUCTION

| Company | Crown Oil Rights | Private Oil Rights | Total |
|---|------------------|--------------------|---------|
| | Barrels | Barrels | Barrels |
| Apex (Trinidad) Oilfields Limited | 22,636 | 40,848 | 63,484 |
| Trinidad Petroleum Development Co. Ltd. | 98,207 | 1,979 | 100,186 |
| Total | 120,843 | 42,827 | 163,670 |
| Total - 1967 | 138,658 | 53,337 | 191,995 |

APPENDIX III B. DAILY AVERAGE PRODUCTION BY MONTHS FOR ALL COMPANIES - 1968

| Company | January | February | March | April | May | June | July | August | September | October | November | December | Grand Total | |
|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|----------------|
| | | | | | | | | | | | | | Total | B.O.P.D |
| APEX | 216,435 | 189,259 | 215,754 | 196,281 | 190,962 | 193,753 | 198,225 | 194,528 | 194,667 | 201,381 | 193,318 | 202,756 | 2,387,319 | 6,523 |
| B.O.P.D. | 6,982 | 6,526 | 6,960 | 6,543 | 6,160 | 6,458 | 6,394 | 6,275 | 6,489 | 6,496 | 6,444 | 6,542 | | |
| K.T.O. | 62,496 | 56,915 | 66,151 | 71,677 | 67,084 | 64,350 | 67,968 | 75,204 | 68,107 | 66,469 | 60,761 | 61,971 | 789,153 | 2,156 |
| B.O.P.D. | 2,016 | 1,963 | 2,134 | 2,389 | 2,164 | 2,145 | 2,193 | 2,426 | 2,270 | 2,144 | 2,025 | 1,999 | | |
| T.P.D. | 494,312 | 448,277 | 473,289 | 448,837 | 437,576 | 423,061 | 422,297 | 436,224 | 428,077 | 421,541 | 414,830 | 421,056 | 5,269,377 | 14,397 |
| B.O.P.D. | 15,945 | 15,458 | 15,267 | 14,961 | 14,115 | 14,102 | 13,622 | 14,072 | 14,269 | 13,598 | 13,827 | 13,582 | | |
| S.T.L. | 324,993 | 300,739 | 320,555 | 311,524 | 318,245 | 304,556 | 306,106 | 305,741 | 296,422 | 287,536 | 280,756 | 291,152 | 3,648,325 | 9,968 |
| B.O.P.D. | 10,484 | 10,370 | 10,340 | 10,384 | 10,266 | 10,152 | 9,874 | 9,863 | 9,881 | 9,275 | 9,359 | 9,392 | | |
| T.T.I. | 2,785,382 | 2,635,949 | 2,749,724 | 2,556,695 | 2,596,784 | 2,457,360 | 2,578,046 | 2,555,000 | 2,266,724 | 2,240,841 | 2,124,425 | 2,111,822 | 29,658,752 | 81,035 |
| B.O.P.D. | 89,851 | 90,895 | 88,701 | 85,223 | 83,767 | 81,912 | 83,163 | 82,419 | 75,557 | 72,285 | 70,814 | 68,123 | | |
| T.C.O. | 51,813 | 46,964 | 53,982 | 49,276 | 48,315 | 45,966 | 46,536 | 55,119 | 52,497 | 53,198 | 53,178 | 49,878 | 606,722 | 1,658 |
| B.O.P.D. | 1,672 | 1,619 | 1,741 | 1,643 | 1,559 | 1,532 | 1,501 | 1,778 | 1,750 | 1,716 | 1,773 | 1,602 | | |
| P.C.O.L. | 34,848 | 32,021 | 31,489 | 25,811 | 27,330 | 25,709 | 26,307 | 24,894 | 22,847 | 24,105 | 23,460 | 24,804 | 323,625 | 884 |
| B.O.P.D. | 1,124 | 1,104 | 1,016 | 860 | 882 | 857 | 849 | 803 | 762 | 778 | 782 | 800 | | |
| T.N.A. | 1,979,448 | 1,869,498 | 1,963,052 | 1,938,957 | 2,035,440 | 1,954,136 | 2,051,087 | 2,018,721 | 2,052,713 | 2,089,438 | 2,094,199 | 2,173,944 | 24,220,633 | 66,176 |
| B.O.P.D. | 63,853 | 64,465 | 63,324 | 64,632 | 65,659 | 65,138 | 66,164 | 65,120 | 68,424 | 67,401 | 69,807 | 70,127 | | |
| TOTAL | 5,949,727 | 5,579,622 | 5,873,996 | 5,599,058 | 5,721,736 | 5,468,891 | 5,696,572 | 5,665,431 | 5,382,054 | 5,384,509 | 5,244,927 | 5,337,383 | 66,903,906 | 182,797 |
| 1968 | 191,927 | 192,400 | 189,483 | 186,635 | 184,572 | 182,296 | 183,760 | 182,756 | 179,402 | 173,693 | 174,831 | 172,174 | | |
| TOTAL | 5,022,794 | 4,666,257 | 5,299,709 | 5,214,576 | 5,377,452 | 5,313,109 | 5,584,494 | 5,603,291 | 5,548,005 | 5,802,111 | 5,642,730 | 5,920,054 | 64,994,582 | 178,067 |
| 1967 | 162,025 | 166,652 | 170,958 | 173,819 | 173,466 | 177,104 | 180,144 | 180,751 | 184,933 | 187,165 | 188,091 | 190,969 | | |
| BP Group | 773,243 | 694,451 | 755,194 | 616,795 | 695,622 | 681,164 | 688,490 | 705,956 | 690,851 | 689,391 | 668,909 | 685,783 | 8,445,849 | 23,076 |
| 1968 B.O.P.D. | 24,943 | 23,947 | 24,361 | 23,893 | 22,439 | 22,705 | 22,210 | 22,773 | 23,028 | 22,238 | 22,296 | 22,122 | | |

APPENDIX IIIC. MARINE OFFSHORE, LAND PRODUCTION, 1968

| Type of Wells | January | | February | | March | | April | | May | | June | | Jan - June Sub-Total | | July | | August | | September | | October | | November | | December | | July - December Sub-Total | | Grand Total | |
|----------------------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|----------------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|--------------|-------------|---------------------------|-------------|------------------|-------------|
| | No. of Wells | Pro-duction | No. of Wells | Pro-duction | No. of Wells | Pro-duction | No. of Wells | Pro-duction | No. of Wells | Pro-duction | No. of Wells | Pro-duction | Av. No. of Wells | Pro-duction | No. of Wells | Pro-duction | No. of Wells | Pro-duction | No. of Wells | Pro-duction | No. of Wells | Pro-duction | No. of Wells | Pro-duction | No. of Wells | Pro-duction | Av. No. of Wells | Pro-duction | Av. No. of Wells | Pro-duction |
| Marine | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T.N.A. Soldado | 194 | 1,972,865 | 192 | 1,863,437 | 196 | 1,957,033 | 198 | 1,933,231 | 200 | 2,027,954 | 199 | 1,947,856 | 197 | 11,702,376 | 201 | 2,045,067 | 202 | 2,011,992 | 206 | 2,046,145 | 209 | 2,083,947 | 209 | 2,088,534 | 210 | 2,168,791 | 206 | 12,444,476 | 201 | 24,146,852 |
| Ft-1, Ft-2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TEXACO ABM | 97 | 289,754 | 105 | 306,002 | 109 | 324,715 | 108 | 302,992 | 108 | 314,111 | 106 | 296,009 | 105 | 1,833,583 | 111 | 292,696 | 113 | 297,860 | 111 | 279,095 | 113 | 279,298 | 110 | 281,100 | 108 | 270,238 | 111 | 1,700,287 | 108 | 3,533,870 |
| ALM | 3 | 8,593 | 3 | 9,057 | 3 | 9,906 | 3 | 10,035 | 3 | 10,052 | 3 | 9,841 | 3 | 57,484 | 3 | 10,124 | 3 | 7,294 | 3 | 8,446 | 2 | 6,317 | 3 | 7,810 | 3 | 6,612 | 3 | 46,603 | 3 | 104,087 |
| P.C.O.L. Couva Marine | 1 | 5,806 | 1 | 4,946 | 1 | 3,584 | - | - | - | - | - | - | 1 | 14,336 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 14,336 |
| T.P.D. North Marine | 3 | 30,957 | 3 | 32,519 | 3 | 31,920 | 3 | 28,987 | 3 | 26,527 | 3 | 24,296 | 3 | 175,206 | 3 | 19,896 | 3 | 23,735 | 2 | 20,635 | 2 | 18,116 | 2 | 13,611 | 2 | 18,848 | 2 | 114,841 | 2 | 290,047 |
| K.T.O. 'G' Wells | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total | 298 | 2,307,975 | 304 | 2,215,961 | 312 | 2,327,158 | 312 | 2,275,245 | 314 | 2,378,644 | 311 | 2,278,002 | 309 | 13,782,985 | 318 | 2,367,783 | 321 | 2,340,881 | 322 | 2,354,321 | 326 | 2,387,678 | 324 | 2,391,055 | 323 | 2,464,489 | 322 | 14,306,207 | 315 | 28,089,192 |
| Deviated from Shore | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T.N.A., F.O.S. | 8 | 6,583 | 7 | 6,061 | 8 | 6,019 | 8 | 5,726 | 8 | 7,486 | 6 | 6,280 | 8 | 38,155 | 8 | 6,020 | 7 | 6,729 | 7 | 6,568 | 5 | 5,491 | 7 | 5,665 | 6 | 5,153 | 7 | 35,626 | 8 | 73,781 |
| TEXACO AS | 70 | 70,917 | 73 | 62,819 | 69 | 65,276 | 64 | 60,685 | 66 | 59,443 | 67 | 58,588 | 67 | 377,728 | 69 | 62,662 | 70 | 61,147 | 66 | 60,972 | 74 | 61,979 | 68 | 59,100 | 67 | 59,096 | 69 | 364,956 | 68 | 742,684 |
| ALS | 5 | 6,922 | 6 | 7,826 | 5 | 8,484 | 6 | 11,551 | 6 | 8,855 | 6 | 12,026 | 6 | 55,664 | 6 | 11,896 | 6 | 11,074 | 6 | 12,018 | 6 | 11,069 | 6 | 8,897 | 6 | 9,143 | 6 | 64,097 | 6 | 119,761 |
| K.T.O. 'M' Wells | 4 | 1,161 | 4 | 850 | 6 | 918 | 5 | 1,071 | 5 | 1,125 | 5 | 968 | 5 | 6,093 | 2 | 1,842 | 3 | 1,286 | 4 | 1,078 | 4 | 1,520 | 5 | 1,133 | 5 | 888 | 4 | 7,747 | 4 | 13,840 |
| Total | 87 | 85,583 | 90 | 77,556 | 88 | 80,697 | 83 | 79,033 | 85 | 76,909 | 84 | 77,862 | 86 | 477,640 | 85 | 82,420 | 86 | 80,236 | 83 | 80,636 | 89 | 80,059 | 86 | 74,795 | 84 | 74,280 | 86 | 472,426 | 86 | 950,066 |
| Marine and Deviated | 385 | 2,393,558 | 394 | 2,293,517 | 400 | 2,407,855 | 395 | 2,354,278 | 399 | 2,455,553 | 395 | 2,355,864 | 395 | 14,260,625 | 403 | 2,450,203 | 407 | 2,421,117 | 405 | 2,434,957 | 415 | 2,467,737 | 410 | 2,465,850 | 407 | 2,538,769 | 408 | 14,778,633 | 401 | 29,039,258 |
| Land | 3,001 | 3,556,169 | 2,980 | 3,286,105 | 2,954 | 3,466,141 | 2,958 | 3,244,780 | 2,983 | 3,266,183 | 2,994 | 3,113,027 | 2,978 | 19,932,405 | 3,003 | 3,246,369 | 3,009 | 3,244,314 | 3,014 | 2,947,097 | 2,968 | 2,916,772 | 2,950 | 2,779,077 | 2,948 | 2,798,614 | 2,982 | 17,932,243 | 2,980 | 37,864,648 |
| Total Production | 3,386 | 5,949,727 | 3,374 | 5,579,622 | 3,354 | 5,873,996 | 3,353 | 5,599,058 | 3,382 | 5,721,736 | 3,389 | 5,468,891 | 3,373 | 34,193,030 | 3,406 | 5,696,572 | 3,416 | 5,665,431 | 3,419 | 5,382,054 | 3,383 | 5,384,509 | 3,360 | 5,244,927 | 3,355 | 5,337,383 | 3,390 | 32,710,876 | 3,381 | 66,903,906 |

APPENDIX IV. PRODUCTION AND DISPOSAL OF NATURAL GAS - 1968
 (all figures of Gas Production in M. c. f.)
 M = 1,000 standard cubic feet

| Half Yearly Totals | Crude Oil Production bbls. | Average G.O.R. Cu.Ft./bbls. | Natural Gas Production | NATURAL GAS DISPOSAL | | | | | | | | | | | | | Inter Oil Company Sales | Used for the Manufacture of Petro-Chemicals |
|------------------------------|----------------------------|-----------------------------|------------------------|--------------------------|-------------------------|-----------------------|--------------|---------------|----------------------|---------------------|------------|-------------------------------------|---------------|----------------------|-------------------------------|---------------------------------|-------------------------|---|
| | | | | Sales to Other Companies | Replaced into formation | Converted to C.H.P.S. | USED AS FUEL | | VENTED TO ATMOSPHERE | | | Pipeline Losses and unaccounted for | Not Collected | NATURAL GAS RECOVERY | | | | |
| | | | | | | | In Fields | In Refineries | After Utilization | Without Utilization | Total | | | Natural Gas Treated | Average Plant Recovery IG/MCF | Natural Gasolene Produced bbls. | | |
| January | 5,949,727 | 2,157 | 12,836,072 | 2,580,417 | 1,680,951 | 15,344 | 638,162 | 2,625,238 | 2,453,435 | 1,891,520 | 4,344,955 | 170,717 | 780,288 | 1,991,698 | 328 | 18,758 | 2,263,661 | 977,410 |
| February | 5,579,622 | 2,177 | 12,145,404 | 2,062,956 | 1,665,552 | 14,175 | 591,894 | 2,538,103 | 2,258,553 | 2,117,357 | 4,375,910 | 186,832 | 709,982 | 1,600,635 | 440 | 20,060 | 1,890,287 | 685,820 |
| March | 5,873,996 | 2,216 | 13,018,057 | 2,709,326 | 1,635,148 | 15,245 | 641,687 | 2,501,839 | 2,468,723 | 2,097,325 | 4,566,048 | 159,713 | 789,051 | 1,880,001 | 344 | 18,496 | 2,117,821 | 1,000,537 |
| April | 5,599,058 | 2,314 | 12,955,297 | 2,576,912 | 1,662,947 | 14,906 | 591,772 | 2,447,222 | 2,614,218 | 2,083,789 | 4,698,007 | 206,752 | 756,779 | 1,679,419 | 359 | 17,077 | 2,114,103 | 925,462 |
| May | 5,721,736 | 2,268 | 12,975,584 | 2,634,486 | 1,643,430 | 14,751 | 653,986 | 2,417,416 | 2,896,782 | 1,668,683 | 4,565,465 | 292,463 | 753,587 | 1,969,331 | 327 | 18,387 | 2,162,082 | 970,444 |
| June | 5,468,891 | 2,314 | 12,656,604 | 2,547,693 | 1,527,004 | 15,057 | 634,595 | 2,222,577 | 3,033,146 | 1,594,758 | 4,627,904 | 296,089 | 785,685 | 1,926,032 | 335 | 18,457 | 2,068,537 | 963,592 |
| Half-Year Total | 34,193,030 | 2,240 | 76,587,018 | 15,111,790 | 9,815,032 | 89,478 | 3,752,096 | 14,752,395 | 15,724,857 | 11,453,432 | 27,178,289 | 1,312,566 | 4,575,372 | 11,047,116 | 352 | 111,235 | 12,616,491 | 5,523,265 |
| July | 5,696,572 | 2,279 | 12,981,933 | 2,605,507 | 1,826,203 | 14,910 | 671,709 | 2,229,838 | 2,919,747 | 1,492,287 | 4,412,034 | 398,984 | 822,748 | 1,944,111 | 328 | 18,245 | 1,981,640 | 953,693 |
| August | 5,665,431 | 2,248 | 12,734,139 | 2,454,037 | 1,952,959 | 14,829 | 657,295 | 2,297,174 | 2,679,595 | 1,614,868 | 4,294,463 | 267,326 | 796,056 | 1,633,007 | 352 | 16,474 | 1,930,404 | 873,178 |
| September | 5,382,054 | 2,270 | 12,214,846 | 2,127,604 | 1,892,389 | 14,366 | 653,169 | 2,444,223 | 2,790,945 | 1,244,887 | 4,035,832 | 274,430 | 772,833 | 1,432,958 | 392 | 16,077 | 1,853,584 | 671,902 |
| October | 5,384,509 | 2,281 | 12,282,068 | 2,404,250 | 1,986,492 | 12,844 | 707,113 | 2,551,160 | 2,367,128 | 1,118,390 | 3,485,518 | 309,021 | 825,670 | 942,840 | 464 | 12,518 | 2,113,336 | 787,457 |
| November | 5,244,927 | 2,329 | 12,216,300 | 2,460,663 | 2,006,212 | 12,707 | 694,776 | 2,482,197 | 2,282,617 | 1,078,355 | 3,360,972 | 278,670 | 920,103 | 1,512,425 | 359 | 15,521 | 1,945,821 | 830,149 |
| December | 5,337,383 | 2,329 | 12,428,641 | 2,733,083 | 1,843,963 | 13,579 | 711,412 | 2,500,026 | 2,492,026 | 948,209 | 3,440,235 | 181,082 | 1,005,261 | 1,864,205 | 329 | 17,539 | 2,090,395 | 963,297 |
| Half-Year Total | 32,710,876 | 2,288 | 74,857,927 | 14,785,144 | 11,508,218 | 83,235 | 4,095,474 | 14,504,618 | 15,532,058 | 7,496,996 | 23,029,054 | 1,709,513 | 5,142,671 | 9,329,546 | 361 | 96,374 | 11,915,180 | 5,079,676 |
| Year Total | 66,903,906 | 2,264 | 151,444,945 | 29,896,934 | 21,323,250 | 172,713 | 7,847,570 | 29,257,013 | 31,256,915 | 18,950,428 | 50,207,343 | 3,022,079 | 9,718,043 | 20,376,662 | 356 | 207,609 | 24,531,671 | 10,602,941 |
| Percentage Disposal for Year | - | - | - | 19.8 | 14.1 | 0.1 | 5.2 | 19.3 | 20.6 | 12.5 | 33.1 | 2.0 | 6.4 | 13.5 | - | - | 16.2 | 7.0 |

APPENDIX V. DESTINATION OF EXPORTS OF CRUDE AND REFINED PRODUCTS FROM TRINIDAD AND TOBAGO, 1968
(all quantities in bbls)

| Country of Destination | Totals | % of Total Exports | Crude Petroleum Exported | L.P.G. | Aviation Turbine Fuels | Aviation Gasolines | Motor Gasolines | Kerosines | Gas & Diesel Fuels | Fuel Oils | Lubes & Greases | Asphaltic Products | Other Refined Products(1) and Petro-Chemicals |
|-----------------------------|--------------------|--------------------|--------------------------|----------------|------------------------|--------------------|-------------------|------------------|--------------------|-------------------|------------------|--------------------|---|
| North America: | | | | | | | | | | | | | |
| Canada | 2,142,170 | 1.472 | 5,658,000 | - | - | - | 641,369 | - | 494,352 | 797,507 | 208,792 | - | 150 |
| U.S.A. | 75,104,193 | 51.592 | 255,000 | - | 7,258,148 | - | 4,283,185 | 605,148 | 1,005,087 | 61,385,348 | 9,942 | - | 557,355 |
| Total N.A. | 77,246,363 | 53.064 | 5,913,000 | - | 7,258,148 | - | 4,924,534 | 605,148 | 1,499,439 | 62,182,855 | 218,734 | - | 557,505 |
| Central America | | | | | | | | | | | | | |
| Canal Zone | 1,326,754 | 0.912 | - | - | 84,358 | 12,079 | - | - | 371,863 | 858,454 | - | - | - |
| Costa Rica | 45,276 | 0.031 | - | - | 5,664 | 12,790 | - | 5,996 | - | - | 20,828 | - | - |
| Honduras | 60,339 | 0.041 | - | - | 8,959 | 2,500 | 1,000 | - | 16,861 | - | 31,019 | - | - |
| Other C.A. (2) | 103,887 | 0.071 | - | - | - | - | - | - | - | 26,631 | 37,487 | 10,163 | - |
| Total C.A. | 1,536,256 | 1.055 | - | - | 98,981 | 56,975 | 1,000 | 5,996 | 388,724 | 885,085 | 89,332 | 10,163 | - |
| South America | | | | | | | | | | | | | |
| Argentina | 275,046 | 0.189 | - | - | - | - | - | - | - | - | 275,046 | - | - |
| Brazil | 2,392,209 | 1.643 | - | - | 62,467 | - | 1,387,199 | - | - | 670,429 | 272,114 | - | - |
| Chile | 162,807 | 0.112 | - | - | - | - | - | - | - | 162,807 | - | - | - |
| French Guiana | 472,905 | 0.325 | - | 9,139 | - | 10,806 | 73,928 | 22,657 | 319,309 | 10,528 | 358 | 26,180 | - |
| Guyana | 3,366,441 | 2.313 | - | 25,909 | 5,076 | 21,931 | 289,302 | 203,999 | 757,548 | 2,052,120 | 1,589 | 7,894 | 1,073 |
| Surinam | 3,786,549 | 2.601 | - | 55,202 | 19,220 | 72,910 | 175,593 | 98,594 | 855,485 | 2,482,755 | 2,420 | 23,687 | 683 |
| Uruguay | 173,965 | 0.120 | - | - | - | 25,894 | - | 98,568 | 49,503 | - | - | - | - |
| Other S.A. (3) | 85,250 | 0.058 | - | - | - | 3,000 | 1,751 | - | 22,363 | 35,991 | 19,100 | 3,045 | - |
| Total S.A. | 10,715,172 | 7.361 | - | 90,250 | 86,763 | 134,541 | 1,927,773 | 423,818 | 2,004,208 | 5,414,630 | 570,627 | 60,806 | 1,756 |
| West Indian Is. | | | | | | | | | | | | | |
| British (4) | 2,057,526 | 1.413 | - | 51,671 | 160,042 | 61,700 | 284,131 | 430,454 | 371,214 | 574,834 | 90,128 | 31,170 | 2,184 |
| French (5) | 660,513 | 0.454 | - | 90,706 | - | 11,643 | 79,876 | 47,505 | 127,328 | 224,673 | 32,180 | 46,176 | 426 |
| Netherlands (6) | 2,166,499 | 1.488 | - | 915 | 1,125,744 | 98,511 | 136,725 | 5,200 | 528,455 | 270,949 | - | - | - |
| Puerto Rico | 4,073,944 | 2.799 | - | - | 410,474 | 1,330,460 | 1,344,759 | 861,283 | 12,505 | 114,463 | - | - | - |
| Virgin Islands | 1,249,962 | 0.859 | 1,070,000 | - | 63,732 | 10,330 | 165,890 | 191,188 | 79,710 | 739,112 | - | - | - |
| Other W.I. Is. (7) | 180,623 | 0.124 | - | 8,248 | 4,987 | - | 47,360 | - | 25,218 | 94,810 | - | - | - |
| Total W.I. Is. | 10,389,067 | 7.137 | 1,070,000 | 151,540 | 1,764,979 | 1,512,644 | 2,058,741 | 1,535,630 | 1,144,430 | 2,018,841 | 122,306 | 77,346 | 2,610 |
| Europe | | | | | | | | | | | | | |
| Belgium | 366,065 | 0.251 | - | - | - | - | 293,128 | - | - | - | 72,937 | - | - |
| Denmark | 2,310,733 | 1.587 | - | - | - | - | - | - | 2,310,733 | - | - | - | - |
| Federal Republic of Germany | 481,731 | 0.331 | - | - | - | - | 131,144 | - | 330,501 | - | - | - | 20,076 |
| Gibraltar | 324,702 | 0.223 | - | - | 12,630 | - | - | - | 30,726 | 281,346 | - | - | - |
| Greece | 154,844 | 0.106 | - | - | 154,844 | - | - | - | - | - | - | - | 117,897 |
| Italy | 117,697 | 0.081 | - | - | - | - | - | - | - | - | - | - | - |
| Malta | 219,426 | 0.151 | - | - | - | - | - | - | - | 219,426 | - | - | - |
| Netherlands | 1,217,110 | 0.836 | - | - | - | - | 290,163 | - | 444,961 | - | - | - | 481,986 |
| Spain | 247,901 | 0.170 | - | - | 247,901 | - | - | - | - | - | - | - | - |
| Sweden | 14,406,181 | 9.897 | - | - | 525,630 | 37,780 | 3,561,277 | 14,520 | 6,650,172 | 3,530,455 | 86,347 | - | - |
| U.K. | 7,098,980 | 4.877 | - | - | - | - | 4,778,627 | 80,450 | 712,417 | 1,188,287 | 76,904 | - | 262,295 |
| Other Europe (8) | 47,916 | 0.033 | - | - | 47,916 | - | - | - | - | - | - | - | - |
| Total Europe | 26,993,276 | 18.543 | - | - | 988,921 | 37,780 | 9,054,339 | 94,970 | 10,479,510 | 5,219,514 | 236,188 | - | 882,054 |
| Others | | | | | | | | | | | | | |
| Africa (9) | 2,629,850 | 1.806 | - | - | 556,478 | 83,675 | 357,712 | - | 807,266 | 814,358 | 10,361 | - | - |
| Canary Islands | 445,234 | 0.306 | - | - | - | - | - | - | 255,611 | 189,623 | - | - | - |
| Cape Verde Is. | 17,431 | 0.012 | - | - | 17,431 | - | - | - | - | - | - | - | - |
| Guam | 1,831,657 | 1.258 | - | - | 1,839,957 | - | - | 1,700 | - | - | - | - | - |
| Japan | 1,684,286 | 1.157 | - | - | 1,580,871 | - | - | - | - | - | - | - | 103,615 |
| Okinawa | 941,065 | 0.646 | - | - | 941,065 | - | - | - | - | - | - | - | - |
| Philippines | 139,648 | 0.096 | - | - | 139,648 | - | - | - | - | - | - | - | - |
| Taiwan | 524,165 | 0.360 | - | - | 524,165 | - | - | - | - | - | - | - | - |
| Total Others | 8,213,326 | 5.641 | - | - | 5,589,406 | 83,675 | 357,712 | 1,700 | 1,062,877 | 1,003,961 | 10,361 | - | 103,615 |
| Total Cargoes | 135,083,460 | 92.801 | - | 241,790 | 5,787,197 | 1,825,615 | 18,324,099 | 2,667,262 | 16,579,188 | 76,724,906 | 1,247,548 | 148,315 | 1,547,540 |
| Foreign Bunkers | 10,479,880 | 7.199 | - | - | 122,418 | 10,928 | - | 441 | 1,311,996 | 9,027,608 | 6,297 | - | 200 |
| Total Exports | 145,573,340 | 100.000 | - | 241,790 | 5,909,615 | 1,836,541 | 18,324,099 | 2,667,703 | 17,891,184 | 85,752,508 | 1,253,845 | 148,315 | 1,547,740 |

Tacupita Fuel
(Fuel Oils)
Transhipped

288,156 of which 174,127 went to U.S. 79,558 went to Canal Zone; and 34,471 went to Surinam.

Note (1) Total Exports of "Other Refined Products" was 4,283 barrels

1,073 Guyana; 683 Surinam
1,901 British West Indies
426 French West Indies
200 Foreign Bunkers

Note (2) Other Central America: British Honduras (10,163); El Salvador (31,087); Guatemala (11,727); Mexico (17,879) and Panama (33,031).

Note (3) Other South America: Colombia (25,949); Falkland Islands (56,256) and Venezuela (3,045).

Note (4) British: Antigua, Bahamas, Barbados, Bermuda, Dominica, Grand Cayman, Grenada, Jamaica, Montserrat, St. Kitts, St. Lucia and St. Vincent.

Note (5) French: Guadeloupe, Martinique, St. Maarten.

Note (6) Netherlands: Aruba; Curacao.

Note (7) Other West Indian Islands: Dominica Republic (125,813) and Haiti (54,810).

Note (8) Other Europe: Cyprus (28,157) and Turkey (19,759).

Note (9) Africa: Cameroon, Congo, Dahomey, Gambia, Ghana, Guinea, Liberia, Libya, Morocco, Mozambique, Nigeria, Republic of Congo, Senegal, Sierra Leone, South Africa, Spanish Sahara, Togo, Tunisia.

APPENDIX VI. MOVEMENT OF REFINERY PRODUCTS - 1968
(quantities in barrels)

| Inventory Name | Opening Inventory | Production | Imports | Total | Purchases etc. from other Pete. Mark. | Sales etc. to other Pete. Mark. | Local Consumption | | | | Exports | | Gains and Losses | Closing Inventory | Totals |
|-----------------------------|----------------------|--------------------|------------------------|------------------------|---------------------------------------|---------------------------------|-------------------|------------------|----------------|------------------|----------------------|-------------------|--------------------|---------------------|----------------------|
| | | | | | | | Own Use | Retailer etc. | Local Bunkers | Total | Cargoes | Foreign Bunkers | | | |
| Liquidified Gases | 2,049 | 364,938 | - | 366,987 | 257,690 | 257,690 | 591 | 124,281 | - | 124,872 | 241,790 | - | (842) | 1,167 | 366,987 |
| Aviation Gasolines | 78,679 | 1,850,536 | - | 1,929,215 | 101,189 | 101,189 | - | 17,126 | 416 | 17,542 | 1,825,615 | 10,926 | 14 | 75,118 | 1,929,215 |
| Motor Gasolines | 1,091,597 | 19,580,601 | 31,738 | 20,703,936 | 1,948,640 | 1,948,640 | 16,535 | 1,217,874 | - | 1,234,409 | 18,321,000 | - | 1,757 | 1,146,770 | 20,703,936 |
| Domestic Gasoline | 1,032 | 20,302 | - | 21,334 | 18,662 | 18,662 | 111 | 17,232 | - | 17,343 | 3,099 | - | 6 | 886 | 21,334 |
| Aviation Turbine Fuels | 296,153 | 16,302,489 | 53,384 | 16,652,026 | 750,211 | 750,211 | - | 163,843 | 121,934 | 285,777 | 15,787,197 | 122,418 | (248) | 456,882 | 16,652,026 |
| Kerosene | 284,956 | 2,686,847 | 64,779 | 3,036,582 | 554,062 | 544,062 | 879 | 261,778 | - | 262,657 | 2,570,100 | 441 | 686 | 202,698 | 3,036,582 |
| White Spirit | 7,341 | 4,616 | - | 11,957 | 4,508 | 4,508 | 2,390 | 4,461 | - | 6,851 | 2,187 | - | 8 | 2,911 | 11,957 |
| Vaporizing Oil | 14,778 | 88,694 | - | 103,472 | 6 | 6 | - | 6 | - | 6 | 94,975 | - | - | 8,491 | 103,472 |
| Gas Oil | *945,256 | 17,055,257 | - | 18,000,513 | 2,626,799 | 2,626,799 | 86,288 | 345,407 | 70,868 | 502,563 | 16,525,468 | 369,788 | 10,366 | 592,328 | 18,000,513 |
| Marine Diesel | *106,269 | 1,012,992 | - | 1,119,261 | 1,105,078 | 1,105,078 | 234 | 11,124 | 13,154 | 24,512 | 53,720 | 942,208 | (12,459) | 111,280 | 1,119,261 |
| Fuel Oils | *2,084,798 | 85,337,455 | 1,636,340 | 89,058,593 | 15,297,453 | 15,297,453 | 22,552 | 206,289 | - | 228,841 | 76,724,906 | 9,027,602 | (20,011) | 3,097,255 | 89,058,593 |
| Tucupita Fuels ¹ | 206,062 ¹ | - | 1,002,005 ¹ | 1,208,067 ¹ | - | 894,112 ¹ | - | - | - | - | 288,156 ¹ | - | 2,720 ¹ | 23,079 ¹ | 313,955 ¹ |
| Lubes and Greases | 238,098 | 1,093,524 | 49,420 | 1,381,042 | 16,597 | 16,597 | 11,314 | 49,995 | 23 | 61,332 | 1,247,548 | 6,297 | 1,168 | 64,697 | 1,381,042 |
| Asphalt Products | 48,957 | 198,908 | 5,793 | 253,658 | 193,401 | 193,401 | 857 | 78,565 | - | 79,422 | 148,315 | - | 33 | 25,888 | 253,658 |
| Unfinished Oils | 809,531 | (171,266) | 68,758 | 707,023 | - | - | 1,876 | - | - | 1,876 | - | - | 394 | 704,753 | 707,023 |
| Petrochemicals | 244,711 | 1,514,757 | 19,896 | 1,779,364 | 2,690 | 2,690 | - | 3,832 | - | 3,832 | 1,543,457 | - | (68) | 232,143 | 1,779,364 |
| Other Finished Products | 14,831 | 47,577 | 3,052 | 65,460 | 25,644 | 25,644 | 3,482 | 28,279 | - | 31,761 | 4,083 | 200 | 510 | 28,906 | 65,460 |
| TOTAL | 6,269,036 | 146,988,227 | 1,933,160 | 155,190,423 | 22,902,630 | 22,902,630 | 147,109 | 2,530,092 | 206,395 | 2,883,596 | 135,093,460 | 10,479,880 | (18,686) | 6,752,173 | 155,190,423 |

() Brackets indicate a negative quantity

¹Not included in TOTAL

*Note: Statistics given for year 1967 do not include the following adjustments on behalf of Chaguaramas Terminals Limited

| Product | Gains and Losses | Closing Stock |
|------------------------|------------------|---------------|
| Gas Oil | 13 more | 13 less |
| Marine Diesel | 99 less | 99 more |
| Fuel Oil | 1,279 less | 1,279 more |
| Totals of all Products | 1,365 less | 1,365 more |

APPENDIX VII. MOVEMENT OF CRUDE AND C.H.P.S. - YEAR ENDING 31ST DECEMBER, 1968

(all quantities in barrels)

| Month | Production | Imports | Decrease In Inventories | TOTALS | Purchases and Exchanges from other Companies | Sales and Exchanges to other Companies | Own Use | To Refinery | Exports | Gains and Losses | TOTAL |
|-----------|------------|------------|-------------------------------|-------------|--|--|------------|----------------|-----------|------------------------|-------------|
| January | 5,964,353 | 7,320,505 | 47,898 | 13,332,756 | 3,664,652 | 3,664,652 | 1,301 | 12,736,607 | 483,106 | 111,742 | 13,332,756 |
| February | 5,593,132 | 6,761,962 | 126,088 | 12,481,182 | 3,498,975 | 3,498,975 | 690 | 12,066,890 | 357,798 | 55,804 | 12,481,182 |
| March | 5,888,525 | 6,623,587 | 183,556 | 12,695,668 | 3,069,755 | 3,069,755 | 1,255 | 11,846,875 | 768,894 | 78,644 | 12,695,668 |
| April | 5,612,317 | 7,636,485 | 54,883 | 13,303,685 | 3,745,179 | 3,745,179 | 2,034 | 12,683,371 | 509,977 | 108,303 | 13,303,685 |
| May | 5,735,795 | 6,986,408 | 768,657 | 13,490,860 | 3,760,235 | 3,760,235 | 1,713 | 12,696,422 | 733,392 | 59,333 | 13,490,860 |
| June | 5,483,243 | 8,180,041 | (576,342) | 13,086,942 | 3,475,176 | 3,475,176 | 1,098 | 12,327,307 | 628,464 | 130,073 | 13,086,942 |
| July | 5,710,784 | 8,192,906 | (429,330) | 13,474,360 | 3,717,211 | 3,717,211 | 2,142 | 12,868,177 | 514,746 | 89,295 | 13,474,360 |
| August | 5,679,565 | 7,697,292 | 408,023 | 13,784,880 | 3,546,500 | 3,546,500 | 1,761 | 13,078,654 | 604,652 | 99,813 | 13,784,880 |
| September | 5,395,752 | 7,501,484 | 313,819 | 13,211,055 | 3,629,251 | 3,629,251 | 1,098 | 12,740,079 | 389,689 | 80,189 | 13,211,055 |
| October | 5,396,752 | 8,536,095 | (787,164) | 13,145,683 | 3,694,388 | 3,694,388 | 1,729 | 12,408,021 | 652,895 | 83,038 | 13,145,683 |
| November | 5,257,038 | 7,219,915 | 1,018,365 | 13,495,318 | 3,689,932 | 3,689,932 | 1,316 | 12,849,921 | 537,802 | 106,279 | 13,495,318 |
| December | 5,350,327 | 8,790,035 | (312,259) | 13,828,103 | 3,699,351 | 3,699,351 | 988 | 12,979,774 | 801,369 | 45,972 | 13,828,103 |
| TOTAL | 67,067,583 | 91,446,715 | 816,194 | 159,330,492 | 43,190,605 | 43,190,605 | 17,125 | 151,282,098 | 6,982,784 | 1,048,485 | 159,330,492 |

Note: Brackets indicate negative quantities

APPENDIX VIII. SUMMARY OF CRUDE OIL ASSESSED FOR CROWN ROYALTY WITH PRICES AND ANALYSES - 1968
(FOR HALF YEARLY ASSESSMENT PERIODS ENDING 30TH JUNE AND 31ST DECEMBER)
 1 Barrel = 34.9726 I.G.

| Company | Net Royalty Production bbls. | ROYALTY | | | SUB DIVISION OF (ROYALTY) CRUDE INTO PRODUCTS AS PER R. L. E. I. ANALYSIS | | | | | | | | | | | Crude Oil Weighted Average Gravity A. P. I. |
|---|---------------------------------|-----------------------|----------------------|---------------------------|---|-----------------|---|-------------------------|-------------------------|-------------------------|------------------------|-------------------------|-----------------|-------------------|-----------------|---|
| | | 10% Assessed bbls. | Value \$ | Average Price \$/bbls. | Light Fractions | | | Gas Oil | | | | | Fuel Oil | | | |
| | | | | | Quantity bbls. | Per- centage | Tetra Ethyl Lead to blend to 70/72 Oct- ane Gasoline mls. | 53-57 D. I. bbls. | 48-52 D. I. bbls. | 43-47 D. I. bbls. | No. 2 Fuel bbls. | Total Gas Oils bbls. | Per- centage | Quantity bbls. | Per- centage | |
| Apex (Trinidad) Oilfields Limited | 516,316 | 51,632 | 256,529.74 | 4.97 | 6,438 | 12.47 | 50,534.17 | - | - | - | 16,527 | 16,527 | 32.01 | 28,667 | 55.52 | 23.1 |
| Dominion Oil Limited | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Kern Trinidad Oilfields Limited | 168,228 | 16,823 | 58,616.41 | 3.48 | 1,292 | 7.68 | 30,588.41 | 56 | 165 | 4 | - | 225 | 1.34 | 15,306 | 90.98 | 17.6 |
| Premier Consolidated Oilfields Limited | 52,850 | 5,285 | 19,874.39 | 5.46 | 1,480 | 28.00 | 29,958.84 | 551 | - | 497 | 528 | 1,576 | 29.80 | 2,229 | 42.20 | 32.7 |
| Estate of Timothy Roodal | 265 | 27 | 119.61 | 4.43 | 1 | 2.50 | - | - | - | - | 8 | 8 | 29.70 | 18 | 87.80 | 20.1 |
| Shell Trinidad Limited | 1,691,935 | 169,193 | 859,477.71 | 5.08 | 44,386 | 26.20 | 1,345,570.40 | 19,902 | - | 9,546 | 8,963 | 38,411 | 22.70 | 86,396 | 51.10 | 29.0 |
| Trinidad Canadian Oilfields Limited | 296,316 | 29,632 | 152,984.09 | 5.16 | 10,383 | 35.00 | 302,675.59 | 106 | 263 | 847 | 4,197 | 5,413 | 18.30 | 13,826 | 46.70 | 30.3 |
| Trinidad Northern Areas Limited | 11,740,531 | 1,174,053 | 5,281,058.64 | 4.50 | 220,563 | 18.80 | 7,832,841.49 | 177,694 | - | - | - | 177,694 | 15.10 | 775,796 | 66.10 | 26.1 |
| Trinidad Petroleum Development Company Limited | 2,568,857 | 256,886 | 1,157,045.95 | 4.77 | 28,343 | 11.03 | 356,418.23 | 1,122 | - | 418 | 71,560 | 73,100 | 28.46 | 155,443 | 60.51 | 23.7 |
| Texaco Trinidad Inc. | 15,330,084 | 1,533,009 | 8,336,285.74 | 5.44 | 271,554 | 17.70 | 7,342,377.37 | 306,928 | 96,260 | - | 169,250 | 572,438 | 37.30 | 689,017 | 45.00 | 29.4 |
| Total and Averages for First Half Year | 32,365,382 | 3,236,540 | 16,121,992.28 | 5.01 | 584,440 | 18.06 | 17,290,964.50 | 506,359 | 96,688 | 11,312 | 271,033 | 885,392 | 27.35 | 1,766,708 | 54.59 | 27.6 |
| Apex (Trinidad) Oilfields Limited | 483,184 | 48,318 | 217,851.19 | 4.51 | 5,582 | 11.55 | 51,697.16 | - | - | - | 14,938 | 14,938 | 30.92 | 27,798 | 57.53 | 23.1 |
| Dominion Oil Limited | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Kern Trinidad Oilfields Limited | 165,848 | 16,585 | 50,296.95 | 3.03 | 1,109 | 6.69 | 27,717.32 | 63 | - | 132 | - | 195 | 1.17 | 15,281 | 92.14 | 17.6 |
| Premier Consolidated Oilfields Limited | 34,384 | 3,439 | 16,425.12 | 4.83 | 793 | 23.06 | 15,698.91 | - | - | 486 | 447 | 933 | 27.13 | 1,713 | 49.81 | 27.7 |
| Estate of Timothy Roodal | 278 | 28 | 113.61 | 4.06 | 1 | 2.50 | - | - | - | - | 8 | 8 | 29.70 | 19 | 87.80 | 20.1 |
| Shell Trinidad Limited | 1,587,228 | 158,723 | 773,364.50 | 4.87 | 42,767 | 26.90 | 1,122,007.10 | 20,620 | - | 9,448 | 7,496 | 37,564 | 23.70 | 78,392 | 49.40 | 29.2 |
| Trinidad Canadian Oilfields Limited | 310,406 | 31,041 | 147,201.76 | 4.74 | 9,726 | 31.33 | 270,881.90 | - | - | - | 5,368 | 5,368 | 17.29 | 15,947 | 51.38 | 29.3 |
| Trinidad Northern Areas Limited | 12,480,102 | 1,248,010 | 5,075,447.76 | 4.07 | 231,600 | 18.50 | 8,402,703.12 | - | 168,082 | - | - | 168,082 | 13.40 | 848,328 | 68.10 | 19.9 |
| Trinidad Petroleum Development Company Limited | 2,293,779 | 229,378 | 1,022,320.53 | 4.46 | 26,369 | 11.50 | 298,779.17 | - | - | 2,502 | 65,740 | 68,242 | 29.75 | 134,767 | 58.75 | 23.7 |
| Texaco Trinidad Inc. | 13,441,527 | 1,344,152 | 6,754,573.53 | 5.03 | 223,054 | 16.59 | 5,426,335.86 | 236,834 | 91,011 | 420 | 166,929 | 495,194 | 36.84 | 625,904 | 46.57 | 28.9 |
| Totals and Averages for Second Half Year | 30,796,736 | 3,079,674 | 14,057,594.95 | 4.57 | 541,001 | 17.57 | 15,615,820.54 | 257,517 | 259,093 | 12,988 | 260,926 | 790,524 | 25.67 | 1,748,149 | 58.76 | 27.9 |
| YEARS TOTALS AND AVERAGES | 63,162,118 | 6,316,214 | 30,179,587.23 | 4.78 | 1,125,441 | 17.82 | 32,906,785.04 | 763,876 | 355,781 | 24,300 | 531,959 | 1,675,916 | 26.53 | 3,514,857 | 55.65 | 27.7 |

APPENDIX IX. ROYALTY ASSESSMENT

The Royalty assessed on the crude oil, natural gasoline and natural gas produced on Crown Oil Mining Leases for each half yearly period during 1966, 1967 and 1968 is shown in the following table:-

| Source of Revenue | Assessment for Half-yearly Period Ending | | | | | |
|--|--|---------------|------------------|---------------|------------------|---------------|
| | 31.12.68 | 30. 6.68 | 31.12.67 | 30. 6.67 | 31.12.66 | 30. 6.66 |
| Royalty on Natural Gas | 319,981.83 | 324,853.16 | 304,837.87 | 311,518.47 | 304,664.80 | 261,360.07 |
| Royalty on Natural Gasoline | 42,054.10 | 41,530.06 | 44,121.56 | 45,735.22 | 47,316.53 | 41,923.98 |
| Minimum Rents not offset by Royalty on Crude Oil | 446,159.93 | 446,159.93 | 574,291.72 | 490,290.64 | 512,561.57 | 536,466.51 |
| Royalty on Crude Oil | 14,057,594.95 | 16,121,992.28 | 14,675,919.35 | 12,959,841.33 | 11,892,700.86 | 10,734,011.96 |
| Half-Yearly Total | 14,865,790.81 | 16,934,535.43 | 15,599,170.50 | 13,807,385.66 | 12,757,243.76 | 10,881,652.72 |
| Yearly Totals | \$ 31,800,326.24 | | \$ 29,406,556.16 | | \$ 24,331,006.14 | |

The Volumes upon which the above assessments were made are as follows:-

| Substance Assessed for Royalty | Unit | Half-Yearly Period Ending | | | | | |
|---------------------------------|---------|---------------------------|------------|------------|------------|------------|------------|
| | | 31.12.68 | 30. 6.68 | 31.12.67 | 30. 6.67 | 31.12.66 | 30. 6.66 |
| Natural Gas | M.C.F. | 21,332,121 | 21,656,875 | 20,322,524 | 20,813,498 | 20,310,985 | 16,957,229 |
| Natural Gasoline | I.G. | 2,101,916 | 2,124,466 | 1,906,982 | 2,148,531 | 2,500,739 | 2,361,822 |
| Crude Oil - Gross | bbl. | 30,818,288 | 32,195,689 | 32,121,344 | 28,838,063 | 26,848,095 | 24,799,419 |
| Crude Oil Used Free of Royalty | bbl. | 33,833 | 33,476 | 39,645 | 42,297 | 45,651 | 70,793 |
| Crude Oil Net | bbl. | 30,784,455 | 32,162,213 | 32,081,699 | 28,795,766 | 26,802,444 | 24,728,626 |
| Crude Oil Average Royalty Value | \$/bbl. | 4.57 | 5.01 | 4.60 | 4.51 | 4.45 | 4.35 |

The data used to evaluate crude oil for crown royalty assessment for each of the last six half-yearly periods together with the royalty rates on casing head petroleum spirit for each of these periods are shown in the following table:-

| Product | Average Price in T. & T. Currency per barrel of 34.9726 I.G. for half-year period ended | | | | | |
|--|---|------------|------------|-----------|-----------|-----------|
| | 31.12.68 | 30. 6.68 | 31.12.67 | 30. 6.67 | 31.12.66 | 30. 6.66 |
| Bunker C. Grade Fuel | 2.970749 | 3.467821 | 3.208750 | 3.364014 | 3.442070 | 3.434292 |
| No. 2 Fuel | 7.671884 | 8.175113 | 7.115781 | 6.807786 | 6.243289 | 6.152127 |
| 43 - 47 D.I. Gas Oil | 7.782137 | 8.284823 | 7.209370 | 6.898483 | 6.331677 | 6.242277 |
| 48 - 52 D.I. Gas Oil | 7.887798 | 8.389914 | 7.302959 | 6.988682 | 6.422032 | 6.332427 |
| 53 - 57 D.I. Gas Oil | 7.993458 | 8.495004 | 7.396547 | 7.078881 | 6.512386 | 6.422578 |
| 70 - 72 Oct. M. Leaded Motor Gas | 7.592638 | 7.385203 | 7.110694 | 6.851141 | 7.118350 | 6.674100 |
| Average Middle Rate for sight drafts on N.Y. Premiums in T. & T. per \$1.00 U.S. | 101.258424 | 100.172253 | 100.172253 | 71.807735 | 72.103534 | 71.714641 |
| Value of Tetra-Ethyl Lead in T. T. per millilitre. | 0.320961 | 0.323964 | 0.340357 | 0.340357 | 0.340357 | 0.340357 |
| Royalty in T. T cents per gallon on Casing Head Petroleum Spirit. | 2.132352 | 2.076715 | 1.998965 | 1.946406 | 2.010555 | 1.893711 |

The half-yearly volume of products to which the above average prices for 1968 were applied respectively in calculating royalty on Crude Oil will be found in Appendix VIII.

APPENDIX X. THE ASPHALT INDUSTRY

The following table shows, for the year 1966, 1967, and 1968, the quantity of Natural Asphalt extracted from the Pitch Lake and the quantities of derived products which were exported and consumed locally

- Tons -

| | | 1966 | 1967 | 1968 |
|--|----------------|----------------|----------------|----------------|
| NATURAL ASPHALT | | | | |
| Extracted by Works and Hydraulics Department for local use | | 67,022 | 53,491 | 51,176 |
| Extracted by the Trinidad Lake Asphalt Company | | 90,205 | 88,953 | 84,865 |
| TOTAL | | 157,227 | 142,444 | 136,041 |
| Derived Products Manufactured by the Company | | | | |
| EXPORTED | Crude Asphalt | - | 4 | - |
| | Dried Asphalt | 66,543 | 60,290 | 56,013 |
| | Cement Asphalt | 2,541 | 2,567 | 1,385 |
| | TOTAL | 69,084 | 62,861 | 57,398 |
| LOCAL SALES | Crude Asphalt | 562 | 610 | 529 |
| | Dried Asphalt | 310 | 299 | 340 |
| | Cement Asphalt | 17 | 73 | 55 |
| | TOTAL | 889 | 982 | 924 |

Note:- The above tabulations 1 long Ton = 2240 lbs.

APPENDIX 11
PRESENT ORGANIZATION
MINISTRY OF PETROLEUM & MINES

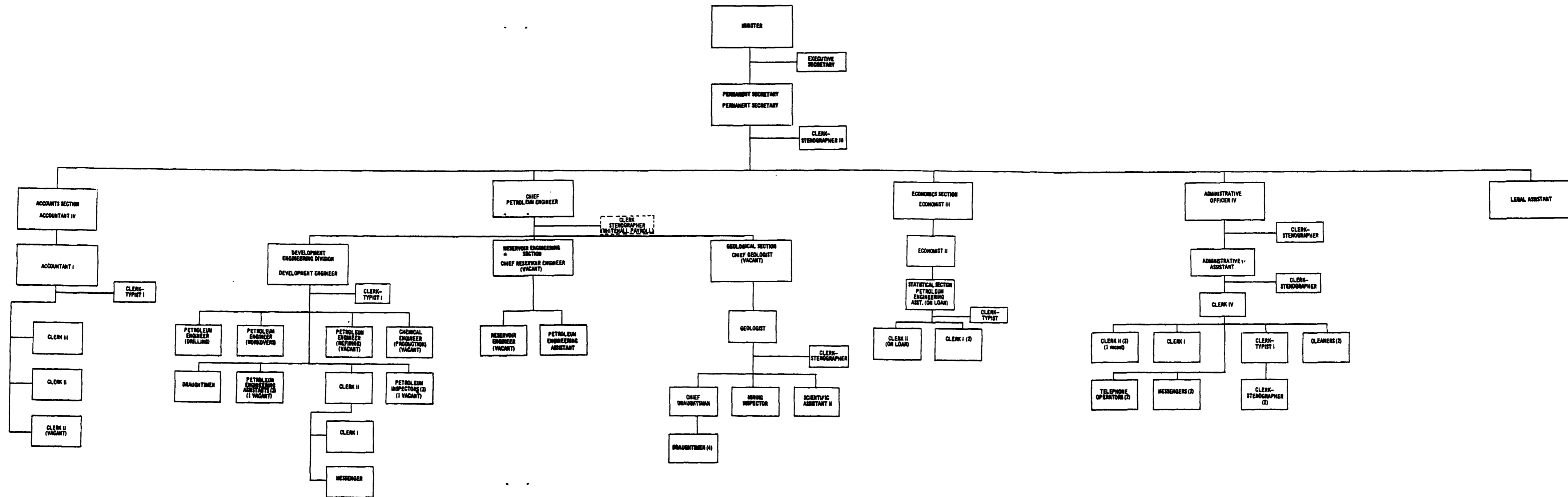


FIG. I
 MAP OF TRINIDAD AND TOBAGO
 SHOWING
 AREAS OF 1968 SEISMIC SURVEYS
 Scale - 1 : 500,000
 0 10 20 Miles

LEGEND

- ① Texaco Trinidad Inc.
- ② Gov't of Trinidad & Tobago/UN.D.P.
- ③ Pan American Trinidad Oil Co.
- ④ Mobil

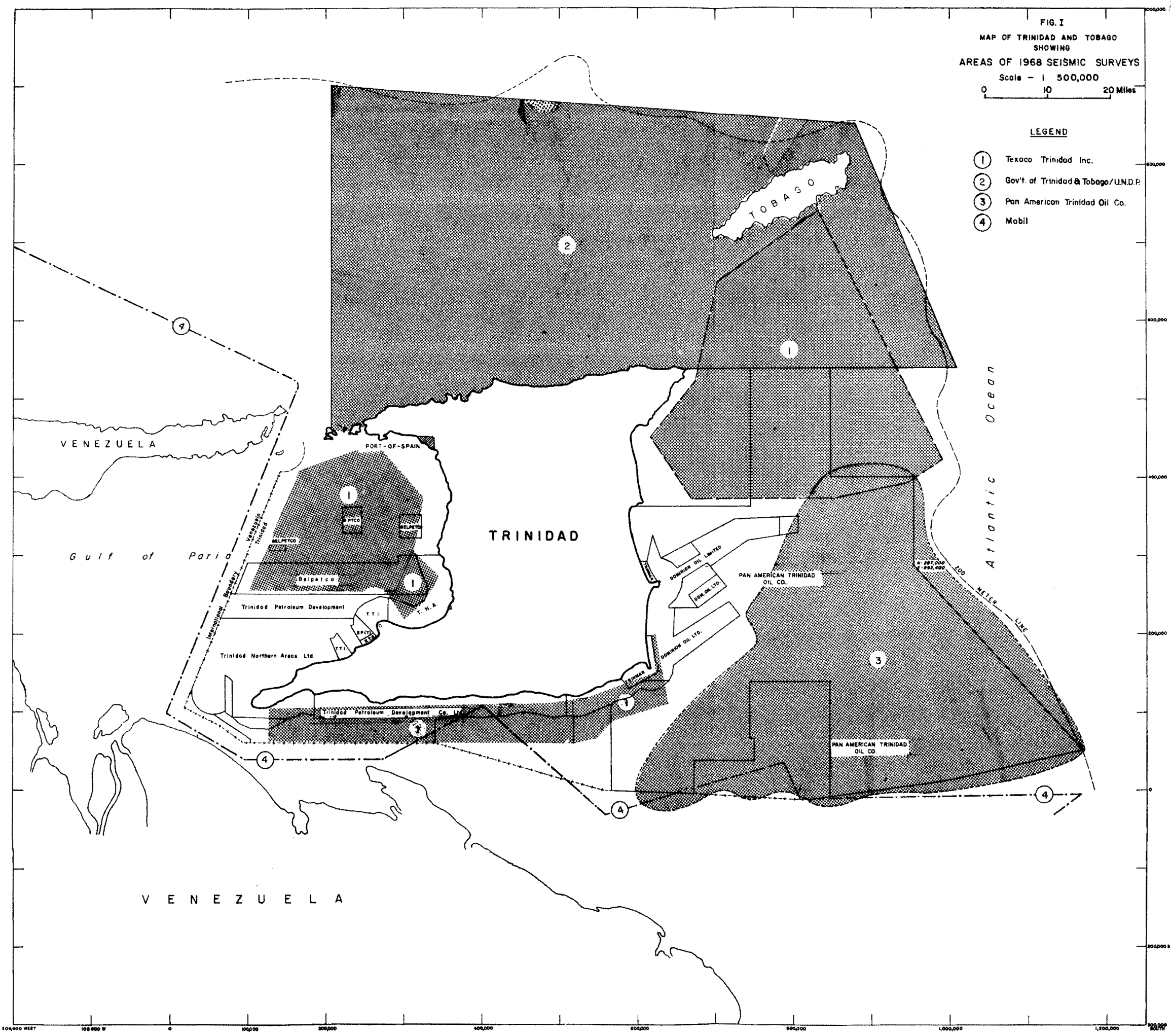


FIG. II

MINISTRY OF PETROLEUM AND MINES

CRUDE OIL PRODUCTION RATE BY MONTHS

JULY 1965 - DECEMBER 1968

(BARRELS PER DAY)

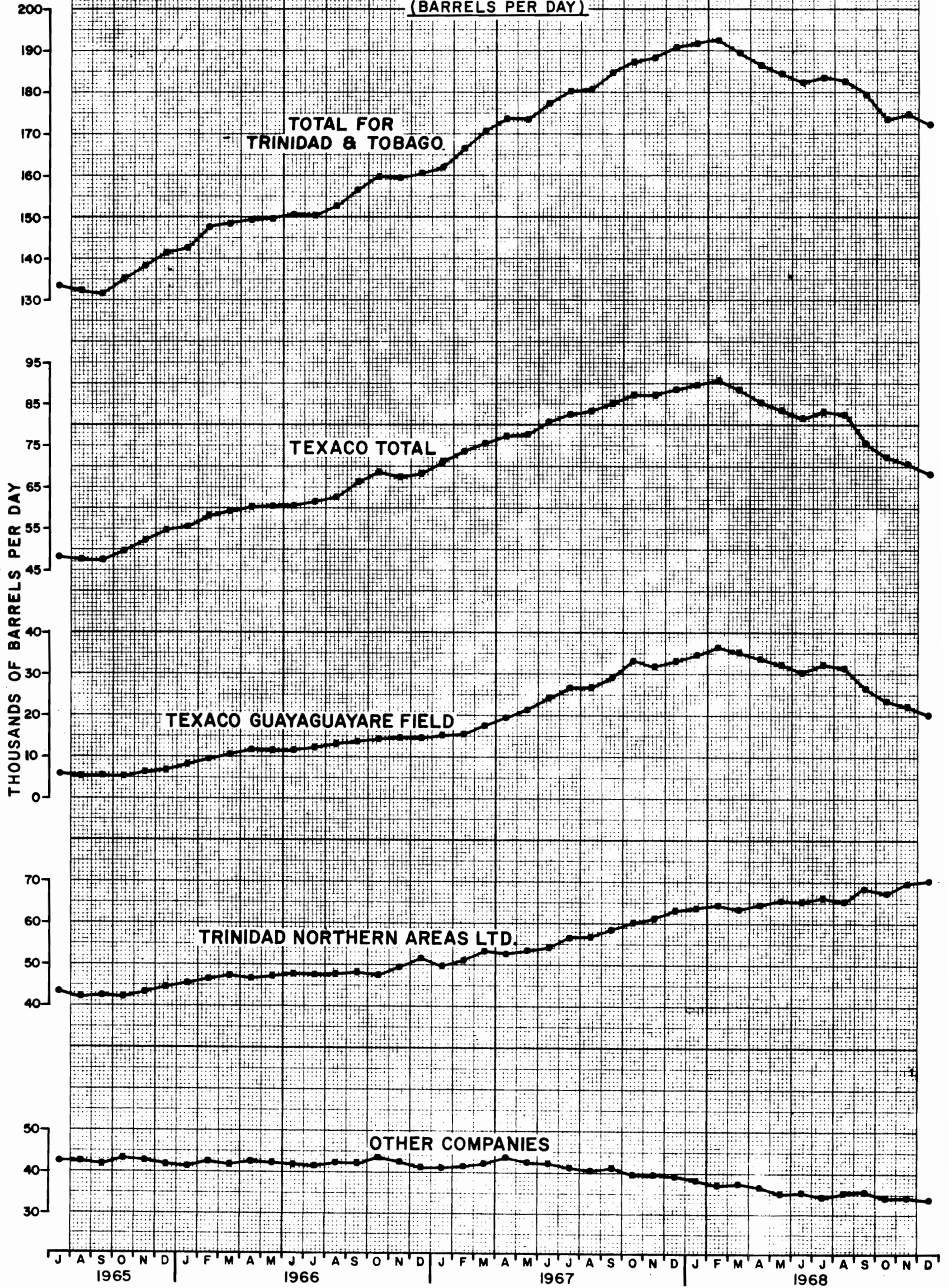


FIG. IV
MINISTRY OF PETROLEUM AND MINES
TRINIDAD AND TOBAGO CRUDE OIL PRODUCTION, 1968
DAILY AVERAGE BY MONTHS
COMPLETIONS, RECOMPLETIONS AND OTHER WELLS

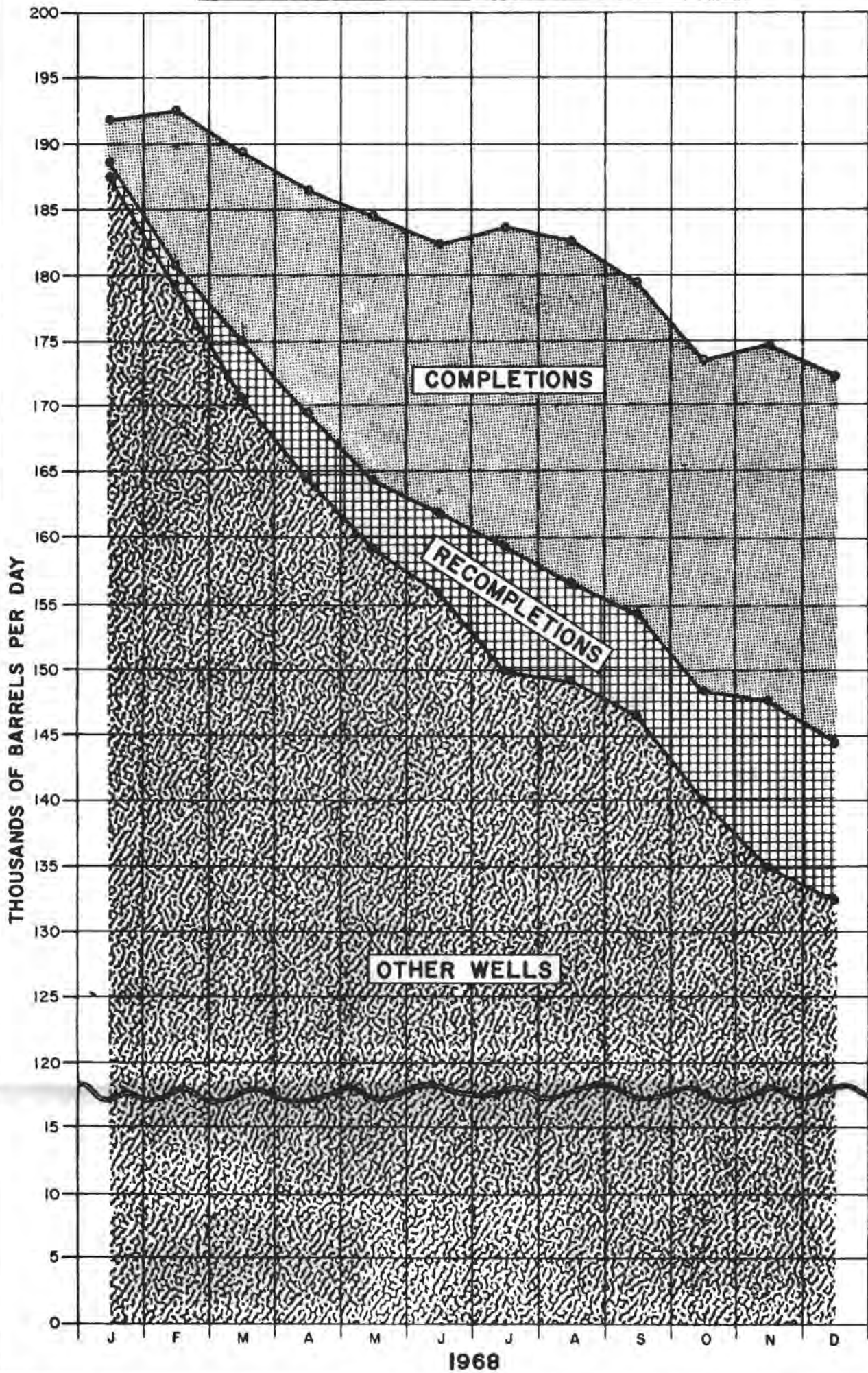


Fig. V
ANNUAL PRODUCTION AND INJECTION STATISTICS
FOR GAS AND WATER INJECTION PROJECTS
IN TRINIDAD AND TOBAGO
1957-1968

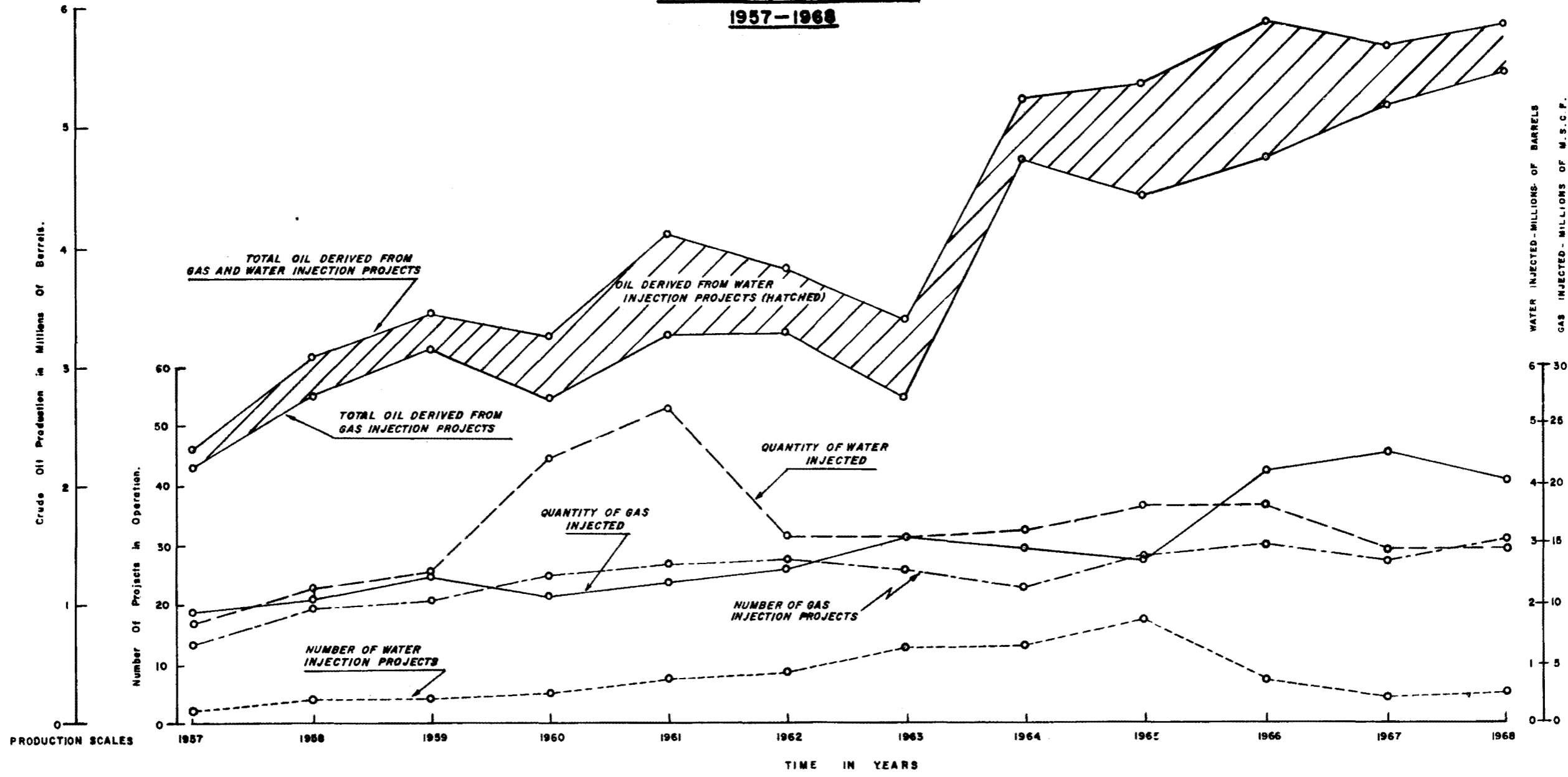
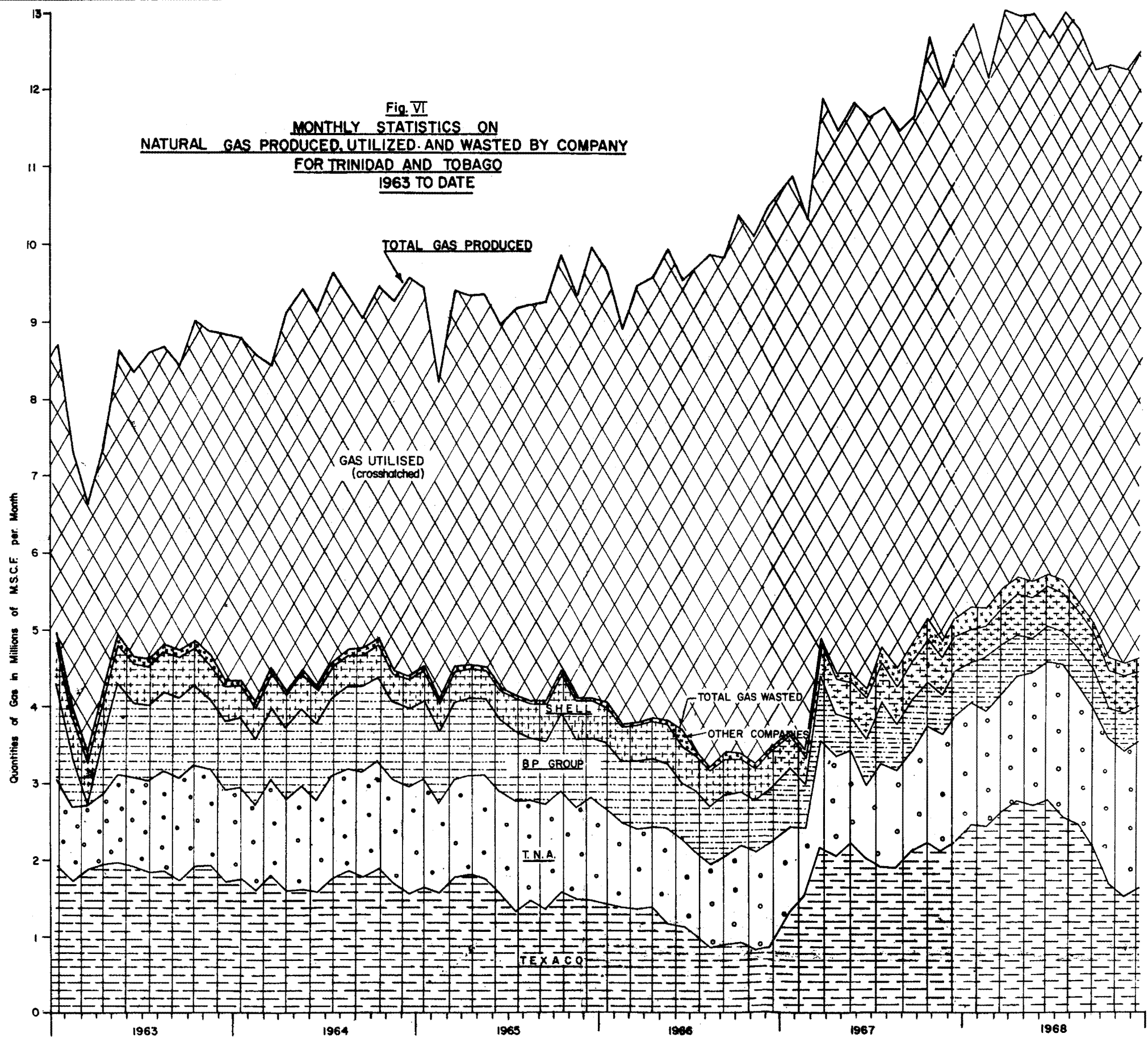


Fig. VI
**MONTHLY STATISTICS ON
 NATURAL GAS PRODUCED, UTILIZED AND WASTED BY COMPANY
 FOR TRINIDAD AND TOBAGO
 1963 TO DATE**










| | | | | | | | |
|---|--------------|---|----------|---|----------|---|-----------------|
|  | GAS UTILISED |  | TEXACO |  | BP GROUP |  | OTHER COMPANIES |
|  | GAS WASTED |  | T. N. A. |  | SHELL | | |

FIG. VII

STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

DRILLING

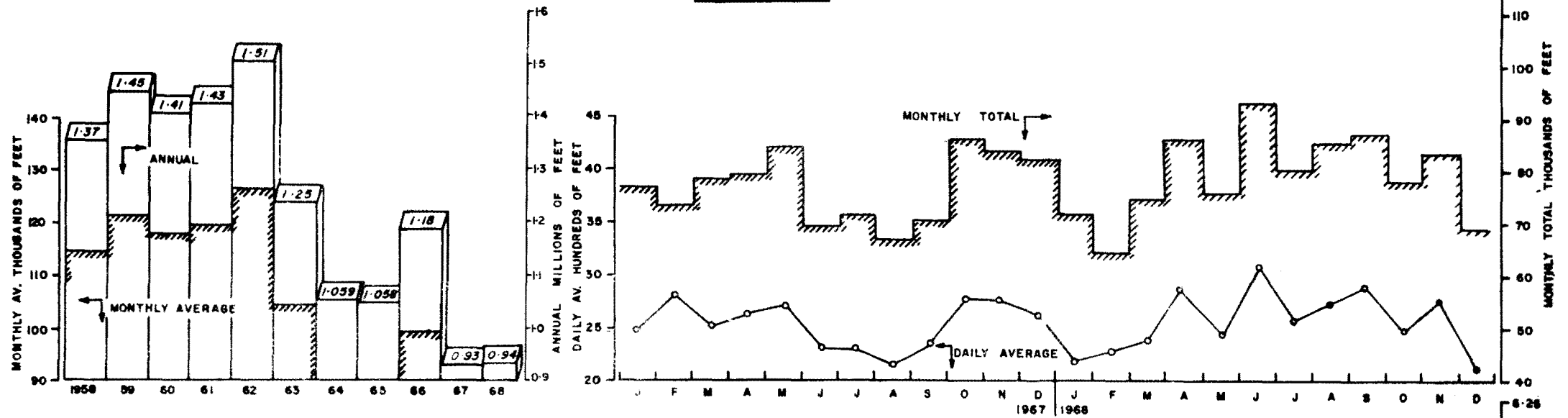


FIG. VIII

CRUDE OIL PRODUCTION

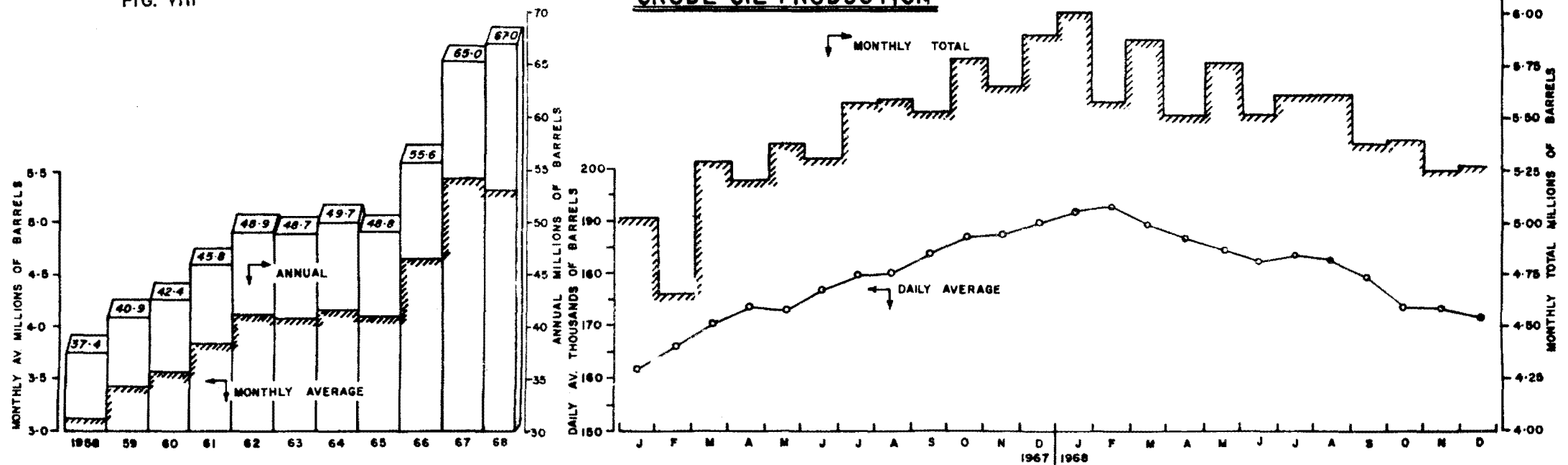


FIG. IX

STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

REFINERY THROUGHPUT

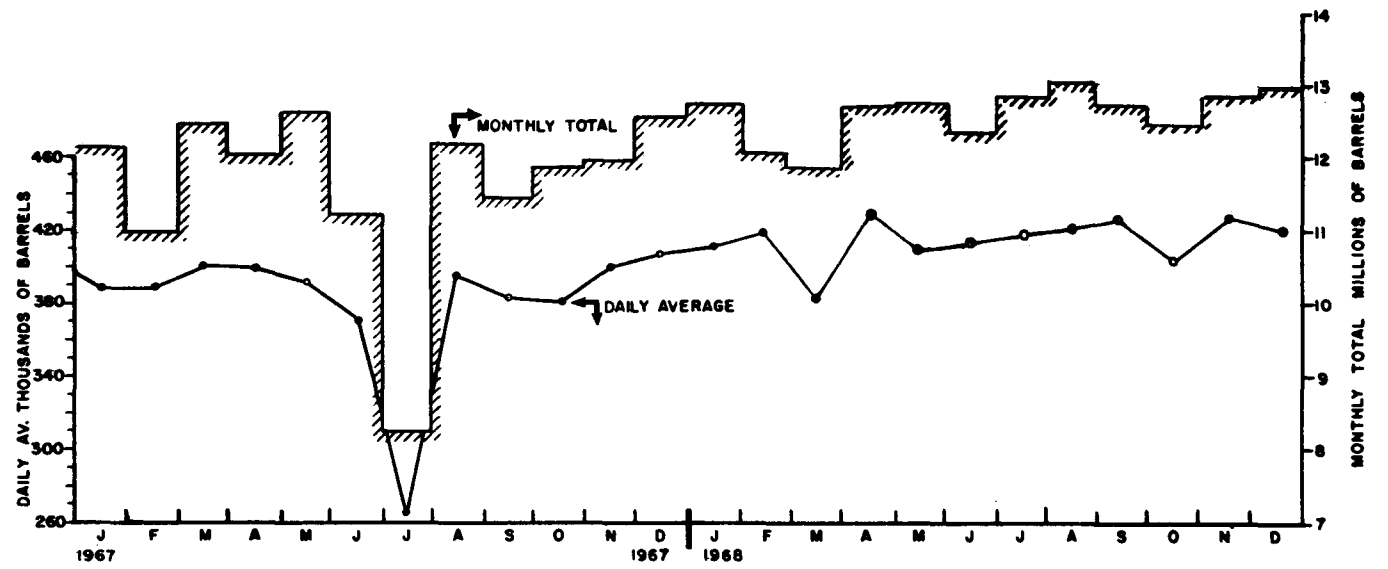
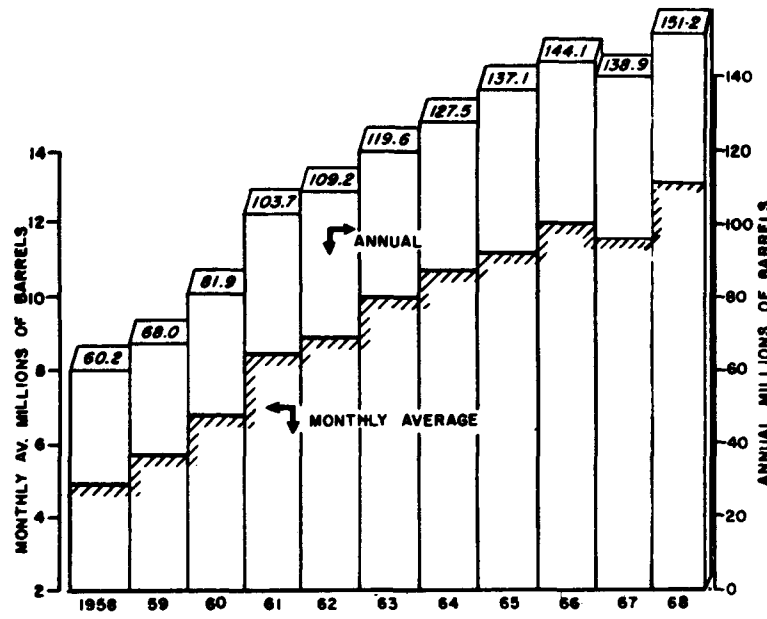


FIG. X

NATURAL GAS PRODUCTION

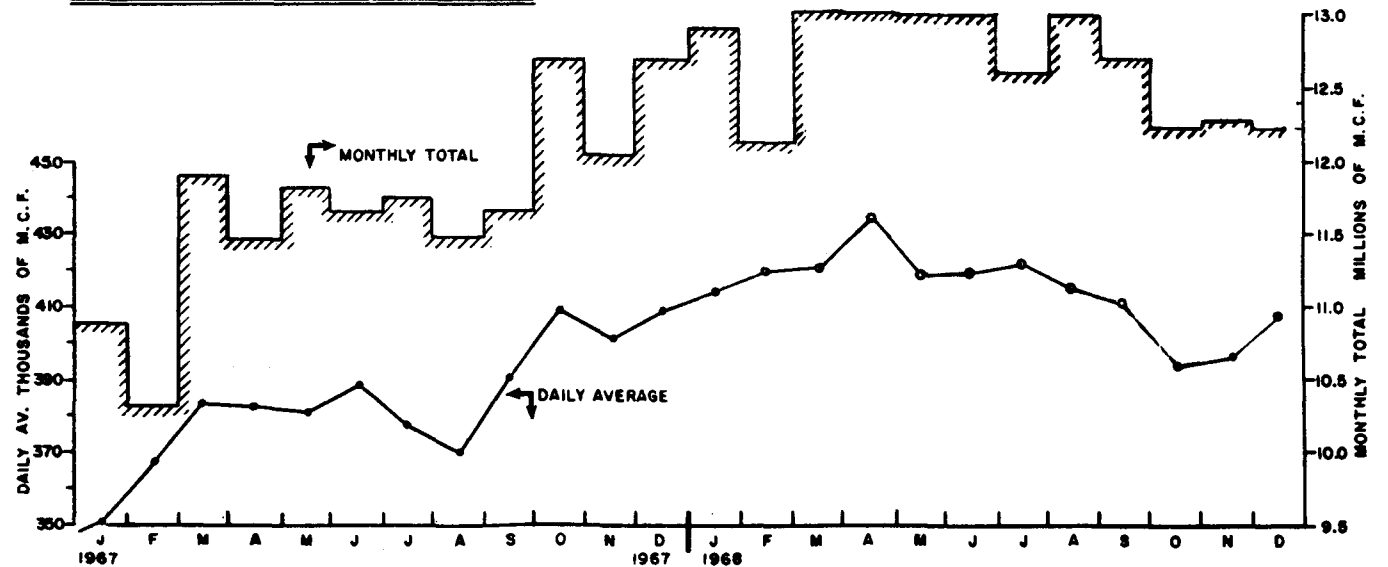
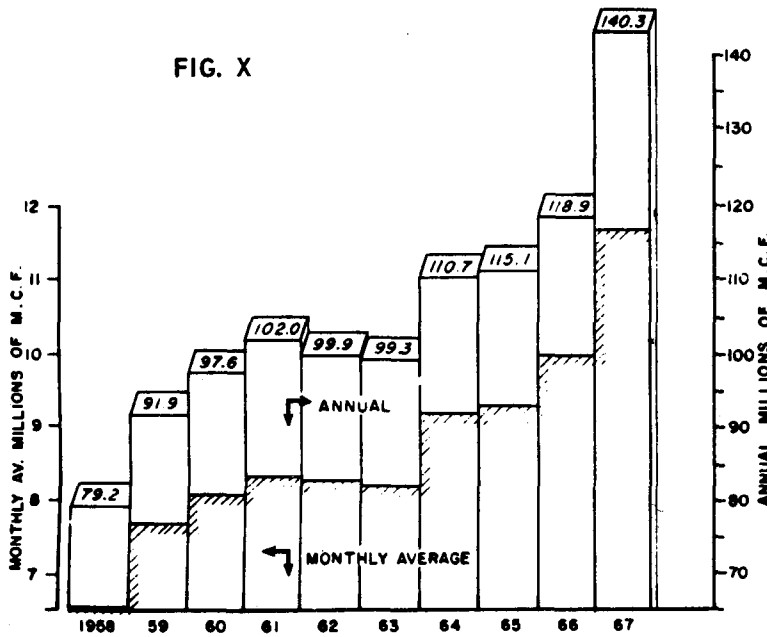


FIG. XI

STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

CRUDE OIL IMPORTS

- Legend**
 COL. - COLOMBIA
 S.A. - SAUDI ARABIA
 U.S.A. - UNITED STATES OF AMERICA
 F.W.A. - FEDERATED WEST AFRICA
 P. - PERU
 G. - GAMBIA
 IND. - INDONESIA
 L. - LIBYA
 Gab. - GABON
 N. - NIGERIA

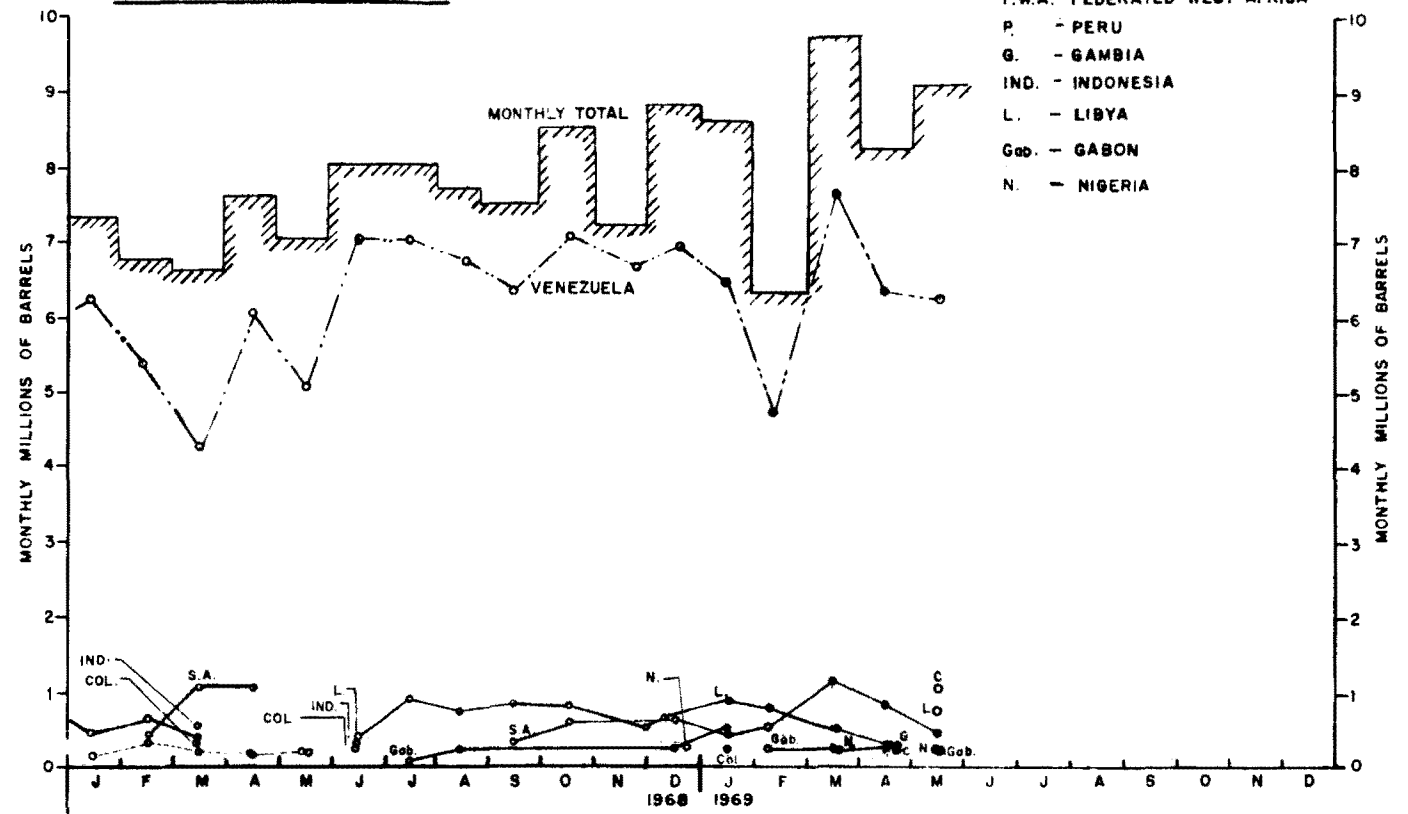
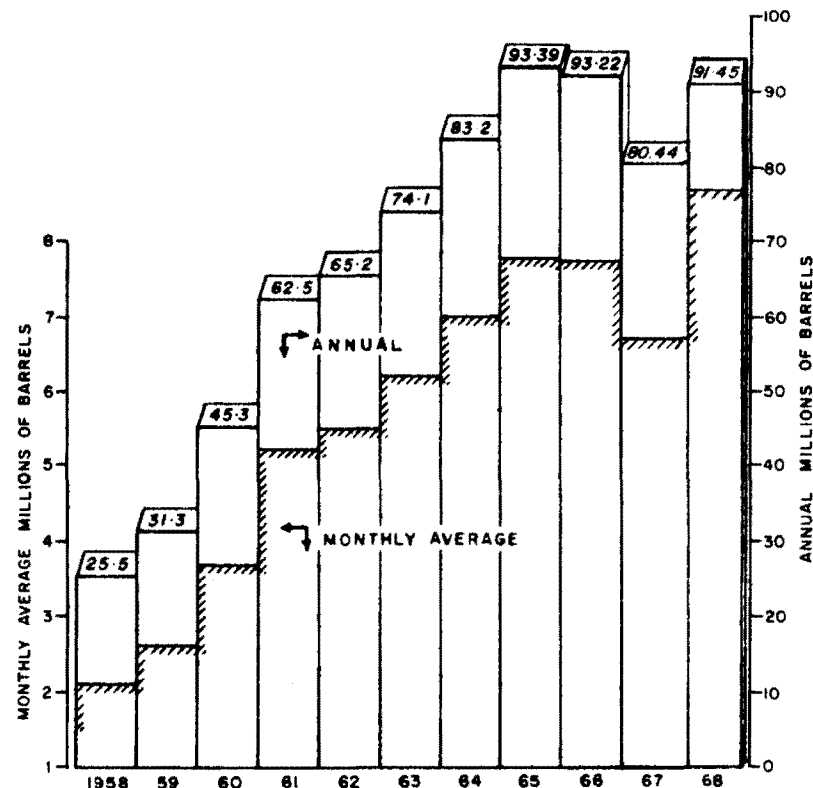
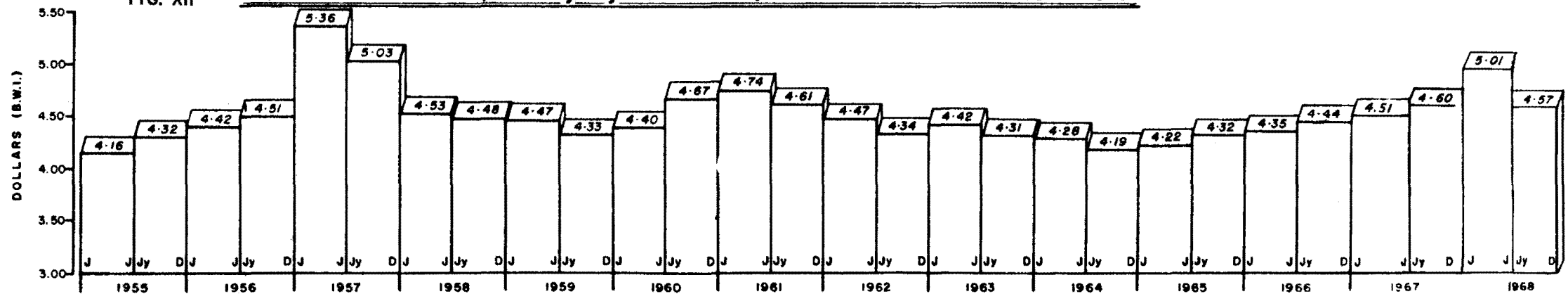


FIG. XII

AVERAGE VALUE * (For Royalty Evaluation) OF A BARREL OF CRUDE OIL

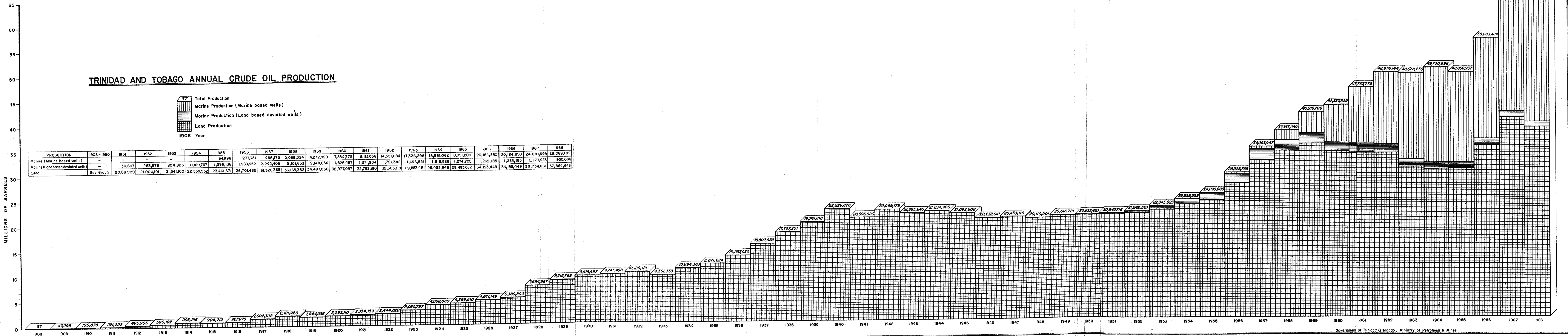


* AS DETERMINED BY THE METHOD OUTLINED IN THE LAND (OIL MINING) (AMENDMENT) REGULATIONS, 1953

TRINIDAD AND TOBAGO ANNUAL CRUDE OIL PRODUCTION

Total Production
 Marine Production (Marine based wells)
 Marine Production (Land based deviated wells)
 Land Production
 1908 Year

| PRODUCTION | 1908-1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | |
|------------------------------------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Marine (Marine based wells) | - | - | - | - | - | 34,996 | 237,351 | 495,173 | 2,088,024 | 4,272,920 | 7,554,775 | 11,113,058 | 14,551,684 | 17,328,298 | 18,981,062 | 18,091,200 | 20,184,850 | 20,184,850 | 24,081,998 | 28,089,192 |
| Marine (Land based deviated wells) | - | 30,807 | 253,579 | 804,823 | 1,069,797 | 1,399,138 | 1,989,952 | 2,242,405 | 2,101,653 | 2,148,856 | 1,825,457 | 1,871,904 | 1,721,342 | 1,496,521 | 1,316,988 | 1,274,705 | 1,265,185 | 1,265,185 | 1,177,923 | 950,066 |
| Land | See Graph | 20,811,909 | 21,004,101 | 21,541,100 | 22,559,532 | 23,461,671 | 26,701,465 | 31,326,369 | 33,165,382 | 34,497,030 | 32,977,097 | 32,782,810 | 32,603,118 | 29,432,948 | 29,493,032 | 34,153,449 | 34,153,449 | 39,734,661 | 37,864,648 | |



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