

TRINIDAD AND TOBAGO



MINISTRY OF ENERGY AND NATURAL RESOURCES

ANNUAL REPORT

FOR THE YEAR

1981

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FOREWORD

ANNUAL ADMINISTRATIVE REPORT 1981

Despite efforts made by the oil-producing companies during 1981 to at least maintain crude oil production levels, the total crude oil production during 1981 fell by about 11 percent from that of last year. Production from the marine areas continued to dominate the scene accounting for some 77 percent of the total production.

Natural gas production showed a slight decrease while utilization of produced natural gas increased from 65% in 1980 to 69.9% in 1981.

The Natural Gas Company installed two compressor platforms in the Teak and Poui field in the execution of the Flare Gas Project and also laid flexible pipelines which connected the two NGC platforms with the respective Amoco Platforms. At year end work was continuing on the support facilities and the compressors.

A 152 mm (6") gas pipeline was laid and a new major gas pipeline route was surveyed.

Continuing low demand for refinery products worldwide did have its effect on the local refining industry and this was reflected by an 18.9 percent drop in throughput for 1981 as compared with the previous year.

This year total petrochemical production registered a decrease of about 8 percent as compared with last year. Unfavourable market conditions and power disturbances were responsible to some extent for the decreased production. Production of nitrogenous fertilizers showed a decrease in 1981 mainly due to the effects of electrical outages and prolonged industrial action at one of the plants. Lack of adequate gas supply did contribute to a small extent towards the end of the year.

The Petroleum Taxes Act, 1974 was amended during 1981 in order to enhance the degree of State Administrative Control over the Petroleum Industry. Additionally an Exploration and Production Licence was granted to Trintoc in respect of offshore acreage and a pipeline licence was granted to Texaco.

The marine seismic survey which was being conducted by Western Geophysical in the offshore areas off the North and East Coast for and on behalf of the Government was completed in April. The survey covered some 13,000 line-km and commenced in October, 1980.

The Ministry wishes to thank all those organisations that in any way contributed towards the preparation of this report, and to record its appreciation of the co-operation displayed by all members of staff.

MINISTER OF ENERGY AND NATURAL RESOURCES

REPORT ON PETROLEUM INDUSTRY'S OPERATIONS
IN TRINIDAD AND TOBAGO

In Trinidad and Tobago, there was an increase in drilling activity during 1981 as compared to the previous year. There was an increase of 17.1 per cent in the cumulative depth drilled with 239 609 m (786,118 ft.) completed in 1981. Exploratory or semi-appraisal drilling accounted for 21 per cent with 50 353 m (165,199 ft.) penetrated while the other 79 per cent with 189 256 m (620,919 ft.) represented the development drilling activity for the year. In terms of rig activity, there was an increase of 7.8 per cent with a total of 169.3 rig months completed in 1981.

During the year there were two hundred and ten (210) well completions which represents an increase of 13.5 per cent over the previous year. Of these well completions, sixteen (16) were exploratory while one hundred and ninety-four (194) were development wells. Further these well completions could be classified as follows:—

- (i) one hundred and sixty-five (165) oil producers — six (6) exploratory and one hundred and fifty-nine (159) development
- (ii) four (4) gas producers — four (4) development
- (iii) twenty-seven (27) steam injectors
- (iv) fourteen (14) abandonments — ten (10) exploratory (including three (3) wells which tested gas) and four (4) development.

With thirty-nine (39) wells completed in a marine environment, this represented a decline of 20.4 per cent when compared with last year's figure of forty-nine (49) completions. Further, twelve (12) of the thirty-nine (39) marine completions were drilled as exploration of semi-appraisal wells.

Trinidad and Tobago Oil Company conducted 38.1 rig months of drilling activity and drilled 39 733 m (130,358 ft.) during the year and this total depth drilled represented a decrease of 8.5 per cent compared to the previous year. However, 1981 was a very significant year for Trinidad and Tobago Oil Company in that the company conducted a successful exploratory drilling programme in its recently acquired Block 9, North Coast Marine Acreage.

With technical assistance from Braspetro, the company drilled three (3) exploratory wells with a total depth drilled of 10 230 m (33 563 ft.) and discovered the Chaconia gas field located in 152 m (500 ft.) water depth. Further semi-appraisal drilling was conducted on land in the Point Fortin East, Catshill, Balata East and West and Inniss fields. The land exploratory depth drilled accounted for 48.2 per cent of the total exploratory depth of 19 749 m (64,794 ft.).

During 1981, Trinidad and Tobago Oil Company completed a total of thirty-five (35) wells of which four (4) were exploratory and thirty-one were development. There was one (1) oil producer among the exploration wells with the other three (3) being the successful gas discovery wells which were abandoned after testing. Among the wells drilled twenty-seven (27) were oil producers and five (5) were completed as steam injectors in the Parryland steam soak project.

Trinidad-Tesoro recorded 41.0 rig months of drilling activity and drilled a total depth of 91 511 m (300,233 ft.). The company drilled two (2) semi-appraisal wells — Guapo 990 and Palo Seco 1151 with a drilled depth of 4 484 m (14,700 ft.) and this represented 4.9 per cent of total drilled depth. Development drilling activity comprised of thermal wells in the Quarry, Fyzabad, Central Los Bajos, Coora and Apex-Quarry steam injection projects and non thermal wells in its other fields.

In terms of well completions, there was an increase of 2.8 per cent compared with 1980's figure; the company continued in its role as having the largest number of well completions, 110 in 1981, of all the operating oil companies in Trinidad. Of these one hundred and ten (110) well completions eighty-nine (89) were oil producers, twenty (20) were steam injection wells and one (1) was abandoned.

Texaco Trinidad Incorporated increased its level of drilling activity with three (3) rigs in operation completing 27.6 rig-months of activity. In spite of the 12.5 per cent increase in rig-months of drilling activity, the total depth drilled fell by 13.7 per cent to 31 239 m (102,490 ft.). Semi-appraisal drilling represented 4.6 per cent of the total depth

drilled with 1 420 m (4,660 ft.) drilled in the Mayaro-Guayaguayare area. The remaining 95.4 per cent or 29 819 m (97,831 ft.) depth drilled was in development drilling activity. There was a slight shift in the development drilling in that three (3) wells were drilled and completed as gas wells in Palo Seco and Mayaro to supplement the company's need for natural gas used in its refinery at Pointe-a-Pierre.

There were twenty-nine (29) well completions with twenty-two (22) oil producers, three (3) gas producers, two (2) steam injectors, one (1) abandonment and one (1) other.

Trinidad Northern Areas Limited (Trinmar) had increased its level of drilling activity with four (4) rigs – three (3) platforms, No. 18, 22 and 23 in the North Soldado area and the drilling jack-up barge TC 145. There was an almost doubling of the total depth drilled with 48 851 m (160,272 ft.) drilled in 1981. Exploration accounted for eleven (11) per cent of the total drilling activity with the initiation of the drilling of new geological prospects identified by the special exploration task force appointed in the previous year. At the year's end, two (2) of the wells were drilled and the third – San Fernando Bay – 1 a joint venture between Trinidad Northern Areas and Texaco Trinidad Incorporated was still being drilled. There were twenty-six (26) completions with twenty-four (24) oil producers – twenty-two (22) development and two (2) exploratory and two (2) abandonments.

Amoco Trinidad Oil Company decreased its drilling activity with 15.8 rig-months and 11 462 m (37,604 ft.) drilled depth for 1981. This sixty (60) per cent decline in drilled depth represents a near completion of the development of its three (3) discovered oilfields. However, in late 1981, the company initiated the first well of a proposed 3-well exploration programme in its search for new oilfields within its East Coast licenced area. This well, South Darien – 2 proved to be a dry hole and the company was engaged in its second well Galeota Ridge – 1 at year's end. Exploration drilling accounted for thirty (30) per cent of total depth drilled with 3 444 m (11,299 ft.). During the year there was a total of four (4) well completions – 2 oil producers, one (1) gas producer on Teak D and one abandonment.

In 1981, Mobil drilled two (2) exploratory wells, RLE-1 and RLW-1, as part of its work obligation in its production sharing granted by Government for block S-7 (the previously relinquished portion of the reversed "L-shaped" block on the East Coast). The company spent a total of 8.6 rig-months in drilling 7 959 m (26,111 ft.). During the drilling of these two (2) exploratory wells, the company experienced numerous problems which required the drilling of at least three (3) sidetrack wells before reaching the geological objective.

The Dato consortium with Tenneco as operator conducted 3.6 rig-months of exploratory drilling activity and penetrated 7 947 m (26,072 ft.). A total of four (4) wells was drilled in an effort to delineate the KK-4 and KK-6 gas fields in the North Coast Marine Area.

After a significant period of inactivity in the drilling of new wells, Premier Consolidated Oilfields Limited initiated a 3-well development programme in December 1981. By year's end, the company completed 0.6 rig-months of drilling activity with 907 m (2,977 ft.) penetrated.

TABLE 1
SUMMARY OF STATISTICS FOR TRINIDAD AND TOBAGO
PETROLEUM INDUSTRY – 1978 – 1981

| | 1978 | 1979 | 1980 | 1981 |
|--|-------------|-------------|-------------|-------------|
| Annual Crude Oil Production (bbls) | 83,777,503 | 78,249,474 | 77,612,960 | 69,107,289 |
| Annual Natural Gas Production (mscf) | 157,919,827 | 169,740,204 | 197,810,592 | 195,700,976 |
| Average G.O.R. (scf/bbls) | 1,885 | 2,169 | 2,549 | 2,832 |
| Annual C.H.P.S. (Natural Gasoline Production) (bbls) | 60,247 | 47,859 | 38,838 | 38,733 |
| Daily Refinery Capacity (bbls/day) | 456,000 | 456,000 | 456,000 | 456,000 |
| Annual Refinery Throughput (bbls/yr.) | 85,881,842 | 82,856,825 | 78,342,973 | 63,343,925 |
| Total Wells Completed During the Year | 215 | 184 | 185 | 210 |
| Average Depth of Completed Wells (Feet) | 3,868 | 4,252 | 3,557 | 3,702 |
| Total Footage Drilled During the Year | 895,098 | 797,182 | 674,187 | 786,118 |
| Oil and Gas Wells Completed During the Year | 170 | 156 | 146 | 169 |
| Drilling Success Ratio (per cent) | 79.1 | 84.8 | 78.9 | 80.5 |
| Average Rigs Running | 15.4 | 13.0 | 13.1 | 14.1 |

ANNUAL REVIEW, 1981

CRUDE OIL PRODUCTION

Trinidad and Tobago's crude oil production continued to decline throughout 1981 with the result that this year's volume of crude oil was nearly 11% less than the quantity of oil produced during the previous year. The cumulative annual output of 10 987 161 m³ (69,107,289 bbls) was maintained by a daily average of 30 102 m³/day (189,335 bopd) – a decrease of 3 613 m³/day (22,722 bopd) or 10.7% lower than last year's average.

The daily average production varied from a maximum of 31 938 m³/day (200,884 bopd) in January to a minimum of 29 290 m³/day (184,232 bopd) in October with production in December being 29 369 m³/day (184,727 bopd).

All operating companies suffered decreased output this year but the major marine producers, Amoco Trinidad Oil Company and Trinmar, accounted for 83% of the total decline. On land, Trinidad-Tesoro Petroleum Company Limited held its production at a fairly constant level but the other three (3) companies – Trintoc Trinidad Incorporated, Trinidad and Tobago Oil Company and Premier Consolidated Oil Company Limited produced at steadily declining rates throughout the year.

The cumulative production from marine areas was 8 475 541 m³ (53,309,649 bbls), 1 144 771 m³ (7,200,404 bbls.) or 11.9% lower than last year's total. The daily average production was 23 221 m³/day (146,054 bopd); a decrease of 3 064 m³/day (19,274 bopd) below last year's corresponding figure while the marine share of the overall production edged down by 0.8% to 77.1% in 1981.

As was expected, Amoco Trinidad Oil Company continued to be the country's leading producer and accounted for 70.8% of the marine total and 54.6% of the country's production. The company's daily average of 16 446 m³/day (103,443 bopd) represented a decline of almost 14% below the previous year's figure and exceeded the projected decline rate by 4%. Production dropped in all three (3) fields – Teak, Poui, and Samaan – with

the latter experiencing a decline rate of 22.6%, the largest decline of the three (3) fields. The main reasons for the drop in production were natural reservoir depletion loss due to oil/gas condensate wells being shut in to prevent flaring of high pressure gas, and reduced production from wells closed in for workovers and routine maintenance.

During 1981, more wells were converted to gaslift with a subsequent decrease in the number of flowing wells and the per well average varied from 148 m³/day/well to 183 m³/day/well, the average for the year being 139 m³/day/well.

Despite the relatively high level of drilling and workover activity, Trinidad Northern Areas average production dropped by 5.7% to 5 944 m³/day (37,387 bopd) during 1981. The company's share of total and marine production increased from 18.7% to 19.7% and 23.7% to 25.4% respectively. Except for the Main Field where production increased slightly by 0.9%, all other areas experienced decreased output when compared with the respective figures for 1980: North Soldado by 0.7%, East Soldado by 16.4%, and Fortin Offshore by 38%. The decline can be attributed to natural depletion, increased water-cut, compressor downtime which affected the gaslift wells, and pump and power oil problems which affected those wells on hydraulic pump. Land production averaged 6 881 m³/day (43,281 bopd), a decrease of 548 m³/day (3,448 bopd) or 7.4% lower than last year's figure.

The leading land producer, Trinidad-Tesoro Petroleum Company Limited, experienced a marginal drop of 2.6% during 1981. Although output from the company's land fields was maintained at a steady level, the Galeota field suffered a sharp decline during the later part of the year and consequently lowered the Company's daily average production to 3 863 m³/day (24,299 bopd). Land fields contributed 3 102 m³/day (19,511 bopd) which represented 80.3% of the company's total and 45.1% of the country's land production. Galeota's production increased steadily during the first half and peaked at 889 m³/day (5,590 bopd) in June; thereafter output dropped rapidly to 557 m³/day (3,502 bopd) in December for a 1981 average of 761 m³/day (4,789 bopd). Thermal oil from the steam-flood projects contributed just over 30% of Trinidad-Tesoro's total production.

Texaco Trinidad Incorporated registered a daily average of 2 604 m³/day (16,380 bopd) which reflected a drop of 12.3% below last year's average. The incremental oil gained from new wells at Forest Reserve, Palo Seco, and Barrackpore, workovers and secondary recovery projects at Forest Reserve, Guayaguayare, and Trinity was more than offset by natural decline, loss due to power outages especially at Guayaguayare, and rapidly declining reservoir pressure and well productivities at the Palo Seco field.

Trinidad and Tobago Oil Company produced at an average daily rate of 1 202 m³/day (7,564 bopd) – 158 m³/day (993 bopd) or 11.6% lower than the 1980 figure. The main reasons for the decrease were electrical outages at all fields and lower than expected production from new wells and workovers.

Premier Consolidated Oilfields Limited had a daily average production of 41 m³/day (261 bopd), a drop of 12.4% below that in 1980.

TABLE III

SUMMARY OF EXPLORATORY AND SEMI-EXPLORATORY DRILLING IN 1981

| OPERATOR | WELL NAME | LOCATION | BASIS FOR LOCATION | LAHEE EXPLORATORY CLASSIFICATION | COMPLETION DATE | TOTAL DEPTH | | NAME AND/OR AGE OF DEEPEST FORMATION | RESULT REMARKS |
|---|---|--|---|---|---|---|---|--|---|
| | | | | | | METRES | (FEET) | | |
| AMOCO TRINIDAD OIL COMPANY | SOUTH DARIEN 2 | SOUTH DARIEN 2 | S & SSG | C3 | 81.11.23 | 3 444 | 11,299 | PLIOCENE | ABANDONED |
| TRINIDAD NORTHERN AREAS | S - 435 S - 498 S - 484 SFD - 1 | F11 ID - 10 F7 KC - 5 F7 ON - 9 G1 GE - 11 | S & SSG S & SSG S & SSG S & SSG | A2b B1 B1 A1 | — 81.12.14 81.06.11 — | 2 721 2,317 2 251 785 | 8,926 7,602 7,386 2,575 | MIOCENE MIOCENE MIOCENE MIOCENE | COMPLETING COMPLETED-OIL COMPLETED-OIL DRILLING |
| MOBIL | RLE - 1 RLW - 1 | BLOCK S - 7 BLOCK S - 7 | S & SSG S & SSG | C3 C3 | 81.06.16 81.09.20 | 4 243 3 856 | 13,919 12,650 | LOWER MIOCENE MIOCENE | ABANDONED ABANDONED |
| TENNECO | KK4 - 4 KK4 - 5 KK6 - 3 KK6 - 4 | KK4 BLOCK KK4 - 5 BLOCK KK6 - 3 BLOCK KK6 - 4 BLOCK | S & SSG S & SSG S & SSG S & SSG | C1 C1 C1 C1 | 81.01.06 81.02.14 81.05.10 81.06.09 | 2 540 2 628 2 522 2 797 | 8,334 8,621 8,275 9,176 | PLIOCENE PLIOCENE MIOCENE MIOCENE | ABANDONED ABANDONED ABANDONED ABANDONED |
| TRINIDAD TESORO PETROLEUM COMPANY LIMITED | PS 1151 GU F 990 | G16 GL - 2 F10 OK - 4 | S & SSG S & SSG | B1 B1 | 81.08.31 81.10.09 | 2 195 2 286 | 7,200 7,500 | MIOCENE EOCENE | COMPLETED-OIL COMPLETED-OIL |
| TRINIDAD & TOBAGO OIL COMPANY | CHACONIA 1 HIBISCUS 1 CHACONIA 2 FE - 182 CO - 131 BW - 9 BE - 31 | KK3-1 JJ3 - 1 KK3 - 2 F15 OF-17/OD-17 H11 HM - 6 H2 ON - 10/OL-5 H4 EN - 18/FN-1 | S & SSG S & SSG S & SSG S & SSG S & SSG S & SSG S & SSG | B3 B3 B1 B2b A1 A1 A1 | 81.03.28 81.08.11 81.10.28 81.09.17 — — — | 2,621 3,938 3 672 2 618 2 574 2 641 1 384 | 8,600 12,920 12,046 8,589 8,446 8,665 4,540 | LOWER PLIOCENE OLIGOCENE MIOCENE MIOCENE MIOCENE MIOCENE MIOCENE | ABANDONED-GAS ABANDONED-GAS ABANDONED-GAS COMPLETED-OIL TESTING SUSPENDED TESTING |
| TEXACO TRINIDAD INCORPORATED | GY - 658 | H18 BB - 4 | S & SSG | B1 | 81.04.18 | 1 420 | 4,660 | EOCENE | COMPLETED-OIL |

TABLE IV

SUMMARY OF DEVELOPMENT DRILLING IN TRINIDAD AND TOBAGO — 1981

| | FIELD, AREA OR DISTRICT | NUMBER OF PRODUCERS COMPLETED | NUMBER OF ABANDONED WELLS | TOTAL COMPLETIONS | TOTAL DEPTH DRILLED | | NUMBER OF RIGS ACTIVITY DRILLING OR TESTING DE- VELOPMENT WELLS ON DECEMBER 31, 1981 |
|-------------------------------------|----------------------------|-------------------------------------|---------------------------------|----------------------|---------------------|-------------|---|
| | | | | | METRES | (FEET) | |
| a — INCLUDES 5 S. INJ. WELLS | 1 | 22 | 2 | 24 | 43 498 | 142,709 | 3 |
| b — INCLUDES 1 GAS WELL & 4 S. INJ. | 2 | 35 (a) | — | 35(a) | 28 373 (a) | 93,087 (a) | — |
| c — DEPTH DRILLED — 2,586 m | 3 | — | — | — | — | — | — |
| c — INCLUDES 14 S. INJ. and 1 OTHER | 4 | 69 (b) | 1 | 70 (b) | 58 623 (b) | 192,333 (b) | — |
| DEPTH DRILLED — 7 541 m | 5 | 34 (c) | — | 34 (c) | 17 549 (c) | 57,574 (c) | 4 |
| d — INCLUDES 4 S. INJ. | 6 | 18 (d) | — | 18 (d) | 15 725 (d) | 51,592 (d) | — |
| DEPTH DRILLED — 2 446 m | 7 | 2 | — | 2 | 2,652 | 8,700 | — |
| e — INCLUDES 1 GAS WELL | 8 | 3 | 1 | 4 | 9 531 | 31,271 | — |
| DEPTH DRILLED — 1 219 m | 9 | 3 | — | 3 | 4 068 | 13,348 | — |
| f — INCLUDES 1 GAS WELL | 10 | 1 (e) | — | 1 (e) | 1 219 (e) | 4,000 (e) | — |
| DEPTH DRILLED — 4 680 m | 11 | 3 (f) | — | 3 (f) | 8 018 (f) | 26,305 (f) | — |
| TOTALS | | 190 | 4 | 194 | 189 256 | 620,919 | 7 |

TABLE IV A 1981

KEY TO AREA – NUMBER ON MAP (FIGURE 11), ON IV AND IN TEXT.

AREA NUMBER

- | | |
|----|--|
| 1 | SOLDADO, NORTH MARINE, COUVA MARINE, MANICOU (GULF OF PARIÁ BLOCK 1). |
| 2 | PT. LIGOURE, F.O.S., AREA IV AND GUAPO, POINT FORTIN WEST AND CENTRAL, PARRYLANDS, CRUSE, GUAPO, BOODOOSINGH. |
| 3 | BRIGHTON (LAND AND MARINE), VESSIGNY, MERRIMAC. |
| 4 | PALO SECO, LOS BAJOS, ERIN, CENTRAL LOS BAJOS, MAC KENZIE. |
| 5 | FOREST RESERVE, FYZABAD, POINT FORTIN EAST, NEW DOME, SAN FRANCIQUE, APEX QUARRY. |
| 6 | QUARRY, COORA, QUINAM, MORNE DIABLO. |
| 7 | OROPOUCHE. |
| 8 | PENAL, BARRACKPORE, WILSON, SIPARIA. |
| 9 | MORUGA NORTH AND WEST, ROCK DOME, INNIS, TRINITY, CATSHILL, BALATA, BOVALLIUS. |
| 10 | GUAYAGUAYARE, MORUGA EAST. |
| 11 | GALEOTA, TEAK, SAMAN, POUI, DOLPHIN (BLOCK 6), DIAMOND PROSPECT, EAST COAST, REVERSE 'L' EAST, REVERSE 'L' WEST. |
| 12 | SOUTH MARINE (SOUTH COAST). |
| 13 | TABAQUITE, POINT-A-PIERRE. |
| 14 | ICACOS. |
| 15 | NORTH COAST MARINE AREA. |

TABLE 5

OIL PRODUCTION (IN BARRELS) BY FIELDS, AREAS, OR DISTRICTS - 1981

| COMPANY, FIELD, AREA OR DISTRICT | DISCOVERY YEAR | TOTAL WELLS DRILLED | NAME AND/OR AGE OF PRODUCING FORMATION | ANNUAL PRODUCTION | | CUMULATIVE PRODUCTION DECEMBER 1981 '000 BARRELS |
|-------------------------------------|----------------|---------------------|--|-------------------|-----------|--|
| | | | | 1980 | 1981 | |
| TRINIDAD & TOBAGO OIL CO. (TRINTOC) | | | | | | |
| BALATA EAST AND WEST | 1952 | 58 | MIOCENE | 72,590 | 121,495 | 2,359 |
| CATSHILL | 1950 | 131 | MIOCENE | 194,307 | 183,641 | 22,169 |
| INNIS | 1956 | 38 | MIOCENE | 46,542 | 48,610 | 5,939 |
| ROCK DOME | 1962 | 3 | MIOCENE | 0 | 0 | 16 |
| PENAL | 1936 | 269 | MIOCENE | 416,348 | 363,924 | 59,490 |
| NEW DOME | 1928 | 31 | MIOCENE | 3,079 | 4,151 | 3,104 |
| POINT FORTIN EAST | 1929 | 150 | MIOCENE | 378,566 | 319,771 | 24,528 |
| SAN FRANCIQUE | 1929 | 27 | MIOCENE | 13,197 | 11,804 | 5,922 |
| AREA IV AND GUAPO | 1963 | 192 | MIOCENE | 565,099 | 453,889 | 35,951 |
| PARRYLANDS 1-5 | 1913-18 | 422 | MIOCENE | 465,151 | 515,197 | 36,602 |
| POINT FORTIN CENTRAL | 1916 | 179 | MIOCENE | 809,283 | 589,409 | 16,312 |
| POINT FORTIN WEST | 1907 | 309 | MIOCENE | 167,876 | 149,137 | 19,340 |
| LOS BAJOS | 1918 | 29 | MIOCENE | 0 | 0 | 546 |
| ERIN | 1963 | 4 | MIOCENE | 0 | 0 | 710 |
| TOTAL | | 1842 | | 3,132,038 | 2,761,028 | 232,988 |
| TRINIDAD TESORO PETROLEUM CO. LTD. | | | | | | |
| FYZABAD/APEX QUARRY | 1920-38 | 957 | MIOCENE | 1,352,445 | 1,348,780 | 161,928 |
| GUAPO/BOODOOSING | 1922 | 612 | MIOCENE | 811,059 | 818,792 | 41,372 |
| MORUGA EAST | 1953 | 72 | MIOCENE | 85,633 | 67,422 | 2,438 |
| MORUGA NORTH | 1956 | 23 | MIOCENE | 12,511 | 16,692 | 1,009 |
| MORUGA WEST | 1957 | 129 | MIOCENE | 71,000 | 53,995 | 8,933 |
| COORA/QUARRY | 1936 | 641 | MIOCENE | 867,704 | 810,880 | 86,503 |
| PALO SECO/ERIN/MC KENZIE | 1926 | 1,334 | MIOCENE | 3,462,955 | 3,488,119 | 98,122 |
| NORTH MARINE | 1956 | 19 | MIOCENE | 0 | 0 | 1,269 |
| GALEOTA | 1972 | 89 | MIOCENE | 1,910,469 | 1,747,589 | 7,633 |
| CENTRAL LOS BAJOS | 1973 | 144 | MIOCENE | 501,648 | 498,030 | 4,235 |
| OROPOUCHE | 1975 | 3 | MIOCENE | 13,150 | 7,586 | 213 |
| BARRACKPORE | 1977 | 4 | MIOCENE | 12,235 | 11,251 | 62 |
| TOTAL | | 4,027 | | 9,100,809 | 8,869,136 | 413,717 |

TABLE 5

OIL PRODUCTION (IN BARRELS) BY FIELDS, AREAS, OR DISTRICTS - 1981

| COMPANY, FIELD, AREA OR DISTRICT | DISCOVERY YEAR | TOTAL WELLS DRILLED | NAME AND/OR AGE OF PRODUCING FORMATION | ANNUAL PRODUCTION | | CUMULATIVE PRODUCTION DECEMBER 1981 '000 BARRELS |
|--|----------------|---------------------|--|-------------------|------------|--|
| | | | | 1980 | 1981 | |
| TEXACO TRINIDAD INC. | | | | | | |
| GUAYAGUAYARE | 1902 | 698 | MIOCENE | 1,076,659 | 892,855 | 82,920 |
| TRINITY | 1956 | 95 | MIOCENE | 165,087 | 149,273 | 14,521 |
| BARRACKPORE | 1911 | 330 | MIOCENE | 595,889 | 441,673 | 27,419 |
| OROPOUCHE | 1944 | 128 | MIOCENE | 176,420 | 169,329 | 6,089 |
| MORNE DIABLO/QUINMA | 1926 | - | MIOCENE | 45,258 | 33,176 | 7,559 |
| FOREST RESERVE | 1913 | 2,027 | MIOCENE | 2,434,830 | 2,242,807 | 248,793 |
| PALO SECO | 1929 | 28 | MIOCENE | 1,608,808 | 1,443,007 | 87,991 |
| BRIGHTON | 1903 | 615 | MIOCENE | 512,117 | 416,960 | 71,138 |
| ERIN | 1963 | 23 | MIOCENE | 68,854 | 30,039 | 2,249 |
| COUVA MARINE | 1963 | 6 | MIOCENE | 0 | 0 | 301 |
| CRUSE | 1913 | 150 | MIOCENE | 48,032 | 47,511 | 25,740 |
| WILSON | 1936 | 79 | MIOCENE | 83,160 | 92,845 | 19,540 |
| TABAQUITE | 1911 | 225 | MIOCENE | 22,116 | 19,329 | 1,685 |
| BALATA CENTRAL | 1949 | 6 | MIOCENE | 0 | 0 | 371 |
| MAYARO | | 9 | MIOCENE | 0 | 0 | 0 |
| TOTAL | | 4,411 | | 6,837,230 | 5,978,804 | 596,316 |
| PREMIER CONSOLIDATED OILFIELDS LIMITED | | | | | | |
| SIPARIA | 1957 | 5 | MIOCENE | 6,948 | 2,737 | 817 |
| SAN FRANCIQUE | 1929 | 75 | MIOCENE | 31,309 | 27,896 | 3,029 |
| FYZABAD/ROODAL | 1918 | 253 | MIOCENE | 53,864 | 48,855 | 13,055 |
| PALO SECO | 1915 | 83 | MIOCENE | 4,007 | 3,934 | 1,626 |
| BARRACKPORE | 1970 | 3 | MIOCENE | 7,019 | 6,317 | 128 |
| ICACOS | 1955 | 11 | MIOCENE | 5,940 | 5,494 | 458 |
| DEFUNCT FIELDS | 1954 | 19 | MIOCENE | 0 | 0 | 323 |
| TOTAL | | 449 | | 109,087 | 95,233 | 19,436 |
| TRINIDAD NORTHERN AREAS | | | | | | |
| FOS - FT | 1954 | 33 | MIOCENE | 182,883 | 113,197 | 4,167 |
| SOLDADO | 1955 | 522 | MIOCENE | 14,333,189 | 13,533,148 | 383,451 |
| TOTAL | | 555 | | 14,516,072 | 13,646,345 | 387,618 |
| AMOCO TRINIDAD OIL COMPANY | | | | | | |
| TEAK | 1971 | 79 | MIOCENE | 16,368,554 | 14,809,454 | 146,618 |
| SAMAAN | 1971 | 44 | MIOCENE | 12,458,125 | 9,638,345 | 131,222 |
| POUI | 1974 | 43 | MIOCENE | 15,091,045 | 13,315,986 | 95,491 |
| TOTAL | | 166 | | 43,917,724 | 37,763,785 | 373,331 |

GEOPHYSICAL ANNUAL REPORT FOR 1981

Geophysical survey, consisting of 13,010.5 km of seismic, 11,481.58 km of gravity and 12,243.7 km of magnetic surveys on the North and East Coast of Trinidad and Tobago carried on by Western Geophysical Company for the Government of Trinidad and Tobago have been completed in April 1981. The survey started in October 1980. In 1981, 8,802.375 km of seismic survey, 7,278.68 km of gravity and 8,467.53 km of magnetic surveys have been carried out. A geophysicist from this Ministry stayed ten (10) days aboard the boat which was surveying the area, observing the field operation. Processing of the data of the above mentioned survey has been carried on in Western Geophysical London Processing Centre. In general the quality of the process data is very good. This processing centre has been visited by a geophysicist from the Ministry three (3) times this year: in January 1981 which was an extension of the visit of December 1980, and in August and October 1981. The purpose of these visits was to decide about the parameters (for DBS and TVF) which have to be used in the areas surveyed, to make decisions of general character e.g. horizontal and vertical scales, to clarify some queries as to several velocities calculated by Western Geophysical and in general to supervise on Government's behalf, the processing of geophysical data.

After examining the areas surveyed for the Government a decision to migrate the whole area has been reached. The Western Geophysical interpretation Centre in Houston, Texas, U.S.A. started the interpretation of the areas surveyed for the Government. A structure map of one (1) horizon of Manzanilla area has been received by this Ministry. It is going to be reinterpreted based on migrated data.

A geophysicist from the Ministry went for six (6) weeks, July – August, to Western Geophysical Houston office, where he received training in the interpretation and processing of seismic data.

The following companies carried out seismic surveys in Trinidad and Tobago waters: –

| | | | |
|---------|--------|----|---|
| TRINTOC | 149.15 | km | in the Gulf of Paria |
| TEXACO | 254 | km | in the Gulf of Paria |
| TRINMAR | 700 | km | in the Gulf of Paria |
| MOBIL | 467 | km | in East Coast (Block S7) |
| AMOCO | 2.163 | km | in East Coast (682 km in S.) Galeota, 383 km in S.E.G. and 1098 km in S.E.G. 3D survey) |

Before starting the surveys the programmes for these surveys were presented to the Ministry for approval. All proposed programmes were studied and approved by the geophysical section of this Ministry.

Sea-bottom survey programmes in preparation for drilling in off-shore well site areas have been presented by Trinidad and Tobago Oil Company, Mobil and Tenneco. These programmes were also studied by geophysicists and eventually approved.

Texaco presented the Ministry their final maps and report of 3D survey of Scarlet Ibis area.

Work on the interpretation of the deep horizon of the marine blocks 8, 9 and 10 was carried on.

REFINING AND PETROCHEMICAL MANUFACTURE 1981

Refining:

At present there is a worldwide surplus of refining capacity. As a result refineries in Europe, Japan and the rest of the Caribbean were either being shutdown or having their throughput capacities significantly reduced. The situation had risen primarily because of the reduction in petroleum demand caused by the increases in crude oil prices of 1978/79.

Refinery throughput in Trinidad and Tobago continued to decline further in 1981. The total average throughput in 1981 was 27,588 m³/day (173,545 bbls/day), a drop of 18.9% from the corresponding figure for 1980.

The following table lists daily average throughputs for the Texaco and Trintoc refineries over the decades:—

| YEAR | AVERAGE DAILY THROUGHPUT | | | | TOTAL | |
|------|--------------------------|---------|--------------|---------|--------------|---------|
| | TEXACO | | TRINTOC | | | |
| | CUBIC METRES | BARRELS | CUBIC METRES | BARRELS | CUBIC METRES | BARRELS |
| 1971 | 52 672 | 331,297 | 10 720 | 67,427 | 63 392 | 398,724 |
| 1972 | 51 953 | 326,777 | 10 713 | 67,381 | 62 666 | 394,158 |
| 1973 | 51 138 | 321,648 | 10 571 | 66,492 | 61 709 | 388,140 |
| 1974 | 47 976 | 301,759 | 9 001 | 56,613 | 56 977 | 358,372 |
| 1975 | 29 868 | 187,866 | 7 438 | 46,782 | 37 306 | 234,648 |
| 1976 | 42 334 | 266,274 | 8 743 | 54,994 | 51 007 | 321,268 |
| 1977 | 34 588 | 217,555 | 8 764 | 55,124 | 43 352 | 272,679 |
| 1978 | 29 232 | 183,866 | 8 172 | 51,398 | 37 404 | 235,264 |
| 1979 | 27 881 | 175,367 | 8 210 | 51,638 | 36 091 | 227,005 |
| 1980 | 26 027 | 163,703 | 8 001 | 50,325 | 34 028 | 214,028 |
| 1981 | 21 291 | 133,917 | 6 297 | 39,628 | 27 588 | 173,545 |

Trintoc refinery cumulative throughput for 1981 was 2 298 416 m³ (14,456,632 bbls) or a daily average of 6 297 m³/day (39,607 bbls/day) a decline of 21.3% from the 1980 processing level.

The major problems which affected the refinery operation in 1981 were the following:—

(a) **Limited power availability for the continuous operation of the Crude Distiller Unit and the complex** resulted when two of the turbine generators were put out of service in the beginning of 1981. However, at year end two out of three New Gas Turbine Alternators were installed and commissioned.

(b) **Limited Fuel gas supply to the refinery**

Due to the continuing problems with the gas supply from the Soldado field, no LPG was produced in 1981 as this was downgraded to supplement the full gas supply to the refinery.

(c) **The continued low availability of steam**

This situation was greatly improved from 1980 by the installation of some new pieces of equipment.

The average daily throughput at Texaco refinery was 21 291 m³/day (133,917 bbls/day) a decline of 18.2% from 1980 figure. The total volume of crude oil processed by Texaco for the year was 7 771 212 m³ (48,879,546 bbls). Texaco continued the operation of desulphurisation plant for the production of FCCU feedstock and low sulphur gas oil. However Arab Heavy Crude has replaced the previous Arab light type crude.

In order to fulfill Trintoc's product commitment, towards the end of 1981 Trintoc had entered into a processing agreement with Texaco to process certain quantities of Trintoc crude.

The main refinery products were: —

| PRODUCTS | MILLION BARRELS | | PER CENT CHANGE BETWEEN 1980 AND 1981 |
|-----------------------|-----------------|------|--|
| | 1981 | 1980 | |
| FUELS | 29.61 | 42.3 | -30.0 |
| GASOLINES | 13.03 | 15.6 | -16.5 |
| GAS/DIESEL OIL | 10.78 | 14.0 | -23.0 |
| AVIATION TURBINE FUEL | 1.34 | 3.2 | -58.1 |
| KEROSINE | 2.14 | 3.2 | -33.1 |
| LUBES/GREASE | 0.79 | 1.0 | -21.0 |
| PETROCHEMICALS | 1.11 | 1.2 | -7.5 |

CRUDE OIL BALANCE 1981

| Availability | Million Cubic Metres | Million Barrels | Disposal | Million Cubic Metres | Million Barrels |
|-------------------------|-------------------------|--------------------|---------------------------|-------------------------|--------------------|
| Stock at 1st January | 0.57 | 3.60 | Exports | 5.98 | 37.60 |
| Production | 10.99 | 69.11 | Delivered to Refinery | 10.07 | 63.34 |
| Import | 6.14 | 38.61 | Loss from Production | 0.81 | 5.07 |
| | | | Stock at 31st December | 0.84 | 5.31 |
| TOTAL | 17.70 | 111.32 | | 17.70 | 111.32 |

PETROCHEMICALS:

Production of Petrochemical intermediates produced at the Texaco Refinery amounted to 177 674 m³ (1,117,518 barrels) as compared to 193 063 m³ (1,214,306 barrels) in 1980, a decrease of 8% from the volumes produced in 1980.

In 1981 there was increased recovery at the Udex Unit which maximized production of BTX. Benzene Toluene and Xylene production have increased significantly during the year. The cyclohexane unit remained shut down throughout the year due to unfavourable market conditions. The normal paraffin production was reduced because the normal paraffin plant was shut down for test and inspection. T & TEC power failure/outage again affected the operation of all petrochemical units in 1981.

PERCENT OF TOTAL PRODUCTION FOR MAJOR PETROCHEMICALS

| Petrochemicals | 1981 | 1980 | Percent Change |
|------------------|------|------|----------------|
| Normal Paraffins | 42.5 | 49.7 | -7.2 |
| Toluene | 34.0 | 28.3 | +5.7 |
| Benzene | 9.2 | 6.9 | +2.3 |

REFINED PRODUCT BALANCE 1981

| Availability | Million Cubic Metres | Million Barrels | Disposal | Million Cubic Metres | Million Barrels |
|--|---------------------------------|----------------------------|-----------------------------------|---------------------------------|----------------------------|
| Stock at 1st January | 1.89 | 11.9 | Shipments | 8.81 | 55.44 |
| | | | Bunkers | 0.56 | 3.52 |
| | | | Local Consumption | 0.11 | 0.71 * |
| Products Obtained Crude Delivered | 9.65 | 60.7 | Stock at 31st December | 1.33 | 8.34 |
| TOTAL | 11.54 | 72.6 | TOTAL | 10.81 | 68.01 * |

*National Petroleum Marketing Company figures not included.

Crude feedstock to the country's refineries originated from the following sources:—

| Name of Crude | Country | Amount Cubic Metres | Amount (bbls) | Per Cent Total |
|-------------------------|------------------------|------------------------|-------------------|----------------|
| Texaco: | | | | |
| Arab Light | Saudi Arabia | 1 913 101 | 12,033,839 | 22.67 |
| Arab Medium | Saudi Arabia | 1 648 805 | 10,370,495 | 19.54 |
| Arab Heavy | Saudi Arabia | 806 893 | 5,075,118 | 9.56 |
| Ligh+ Naptha | Saudi Arabia | 69 224 | 435,397 | 0.82 |
| Minas | Indonesia | 1 339 664 | 8,426,091 | 15.88 |
| Duri | Indonesia | 311 181 | 1,957,238 | 3.69 |
| Cabinda | Nigeria (W. Africa) | 6 669 | 41,948 | 0.08 |
| Angolan | Angola | — | — | — |
| Mexican | Mexico | 42 848 | 269,503 | 0.51 |
| Texaco: | | | | |
| Sub Total | — | 6 138 385 | 38,609,629 | 72.75 |
| Trintoc: | | | | |
| Trinidad | — | 2 298 460 | 14,456,632 | — |
| Trintoc: | | | | |
| Sub Total | — | 2 298 460 | 14,456,632 | 27.24 |
| Trinidad-Tesoro: | | | | |
| Trinidad | — | 1 199 | 7,539 | — |
| Sub Total | — | 1 199 | 7 539 | 0.01 |
| TOTAL | — | 8 438 044 | 53,073,800 | 100.00 |

PRODUCTION AND EXPORTS OF IMPORTANT PETROCHEMICALS

INTERMEDIATES TRINIDAD AND TOBAGO

| Petrochemicals | 1981 | | | | 1980 | | | |
|---------------------------|--------------|---------|--------------|----------|--------------|---------|--------------|---------|
| | Production | | Export | | Production | | Export | |
| | Cubic Metres | Barrels | Cubic Metres | Barrels | Cubic Metres | Barrels | Cubic Metres | Barrels |
| Normal Paraffins | 75 494 | 474,837 | 78 305 | *492,513 | 95 626 | 601,458 | 74 140 | 466,321 |
| Di-Isobutylene | — | — | — | — | (6) | (40) | — | — |
| Nonene | 6 233 | 39,204 | 8 758 | 55,085 | 8 905 | 56,007 | 5 783 | 36,371 |
| Tetramer | 4 251 | 26,738 | 3 158 | 19,866 | 4 213 | 26,500 | 2 933 | 18,446 |
| Benzene | 16 312 | 102,621 | 14 563 | 91,594 | 13 193 | 82,983 | 12 417 | 78,101 |
| Toluene | 60 312 | 379,346 | 57 684 | 362,816 | 54 432 | 342,361 | 52 515 | 330,303 |
| Xylene | 13 522 | 85,048 | 11 495 | 72,297 | 10 969 | 68,991 | 10 303 | 64,804 |
| Cyclohexane | (14) | (90) | (26) | *(162) | 3 372 | 21,212 | 4 495 | *28,275 |
| Unrefined Naphthenic Acid | 1 560 | 9,814 | 1 783 | *11,216 | 2 352 | 14,796 | 1 636 | 10,293 |

*Excess of Export over Production made up from stocks.

NITROGENOUS FERTILIZERS:

For the year 1981 numerous power outages continued to affect fertilizers production at Federation Chemicals Limited. The net production of anhydrous ammonia was 463 061 metric ton/day (510,429 short ton/day) and this represents a decrease of 7.4% over the 1980 average.

Ammonium Sulphate production for 1981 was 37,003 metric ton (40,788 short ton) a decline of 48% over 1980 figure of 71,230 metric ton (78,516 short ton). Urea production amounted to 31,019 metric ton (34,192 short ton) a decline of 45.3% over 1981 figure of 56,693 metric ton (62,492 short ton).

This reduction of fertilizers production was due to the prolonged industrial action at Federation Chemicals Limited. Ammonia production was resumed at Federation Chemicals Limited from May 1, 1981 and sulphate production in June 1981.

Fertrin started up their first ammonia (01 plant) in October 1981 and at year end had produced 59,636 metric ton (65,737 short ton) and exported 53,718 metric ton (59,214 short ton).

However, it must be mentioned that at year end fertilizer production decreased due to associated problems in the supply of Natural Gas from Amoco Trinidad Oil Company.

The following table gives a breakdown of production and export of fertilizers for 1981.

PRODUCTION AND EXPORT OF NITROGENOUS FERTILIZERS IN TRINIDAD AND TOBAGO, 1981 METRIC TON

| | FEDERATION CHEMICALS LIMITED | | | | TRINIDAD NITROGEN COMPANY LIMITED | | | | FERTILIZERS OF TRINIDAD AND TOBAGO LIMITED | | TOTAL | | | |
|-------------------|------------------------------|---------------------|----------------------|--------------------|-----------------------------------|----------------------|----------------------|----------------------|--|--------------------|--------------------|----------------------|----------------------|----------------------|
| | NET PRODUCTION | | EXPORT | | NET PRODUCTION | | EXPORT | | PRODUCTION | EXPORT | NET PRODUCTION | | EXPORT | |
| | 1981 | 1980 | 1981 | 1980 | 1981 | 1980 | 1981 | 1980 | 1981 | 1981 | 1981 | 1980 | 1981 | 1980 |
| | ANHYDROUS AMMONIA | 99 623 (109 814) | 138 015 (152 133) | 70 237 (77 422) | 127 473 (140 513) | 303 810 (334 878) | 362 251 (399 307) | 297 683 (328 134) | 373 647 (411 868) | 59 636 (65 737) | 53 718 (59 214) | 463 061 (510 429) | 500 266 (551 440) | 421 639 (464 770) |
| AMMONIUM SULPHATE | 37 003 (40 788) | 71 230 (78 516) | 23 985 (26 438) | 58 583 (64 576) | — — | — — | — — | — — | — — | — — | 37 003 (40 788) | 71 230 (78 516) | 23 985 (26 438) | 58 583 (64 576) |
| UREA | 31 017 (34 190) | 56 693 (62 492) | 29 233 (32 223) | 53 962 (59 482) | — — | — — | — — | — — | — — | — — | 31 017 (34 190) | 56 693 (62 492) | 29 233 (32 223) | 53 962 (59 482) |

FLUID INJECTION OPERATIONS

Oil production from secondary oil recovery operations in Trinidad and Tobago increased by 9% over last year's figure to just over 9 million barrels in 1981 at a rate of 24,674 bopd. This was 13% of the country's total production of 69.1 million barrels. The number of projects increased during the year to thirty-three. Trinidad-Tesoro's Apex-Quarry thermal project was initiated in January, 1981, and Trintoc commenced injections in their Parryland's thermal project in July 1981. On the other hand, Texaco's gas/water injection scheme in the Guayaguayare area saw a total curtailment of gas injection.

A summary of fluid injection operations in Trinidad and Tobago from 1977 – 1981 is presented in Table VI.

WATER INJECTION:

The number of waterflood projects in operation remained unchanged at nineteen. Total injection was 19.9 million barrels at a daily rate of 54,450 bbls per day. This was 4% higher than last year's injection rate. Oil production rate from these projects increased by 5% to 15,400 bopd.

Water injection statistics are summarised in Table VII.

Amoco Trinidad Oil Company operated the country's largest waterflood scheme by injecting over 8.5 million barrels of water into three injectors in the Teak Field. The injection rate of 23,480 bwpd was 3.5% more than the corresponding figure for the previous year. The oil production rate from nine producing wells in this flood increased by 10.4% to 11,645 bopd. Average water cut was 12%.

Texaco Trinidad Inc. operated 11 waterflood projects in their Eastern and Western Districts. Average oil production rate for all schemes decreased by 21% to 2650 bopd. Injection rate decreased by 15% to 21,800 bwpd. This decrease in injection rate was due mainly to the injectivity reduction caused by reservoir fill-up of the Navette '410' and '410' Extension schemes. Average water cut was 66.5%.

Trinidad Northern Areas operated one waterflood project in the Soldado Main Field. Injection rate into the 8011 Reservoir more than doubled in 1981 to 7244 bwpd after "thief zones" were successfully plugged the previous year. Oil production rate increased by 50% to 908 bopd. During the year, three more wells were converted to injectors but were not in active operation due to the unavailability of injection equipment. Water cut was 54%.

Trinidad-Tesoro Petroleum Company Limited operated five water injection projects in 1981, four of which were in Coora and the other in Palo Seco. There was no injection into the Co/UC/110 reservoir due to the unavailability of water. There was also no injection into the Co/UC/317 reservoir since it was in its producing cycle. Total water injection for the Company increased by 47% to 900 bwpd. Oil production rate, however, fell to 73 bopd. Average water cut was 8.2%.

Trinidad and Tobago Oil Company Limited (TRINTOC) injected water into their Catshill Waterflood at a rate of 1018 bwpd as compared to 370 bwpd for the previous year. However, oil production rate decreased by 15% to 125 bopd. The Company experienced severe problems with its water supply pumps, thereby causing operations to be suspended for about four months of the year.

During 1981, the Company completed engineering design for the proposed Catshill 'N' sand waterflood.

A Summary of all projects is given in Table VIII.

THERMAL INJECTION:

In 1981, there were twelve (12) thermal injection projects in operation. The two new projects started during the year were Trinidad-Tesoro's Apex-Quarry project and

Trintoc's pilot project in the Parrylands area. Overall, injection rate of thermal fluids increased by 9.6% to 23,950 bbls. per day. Oil production from all projects climbed by 17% to 9195 bopd.

Thermal injection statistics are summarised in Table VII.

Trinidad-Tesoro Petroleum Company Limited operated eight thermal projects during the year. The most recent one was the Apex-Quarry scheme which was initiated in January 1981. The Company's thermal injection rate went up by 74% to 14,170 bwpd, while oil production rate increased by 32% to 6808 bopd. Palo Seco, Guapo, Fyzabad and Central Los Bajos were the most productive thermal areas. During the year, twenty thermal wells were drilled in Palo Seco; in Central Los Bajos fifteen were drilled, and, in Fyzabad, six. In Apex-Quarry, the number of injectors was increased from four to twenty-one by year's end.

Texaco Trinidad Inc. operated three thermal injection in 1981, two of which were steam injector and one being a hot waterflood. These are located in the Forest Reserve area. Injection rate into these projects fell by 30% to 9588 bwpd, while oil production fell by 11.7% to 2375 bopd. During the year twelve thermal wells were drilled.

Trinidad and Tobago Oil Company became a thermal project operator with the start-up of its Parrylands thermal pilot project in July, 1981. Eleven wells were steam stimulated during the period of injection before problems with the generator feed pump caused termination of injection. Total injection was 63,000 barrels and total oil production 5990 barrels.

A summary of thermal injection projects is given in Table IX.

CARBON DIOXIDE INJECTION:

Texaco Trinidad Inc. continued to operate the two carbon dioxide projects at Forest Reserve. However, no carbon dioxide was injected due to the unavailability of the gas. Oil production averaged 73 bopd for the year 1981.

TABLE VI

SUMMARY OF FLUID INJECTION OPERATION IN TRINIDAD AND TOBAGO: 1977 — 1981

| NO. OF PROJECTS IN OPERATION AT END OF YEAR | | | | | INJECTION VOLUMES | | | CRUDE OIL PRODUCTION | | | | | |
|---|-----|-------|-------|----------------|---------------------|-----------------------------|-------------|--|------------------------|---------------------------|-------------------------|--------------|---|
| YEAR | GAS | WATER | STEAM | CARBON DIOXIDE | NATURAL GAS (Mmscf) | WATER & OTHER FLUIDS (Bbls) | STEAM (Bbl) | OIL PRODUCED BY WELLS UNDER PROJECT INFLUENCE (BBL). | | | | | OIL EXPRESSED AS A PERCENTAGE OF COUNTRY'S TOTAL PRODUCTION |
| | | | | | | | | GAS INJECT. PROJECTS | WATER INJECT. PROJECTS | THERMAL RECOVERY PROJECTS | CARBON DIOXIDE PROJECTS | ALL PROJECTS | |
| 1977 | 2 | 18 | 9 | 3 | 204 1686* | 26,455,049 | 4,353,607 | 61,710 | 3,313,246 | 1,923,299 | 154,575 | 5,452,830 | 6.5 |
| 1978 | 2 | 18 | 12 | 3 | 101 768* | 24,312,504 | 5,606,776 | — | 3,844,276 | 2,572,602 | 170,379 | 6,587,257 | 7.9 |
| 1979 | — | 17 | 10 | 3 | 19 1054* | 22,755,841 | 7,378,320 | — | 3,947,162 | 3,029,681 | 113,675 | 7,090,518 | 9.1 |
| 1980 | — | 19 | 10 | 2 | 4 642* | 19,116,250 | 7,972,576 | — | 5,344,765 | 2,866,101 | 43,004 | 8,253,870 | 10.6 |
| 1981 | — | 19 | 12 | 2 | — | 19,873,027 | 8,735,399 | — | 5,621,352 | 3,356,974 | 26,656 | 9,005,982 | 13.0 |

*CO₂ INJECTED IN FOREST RESERVE PROJECTS

TABLE VII

FLUID INJECTION OPERATIONS -- 1981

WATER INJECTION

| COMPANY | NO. OF ACTIVE PROJECT | WATER INJECTED (BBLs) | OIL PRODUCED (BBLs) | GAS PRODUCED (MCF) | WATER PRODUCED (BBLs) | WATER CUT % |
|---------|-----------------------|-----------------------|---------------------|--------------------|-----------------------|-------------|
| ATOC | 1 | 8,570,316 | 4,250,374 | 2,479,798 | 591,801 | 12.2 |
| TTI | 11 | 7,957,908 | 967,506 | 2,004,332 | 1,924,744 | 66.5 |
| TNA | 1 | 2,644,091 | 331,394 | 636,178 | 382,250 | 53.6 |
| TTPCL | 5 | 329,109 | 26,501 | 20,433 | 2,383 | 8.2 |
| TTOC | 1 | 371,673 | 45,577 | 11,420 | 26,977 | 37.2 |
| TOTAL | 19 | 19,873,097 | 5,621,352 | 5,152,161 | 2,928,155 | 34.2 |

STEAM INJECTION

| COMPANY | NO. OF ACTIVE PROJECTS | STEAM INJECTED (BBLs) | OIL PRODUCED (BBLs) | GAS PRODUCED (MCF) | WATER PRODUCED (BBLs) | PROD. RATIO (BBL/BBL) |
|---------|------------------------|-----------------------|---------------------|--------------------|-----------------------|-----------------------|
| TTPCL | 8 | 5,172,720 | 2,485,027 | 188,627 | 1,786,317 | 0.5 |
| TTI | 3 | 3,499,534 | 866,956 | 561,528 | 2,424,176 | 0.3 |
| TTOC | 1 | 63,145 | 5,991 | — | 7,491 | 0.1 |
| TOTAL | 12 | 8,735,399 | 3,357,974 | 750,155 | 4,217,984 | 0.9 |

CARBON DIOXIDE INJECTION

| COMPANY | NO. OF ACTIVE PROJECT | CARBON DIOXIDE INJ. (MCF) | OIL PRODUCED (BBLs) | GAS PRODUCED (MCF) | WATER PRODUCED (BBLs) | GOR (CF/BBL) |
|---------|-----------------------|---------------------------|---------------------|--------------------|-----------------------|--------------|
| TTI | 2 | — | 26,656 | 100,538 | 5,378 | 3.772 |
| TOTAL | 2 | — | 26,656 | 100,538 | 5,378 | 3.772 |

TABLE VIII

WATER INJECTION SUMMARY BY PROJECTS - 1981

| COMPANY | FIELD | PROJECT | WATER INJ. (BBL) | OIL PROD. (BBL) | GAS PROD. (MCF) | WATER PROD. (BBL) | WATERCUT % |
|---------------------|----------------|-----------------------|-----------------------------------|---------------------|--------------------|----------------------|------------------|
| TTI | FOREST RESERVE | UCRA | 272,755 | 49,259 | 171,514 | 43,080 | 46.7 |
| | | UCME/MIDDLE FIELD | 540 | 65,472 | 70,037 | 48,107 | 42.4 |
| | | UC 645 | 251,842 | 71,065 | 386,802 | 99,558 | 58.3 |
| | GUAYAGUAYARE | BERNSTEIN UM CRUSE | 352,325 | 23,997 | 30,060 | 16,996 | 41.5 |
| | | NAVETTE '007' | 1,300,427 | 154,974 | 771,179 | 222,094 | 58.9 |
| | | NAVETTE '410' | 2,003,227 | 131,772 | 160,945 | 573,210 | 81.3 |
| | | '410' ESTENSION | 1,091,099 | 35,013 | 40,250 | 193,084 | 84.6 |
| | | '307' WATERFLOOD | 879,563 | 188,995 | 221,495 | 320,703 | 62.9 |
| | | '307' EXTENSION | 185,115 | 13,619 | 15,680 | 19,229 | 58.5 |
| | | TRINITY PALO SECO | SHALLOW HERRERA RANCHO QUEMADO | 1,526,380 94,635 | 149,633 83,707 | 31,102 105,268 | 384,105 4,578 |
| TTI | ALL | ALL | 7,957,908 | 967,506 | 2,004,332 | 1,924,744 | 66.5 |
| TTPCL | COORA | CO/UC/100/1 | 198,768 | 3,919 | 3,013 | 278 | 6.6 |
| | | CO/UC/110/1 | - | - | - | - | - |
| | | CO/UC/317/11 | - | 16,149 | 12,434 | 1,995 | 11.0 |
| | | CO/UC/314/1 | 118,278 | - | - | - | - |
| | PALO SECO | PS/UF/500/1 | 12,063 | 6,431 | 4,954 | 104 | 1.6 |
| TTPCL | ALL | ALL | 329,109 | 26,501 | 20,433 | 2,383 | 8.2 |
| TTOC TNA ATOC | CATSHILL | CO-30 SDS | 371,673 | 45,577 | 11,420 | 26,977 | 37.2 |
| | SOLDADO MAIN | CRUSE | 2,644,091 | 331,394 | 636,178 | 382,250 | 53.6 |
| | TEAK | MM-0/1(L)FB11A/11B | 8,570,316 | 4,250,374 | 2,479,798 | 591,801 | 12.2 |
| ALL COS. | ALL FIELDS | ALL PROJECTS | 19,873,097 | 5,621,352 | 5,152,161 | 2,928,155 | 34.2 |

TABLE IX

STEAM INJECTION SUMMARY BY PROJECTS – 1981

| COMPANY | FIELD | PROJECT | STEAM INJ. (BBLs) | OIL PROD. (BBLs) | GAS PROD. (MCF) | WATER PROD. (BBL) | PROD. RATIO BBL/BBL |
|----------|----------------------------|--|----------------------|---------------------|--------------------|----------------------|------------------------|
| TTI | F. RESERVE | PROJECT III FOREST SDS. | 2,793,681 | 642,760 | 352 792 | 2,145,190 | 0.2 |
| | | PROJECT IV HOT WATERFLOOD | 359,456 | 26,790 | 12 838 | 22,692 | 0.1 |
| | | PHASE I EXP. ST/FLOOD | 346,397 | 227,406 | 195 898 | 256,294 | 0.70 |
| TTI | ALL FIELD | ALL PROJECTS | 3,499,534 | 866,956 | 561 528 | 2,424,176 | 0.3 |
| TTPCL | FYZABAD | PATTERNS 1-5 AND A-C | 462,283 | 366,825 | — | 299,423 | 0.8 |
| | PALO SECO | MAIN UF/LMLE | — | 14,015 | — | 1,471 | — |
| | | PATTERNS 1-23 | 2,487,315 | 1,080,724 | 126 301 | 881,380 | 0.4 |
| | GUAPO | EXP. GEN. PATTERNS — AREAS 1 AND 2 | 7,007 | 5,493 | 96 | 2,663 | 0.8 |
| | | | 1,233,675 | 572,781 | 54 107 | 526,875 | 0.5 |
| | CENTRAL | MAIN LMLE | 344,652 | 275,477 | 7 275 | 96,898 | 0.8 |
| | LOS BAJOS | PATTERN 1 | 20,461 | 66,513 | — | 17,684 | 3.3 |
| APEX/QU. | APEX QUARRY/ QU/CO 1-14 | 617,327 | 103,199 | 848 | 29,923 | 0.2 | |
| TTPCL | ALL FIELDS | ALL PROJECTS | 5,172,720 | 2,485,027 | 188 627 | 1,788,070 | 0.5 |
| TTOC | PARRYLANDS | FOREST SD. | 63,145 | 5,991 | — | 7,491 | 0.1 |
| ALL COS. | ALL FIELDS | ALL PROJECTS | 8,735,399 | 3,357,974 | 750 155 | 4,219,737 | 0.4 |

NATURAL GAS REPORT 1981

The total natural gas production for the year 1981 amounted to 5 604 million standard cubic metres (195,701 mmscf) which was slightly less than the figure for 1980 at 5 664 million standard cubic metres (197,811 mmscf). The average daily production for the same period was 15.3 million standard cubic metres (536.2 mmscf).

Amoco Trinidad Oil Company was responsible for 74.8% of this total with an average daily production of 11.5 million standard cubic metres (400 mmscf) which represents a 2.6% decrease in production over the corresponding 1980 figure. Trinidad Northern Areas (TNA) produced an average of 1.8 million standard cubic metres/day (63.8 mmscf/d) with the remaining companies Trinidad-Tesoro Petroleum Company, Trinidad and Tobago Oil Company, Texaco Trinidad Incorporated and Premier Consolidated Oilfields Limited producing 2.0 million standard cubic metres/day (71.6 mmscf/d).

Overall gas utilization amounted to 69.9% of the total gas produced for 1981. The utilization split was as follows:—

Gas used as fuel by oil companies was 16.8% which represents an average daily figure of 2.9 million standard cubic metres (90.0 mmscf) of gas. Gas used as fuel by non-oil companies was 28.2% which represents an average daily figure of 4.3 million standard cubic metres (151 mmscf) of gas. Gas used as process gas amounted to 0.93 million standard cubic metres per day (33 mmscf/d).

The largest non-oil company consumer was the Trinidad and Tobago Electricity Commission which utilized 15.9% of the gas produced which represents an average daily figure of 2.4 million standard cubic metres (85 mmscf).

NEW FACILITIES

During the year 1981, the National Gas Company installed a new 152 mm (6") gas line to transport natural gas from the Trinidad and Tobago Oil Company's Mahaica gas field to its 406 mm (16") gas pipeline at Caroni River bridge. This line was approximately 32 km (105,000 feet) long.

The East Coast Flare Gas Project began during the year. Two (2) compressor platforms, National Gas Company Teak and Poui, were installed and flexible gas lines were laid and tied into the Amoco Trinidad Oil Company platforms, Teak A and Poui A respectively. At year's end work was in progress on the support facilities and the compressors.

Finally, a pipeline route survey was carried out for the National Energy Corporation's Second Cross Country Natural Gas pipeline from Galeota to Pt. Lisas.

TABLE XI

ANNUAL STATISTICS FOR NATURAL GAS PRODUCTION AND UTILIZATION 1977 - 1981

| | 1977 | | 1978 | | 1979 | | 1980 | | 1981 | |
|----------------------------------|---------------------|-------|--------------------|-------|-------------------|-------|--------------------|-------|-------------------|-------|
| | MILLIONS OF S.C.F.* | % | MILLIONS OF S.C.F. | % | MILLION OF S.C.F. | % | MILLIONS OF S.C.F. | % | MILLION OF S.C.F. | % |
| PRODUCTION | 149,589 | 100.0 | 157,920 | 100.0 | 169,740 | 100.0 | 197,811 | 100.0 | 195,701 | 100.0 |
| G.O.R. (S.C.F./BBL) | 1,789 | — | 1,885 | — | 2,169 | — | 2,549 | — | 2,832 | — |
| A. USED AS FUEL: | | | | | | | | | | |
| IN FIELDS | 9,064 | 6.0 | 10,616 | 6.7 | 10,244 | 6.0 | 9,658 | 4.9 | 9,540 | 4.9 |
| IN REFINERIES | 19,350 | 12.9 | 18,751 | 11.9 | 20,865 | 12.3 | 26,837 | 13.6 | 23,308 | 11.9 |
| IN OTHER INDUSTRIES | 34,554 | 23.1 | 39,842 | 25.2 | 40,881 | 24.1 | 44,129 | 22.3 | 55,131 | 28.2 |
| SUB TOTAL: | 62,968 | 42.0 | 69,209 | 43.8 | 71,990 | 42.4 | 80,624 | 40.8 | 87,979 | 45.0 |
| B. OTHER COMPLETE UTILIZATION: | | | | | | | | | | |
| USED AS PROCESS GAS | 7,708 | 5.1 | 15,153 | 9.6 | 15,445 | 9.1 | 15,870 | 8.0 | 12,068 | 6.1 |
| INJECTED INTO FORMATION | 333 | 0.2 | 114 | 0.07 | 19 | — | 4 | — | — | — |
| CONVERTED TO C.H.P.S. | 62 | 0.1 | 63 | 0.03 | 50 | — | 39 | — | 41 | — |
| SUB TOTAL: | 8,103 | 5.4 | 15,330 | 9.7 | 15,514 | 9.1 | 15,913 | 8.0 | 12,109 | 6.1 |
| C. VENTED: | | | | | | | | | | |
| AFTER USE OF PNEUMATIC ENERGY | 10,349 | 6.9 | 15,843 | 10.1 | 25,550 | 15.1 | 32,313 | 16.3 | 36,863 | 18.8 |
| WITHOUT USE | 68,169 | 45.6 | 57,538 | 36.4 | 56,686 | 33.4 | 68,961 | 34.9 | 58,750 | 30.1 |
| SUB TOTAL: | 78,518 | 52.5 | 73,381 | 46.5 | 82,236 | 48.5 | 101,274 | 51.2 | 95,613 | 48.9 |

* STANDARD CUBIC FEET

% PERCENT OF TOTAL NATURAL GAS PRODUCED

ACCIDENT REPORT 1981

Accidents reported for the year 1981 numbered six hundred and fifty-two (652). This figure represents a decrease of one hundred and seventy-eight (178) over the 1980 total of eight hundred and thirty (830). There were marked decreases in the number of accidents occurring at Trinidad Texaco Incorporated, (Amoco Trinidad Oil Company, Trinidad-Tesoro Petroleum Company Limited and Trinmar, whereas Trinidad and Tobago Oil Company recorded an increase of three (3).

Accidents occurring during drilling and production operations numbered three hundred and eighteen (318) representing a decrease when compared to last year's total of four hundred and ninety (490). Of these accidents Amoco Trinidad Oil Company's operations accounted for thirty (30) per cent.

Refinery accidents which do not fall under the jurisdiction of the Ministry of Energy and Natural Resources totalled three hundred and thirty-four (334), which shows a decrease of seven (7), over last year's figure of three hundred and forty (340).

Accidents were classified as serious and non-serious depending on the extent of injury sustained. Serious accidents comprised of fifty-five (55). This figure represents an increase over last year's figure of forty-one (41), and consisted mainly burns, crushed injuries, lacerations, contusions, fractures and head injuries.

Non-serious accidents totalled two hundred and seventy-seven (277) showing a decrease of one hundred and sixty-seven (167) over the 1980 total of four hundred and forty-four (444). These consisted mainly of punctured wounds, shocks, facial injuries, lacerations and dislocation of joints.

There were five (5) total accidents in 1981, four (4) occurred at Trinidad Texaco Incorporated and the other at Trinidad-Tesoro Petroleum Company Limited.

A traffic accident at the junction of roads nos. 153 and 46 occurred on the Trinidad Tesoro's Fyzabad field on September 10th 1981 resulting in the death of Mr. Patrick Paul a rig supervisor employed by Trinidad Lease Operators Rig No. 2XA 9019.

The four (4) other fatalities were employed with Trinidad Texaco Incorporated, Pointe-a-Pierre. The first occurred on February 13th 1981 at the Rexformer Unit: a plant fitter inhaled toxic gases. Only four (4) days later, the second fatal accident occurred when a foreman's hand came into contact with live point in fuse holder.

In Marine Craft and Pollution Control: Launch "Moonfish", No. 3 Berth North, an explosion occurred whereby a deckhand and a launch captain received serious burns resulting in death.

TABLE XII
ACCIDENT STATISTICS – 1981

| COMPANY | FIELDS | TOTAL ACCIDENTS | FATALITIES | SERIOUS | | | | MINOR | | | |
|--------------------------------------|-----------------------------|--------------------|------------|---------|----|---|---|-------|----|----|----|
| | | | | D | P | E | O | D | P | E | O |
| TEXACO TRINIDAD INCORPORATED | BARRACKPORE | 18 | – | 1 | – | – | – | 12 | 4 | – | 1 |
| | GUAYAGUAYARE | 6 | – | – | – | – | – | – | 6 | – | – |
| | PALO SECO | 11 | – | 1 | – | – | – | 3 | 7 | – | – |
| | FOREST RESERVE/ BRIGHTON | 29 | – | – | 6 | – | – | 9 | 14 | – | – |
| | *POINTE-A-PIERRE | 334 | 4 | – | – | – | – | – | – | – | – |
| TOTAL (excluding P.A.P.) | | 64 | 4 | 2 | 6 | – | – | 24 | 31 | – | 1 |
| AMOCO TRINIDAD OIL COMPANY | ALL | 120 | – | 5 | 9 | 1 | 3 | 50 | 18 | 23 | 11 |
| TRINIDAD-TESORO PETROLEUM COMPANY | ALL | 29 | 1 | 4 | 6 | – | 1 | 9 | 12 | 3 | 3 |
| TRINIDAD NORTHERN AREAS | ALL | 50 | – | 7 | – | 3 | 1 | 10 | 8 | 15 | 11 |
| TRINIDAD & TOBAGO OIL COMPANY | ALL | 55 | – | 7 | – | – | – | 41 | – | 5 | 2 |
| TOTAL | | 318 | 5 | 25 | 21 | 4 | 5 | 134 | 69 | 46 | 28 |

D–DRILLING

P–PRODUCTION

E–ENGINEERING

O–OTHERS

FACTORY INSPECTORATE ACCOUNTED FOR 652 MINOR ACCIDENTS

ADMINISTRATIVE REPORT 1981 -- LEGAL SECTION

Apart from the performance of routine legal duties which included advising on the administration of the Petroleum Legislation, drafting of licences and documents of a legal nature, attendance at meetings and serving on committees, the Legal Section was involved in the following specific matters:

Legislation

Petroleum Taxes (Amendment) Act, 1981 Act No. 5/81

The Petroleum Taxes Act, 1974 was amended by the Petroleum Taxes (Amendment) Act, 1981, in order to enhance the degree of State Administrative Control over the Petroleum Industry. It was necessary to ensure that the minimum benefit derived from the depletion of our petroleum resources, and in particular the benefit which resulted from international market price increases accrued to the State.

Finally, it was intended that the amended Act would develop the taxation regime which would be in harmony with international tax systems and therefore, provide equitable treatment for all petroleum companies operating in Trinidad and Tobago.

Price of Petroleum Products Orders

A number of orders made under the Petroleum Act were amended. They were cited as:

- (a) The Price of Petroleum Products (Amendment) Order, 1981
- (b) The Price of Petroleum Products (Amendment) (No. 2) Order 1981
- (c) The Petroleum Production Levy and Subsidy (Gross Margin) (Amendment) Order 1981.

Licences

Application for Exploration and Production (Public Petroleum Rights) Licence

In April 1981, Trinidad and Tobago Oil Company Limited (TRINTOC) was granted an Exploration and Production (Public Petroleum Rights) Licence over 142,623 acres in the submarine area lying North of the North West Peninsula of Trinidad (identified as Block 9). The signature bonus paid was \$3 m. U.S.

Normally, the Government preferred to grant Production Sharing Contracts instead of Exploration and Production (Public Petroleum Rights) Licences, since it afforded the Government the means of becoming more directly involved in the natural resources of the country. However, because of TRINTOC's peculiar position, it was decided that an Exploration and Production (Public Petroleum Rights) Licence would be granted instead of a Production Sharing Contract.

The Production Sharing Contract made between the Minister, Deminex and Mobil over the Submarine Area identified as Block 4 expired on 19th December, 1980.

The Letter of Guarantee given by the First National City Bank in favour of Deminex and Mobil for the performance of all obligations under the contract was cancelled in May, 1981.

Pipeline Licences

- (i) An application by Texaco Trinidad Incorporated for a 152 mm (6") Gas Pipeline from the Gathering Station at Lot 8 to an existing 300 mm (12") Gas Line at Point Ligoure Forest Reserve was approved. The Licence was granted on 18th March, 1981.

- (ii) The National Gas Company Limited applied for a Licence to lay a 152 mm (6") National Gas Pipeline from Trintoc's Well AM-2 in Arena Mahaica to an existing 406.4 mm (16") gas line at the Princess Margaret Highway. This Licence was granted on 5th October, 1981.

Exploration and Production Licences (Private Petroleum Rights) Licences

Applications have been received from Texaco Trinidad Incorporated for a number of these Licences over land, but these are yet to be determined.

Appendix VIII presents a summary of Crude Oil Assessed for State Royalty by company, showing price per barrel and analyses for the half-yearly periods ending 30th June 1981, and 31st December 1981.

The rate of Royalty on all fields is normally ten (10) per cent of field storage value, except for Amoco Trinidad Oil Company's Licences, and the Galeota field of Trinidad Tesoro Petroleum Company Limited, where it is twelve and a half (12½) per cent of field storage value. The net production for Royalty purposes for the first half of 1981 was 33,557,449 barrels while in 1980, it was 37,374,335 barrels; for the second half of 1981 net production was 33,026,437 barrels compared with 1979 of 37,474,894 barrels. The difference in the two (2) rates of Royalty is reflected in the total assessable barrels as indicated hereunder.

Net assessed production for Royalty purposes increased during the first half of 1981 to 3,857,376 barrels from 4,302,586 barrels in 1980. However, for the second half of 1981 there was a decrease to 3,788,847 barrels as compared with 4,328,042 barrels in 1980; this decrease is due primarily to falling production in all fields, especially in the Amoco Trinidad Oil Company's Licensed area.

Prices of Petroleum Products continued rising, and these are reflected in the total Royalty on Crude Oil for 1981 at five hundred and ninety-two million thirty-two thousand one hundred and forty-six (\$592,032,146) dollars compared with the 1980 figure of five hundred and forty-four million sixty-one thousand five hundred and thirty-eight (\$544,061,538) dollars and four hundred and eighty-six million sixty-one thousand five hundred and thirty-eight (\$486,061,538) dollars for 1979 (see Appendix IX – average price of Petroleum Products in T.T. currency per barrel). Despite falling production Royalty has shown an upward movement.

Appendix IX presents a summary of Royalty assessed for Crude Oil, Natural Gas sold and Natural Gasolene produced, and Minimum Rents on State Owned Mining Leases/Licences for half-yearly periods 1979, 1980 and 1981.

It will be observed that Total Royalty on Crude Oil, Natural Gas and Natural Gasolene increased progressively through the years 1979, 1980 and 1981 which were actually five hundred and ninety-six million nine hundred and thirty-seven thousand four hundred and twenty-seven (\$596,937,427) dollars, five hundred and fifty million ninety-nine thousand two hundred and fifty-one (\$550,099,251) dollars and four hundred and ninety million four hundred and eighty-four thousand eight hundred and eighty-two (\$490,484,882) dollars respectively. Increases in Petroleum Products prices were mainly responsible for the higher revenue from year to year.

APPENDIX 1
ANNUAL STATISTICS OF PRODUCTION, DRILLING, REFINING — EXPORTS AND IMPORTS — 1981 — 1971

| ITEM. | UNIT | PERCENTAGE DIFFERENCE 1980 - 1981 | 1981 | 1980 | 1979 | 1978 | 1977 | 1976 | 1975 | 1974 | 1973 | 1972 | 1971 |
|---|-----------|-----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 1. CRUDE OIL | '000 bbls | -11.0 | 69,107 | 77,613 | 78,249 | 83,778 | 83,619 | 77,673 | 78,621 | 68,136 | 60,670 | 51,211 | 47,148 |
| 2. CASING HEAD GASOLINE (C.H.P.S.) | '000 bbls | +5.4 | 39 | 37 | 44 | 60 | 61 | 53 | 61 | 69 | 79 | 137 | 141 |
| 3. TOTAL CRUDE OIL AND NATURAL GASOLINE (1+2) | '000 bbls | -11.0 | 69,146 | 77,650 | 78,293 | 83,838 | 83,680 | 77,726 | 78,682 | 68,205 | 60,749 | 51,348 | 47,289 |
| 4. CRUDE OIL PRODUCTION — CROWN OIL RIGHTS | '000 bbls | -11.1 | 66,602 | 74,879 | 75,399 | 80,701 | 80,612 | 74,704 | 76,018 | 65,078 | 57,736 | 48,246 | 43,929 |
| 5. CRUDE OIL PRODUCTION — PRIVATE OIL RIGHTS | '000 bbls | -8.4 | 2,505 | 2,734 | 2,850 | 3,077 | 3,007 | 2,969 | 2,603 | 3,058 | 2,934 | 2,965 | 3,219 |
| 6. TOTAL IMPORTS | '000 bbls | -29.4 | 39,048 | 55,309 | 51,631 | 56,817 | 67,441 | 87,459 | 58,796 | 95,686 | 103,977 | 107,662 | 107,567 |
| 7. IMPORTS OF REFINED PRODUCTS | '000 bbls | — | 438 | — | — | — | 1,681 | 2,503 | 260 | 46 | 21 | 76 | 75 |
| 8. IMPORTS OF CRUDE OIL FOR REFINING | '000 bbls | -30.2 | 38,610 | 55,309 | 51,631 | 56,817 | 65,760 | 84,784 | 58,144 | 95,472 | 103,624 | 107,150 | 106,867 |
| 9. IMPORTS OF OTHER OILS FOR REFINING AND BLENDING | '000 bbls | — | — | — | — | — | 0 | 172 | 392 | 118 | 332 | 436 | 625 |
| 10. TOTAL EXPORTS | '000 bbls | -15.8 | 95,514 | 113,498 | 113,105 | 126,604 | 140,753 | 147,896 | 139,714 | 153,297 | 155,998 | 149,992 | 146,663 |
| 11. EXPORTS OF CRUDE OIL | '000 bbls | -7.7 | 42,522 | 46,075 | 46,282 | 54,008 | 50,936 | 44,408 | 48,307 | 31,870 | 23,614 | 14,005 | 6,998 |
| 12. EXPORTS OF REFINED PRODUCTS | '000 bbls | -21.4 | 52,992 | 67,418 | 66,823 | 72,596 | 89,817 | 103,488 | 91,407 | 121,427 | 132,384 | 135,972 | 139,665 |
| 13. RUNS TO STILL | '000 bbls | -19.1 | 63,343 | 78,343 | 82,857 | 85,882 | 99,536 | 117,595 | 85,660 | 130,819 | 141,687 | 144,274 | 145,547 |
| 14. NUMBER OF WELLS STARTED | AS STATED | +32.0 | 206 | 156 | 190 | 236 | 235 | 224 | 182 | 219 | 205 | 184 | 248 |
| 15. TOTAL NUMBER OF WELLS COMPLETED | AS STATED | +12.6 | 206 | 183 | 184 | 215 | 217 | 207 | 189 | 212 | 212 | 189 | 220 |
| 16. NUMBER OF DRILLING WELLS COMPLETED AS OIL WELLS | AS STATED | -15.0 | 161 | 140 | 144 | 170 | 170 | 153 | 150 | 176 | 181 | 162 | 175 |
| 17. NUMBER OF DRILLING WELLS ABANDONED ETC. | AS STATED | -26.3 | 14 | 19 | 40 | 45 | 47 | 54 | 24 | 21 | 31 | 27 | 45 |
| 18. TOTAL FOOTAGE DRILLED (ALL WELLS) | FEET | +17.2 | 7,786,118 | 670,928 | 787,132 | 895,098 | 922,295 | 919,705 | 839,649 | 909,980 | 955,185 | 841,742 | 939,259 |
| 19. FOOTAGE DRILLED ON CROWN OIL RIGHTS | FEET | +16.2 | 724,430 | 623,384 | 1,228,181 | 863,989 | 882,023 | 879,132 | 772,279 | 766,787 | 874,867 | 760,769 | 743,784 |
| 20. FOOTAGE DRILLED ON PRIVATE OIL RIGHTS | FEET | +20.3 | 61,688 | 51,258 | 20,479 | 31,109 | 40,272 | 40,573 | 67,370 | 143,193 | 80,318 | 80,973 | 195,475 |
| 21. AVERAGE DEPTH OF COMPLETED WELLS (15) | FEET | +5.1 | 3,740 | 3,557 | 6,786 | 3,868 | 4,196 | 4,443 | 4,442 | 4,509 | 4,505 | 4,294 | 4,269 |
| 22. TOTAL NUMBER OF PRODUCING WELLS (AVERAGE DURING YEAR) | AS STATED | +1.7 | 3,408 | 3,351 | 3,399 | 3,275 | 3,148 | 2,997 | 2,777 | 2,981 | 2,894 | 2,932 | 3,035 |
| 23. NUMBER OF WELLS PRODUCED BY FLOWING (AVERAGE DURING YEAR) | AS STATED | -1.3 | 392 | 397 | 516 | 507 | 428 | 438 | 438 | 498 | 506 | 525 | 559 |
| 24. NUMBER OF WELLS PRODUCED BY ARTIFICIAL LIFT (AVERAGE DURING YEAR) | AS STATED | +2.1 | 3,016 | 2,954 | 2,883 | 2,768 | 2,720 | 2,483 | 2,339 | 2,483 | 2,388 | 2,407 | 2,476 |
| 25. AVERAGE DAILY PRODUCTION PER PRODUCING WELL | BARREL | -12.2 | 55.6 | 63.3 | 63.0 | 70.1 | 72.8 | 71.0 | 77.6 | 62.6 | 57.4 | 47.7 | 42.6 |
| 26. AVERAGE DAILY PRODUCTION FLOWING WELL | BARREL | -27.0 | 181.8 | 248.9 | 215.4 | 271.4 | 335.7 | 328.5 | 358.7 | 248.0 | 204.4 | 146.8 | 114.4 |
| 27. AVERAGE DAILY PRODUCTION PER ARTIFICIAL LIFT WELL | BARREL | -6.9 | 39.2 | 42.1 | 35.8 | 33.2 | 31.4 | 25.5 | 24.9 | 25.4 | 26.3 | 26.1 | 26.4 |
| 28. TOTAL VALUE OF DOMESTIC EXPORTS | \$'000 | -7.1 | 9,025,898 | 9,715,719 | 6,175,213 | 4,810,025 | 5,188,987 | 5,331,557 | 3,939,970 | 3,934,151 | 1,050,476 | 1,052,023 | 1,000,940 |
| 29. TOTAL VALUE OF PETROLEUM PRODUCTS (ITEM 28) | \$'000 | -7.6 | 8,435,633 | 9,127,773 | 5,715,496 | 4,379,188 | 4,787,280 | 4,960,604 | 1,925,785 | 2,532,081 | 831,496 | 830,993 | 804,831 |
| 30. TOTAL VALUE OF LAKE ASPHALT PRODUCTS | \$'000 | -58.3 | 1,349 | 3,253 | 3,355 | 360 | 3,051 | 4,426 | 4,240 | 4,657 | 3,876 | 3,229 | 3,561 |
| 31. TOTAL NATURAL GAS PRODUCED | MMCF | -1.1 | 195,701 | 197,811 | 169,740 | 157,920 | 149,589 | 137,959 | 126,434 | 128,293 | 119,979 | 104,338 | 109,814 |
| 32. USED AS FUEL | MMCF | -58.3 | 32,848 | 80,624 | 71,990 | 69,209 | 62,968 | 52,931 | 46,618 | 50,599 | 54,700 | 57,131 | 55,866 |
| 33. REPLACED IN FORMATION | MMCF | — | — | 4 | 19 | 114 | 333 | 1,699 | 2,017 | 5,706 | 6,381 | 9,230 | 12,112 |
| 34. LOSSES, NOT COLLECTED | MMCF | -1.4 | 12,432 | 12,607 | 82,236 | 73,381 | 8,518 | 76,095 | 70,890 | 63,760 | 49,213 | 28,016 | 32,793 |

APPENDIX II - MONTHLY ANALYSIS OF DRILLING AND WORKOVER WELLS, 1981
TRINIDAD AND TOBAGO

| MONTH | RIG/MONTH | NEW WELLS STARTED | DRILLING WELLS COMPLETED | | | | | | | | | | TOTAL | AGGREGATE DEPTH | AVERAGE DEPTH | CLOSED IN | | MONTHLY FOOTAGE DRILLED | | | AVERAGE FOOTAGE DRILLED | | OLD WELLS | |
|------------|-----------|-------------------|--------------------------|-----------------|-------------------------------|-----------------|---------------|-----------------|-----------|-----------------|------------------|-----------------|-------|-----------------|---------------|-----------|-----------------|-------------------------|-----------------|---------|-------------------------|-----------|-------------|-----------|
| | | | OIL & GAS PRODUCERS | | INJECTION & OBSERVATION WELLS | | ABANDONED | | | | | | | | | NO. | AGGREGATE DEPTH | CROWN | PRIVATE | TOTAL | /DAY | /RIG /DAY | RECOMPLETED | ABANDONED |
| | | | NO. | AGGREGATE DEPTH | NO. | AGGREGATE DEPTH | AFTER TESTING | | DRY HOLES | | TECHNICAL CAUSES | | | | | | | | | | | | | |
| | | | | | | | NO. | AGGREGATE DEPTH | NO. | AGGREGATE DEPTH | NO. | AGGREGATE DEPTH | | | | NO. | AGGREGATE DEPTH | NO. | AGGREGATE DEPTH | | | | | |
| JANUARY | 13.0 | 16 | 9 | 34,310 | 1 | 1,285 | 1 | 8,334 | - | - | | | 11 | 43,929 | 3993.6 | | | 66,920 | 3,196 | 70,116 | 2,262 | 174 | 8 | - |
| FEBRUARY | 13.14 | 12 | 10 | 39,653 | 5 | 10,415 | - | - | 1 | 8,621 | | | 16 | 58,689 | 3668.1 | | | 54,239 | 4,121 | 58,360 | 2,084 | 159 | 9 | - |
| MARCH | 14.11 | 13 | 9 | 44,004 | 4 | 7,607 | 1 | 8,600 | - | - | | | 14 | 60,211 | 4301.0 | | | 52,629 | 1,083 | 53,712 | 1,733 | 123 | 8 | - |
| APRIL | 14.17 | 19 | 10 | 35,439 | 3 | 4,900 | | | - | - | | | 13 | 40,339 | 3108.0 | | | 77,358 | - | 77,358 | 2,579 | 182 | 13 | - |
| MAY | 15.02 | 19 | 11 | 51,438 | - | - | | | 1 | 8,275 | | | 12 | 59,713 | 4976.1 | | | 61,591 | - | 61,591 | 1,987 | 132 | 11 | - |
| JUNE | 14.94 | 20 | 20 | 66,917 | 1 | 2,100 | | | 2 | 23,095 | | | 23 | 92,112 | 4004.9 | | | 68,429 | 6,610 | 75,039 | 2,501 | 167 | 12 | - |
| JULY | 13.83 | 20 | 15 | 43,474 | - | - | | | 1 | 5,030 | | | 16 | 48,504 | 3031.5 | | | 67,662 | 10,158 | 77,820 | 2,510 | 182 | 17 | 7 |
| AUGUST | 13.99 | 17 | 19 | 59,189 | 5 | 7,185 | 1 | 12,920 | - | - | | | 25 | 79,294 | 3171.8 | | | 52,837 | 13,548 | 66,385 | 2,141 | 153 | 16 | 2 |
| SEPTEMBER | 14.08 | 18 | 11 | 56,315 | - | - | - | - | 1 | 12,650 | | | 12 | 68,965 | 5747.1 | | | 47,732 | 11,118 | 58,850 | 1,962 | 139 | 14 | - |
| OCTOBER | 15.61 | 22 | 19 | 54,140 | 1 | 1,200 | 1 | 12,046 | 1 | 3,200 | | | 22 | 70,586 | 3208.5 | | | 71,949 | 4,348 | 76,297 | 2,461 | 158 | 24 | - |
| NOVEMBER | 14.68 | 18 | 21 | 67,374 | 1 | 1,279 | - | - | 1 | 11,299 | | | 21 | 75,652 | 3602.5 | | | 61,132 | 4,109 | 65,241 | 2,175 | 148 | 14 | 1 |
| DECEMBER | 12.74 | 12 | 15 | 49,622 | 6 | 10,700 | - | - | 1 | 6,364 | 1 | 8,514 | 21 | 72,490 | 3594.8 | | | 41,952 | 3,397 | 45,349 | 1,463 | 115 | 15 | - |
| TOTAL 1981 | 169.31 | 206 | 169 | 601,875 | 27 | 46,671 | 4 | 41,900 | 9 | 78,534 | 1 | 8,514 | 210 | 770,484 | 3740.2 | | | 724,430 | 61,688 | 786,118 | 2,154 | 153 | 161 | 10 |
| TOTAL 1980 | 157.18 | 171 | 148 | 566,954 | 15 | 30,303 | 5 | 44,707 | 11 | 67,630 | 6 | 24,050 | 185 | 733,824 | 3966.6 | | | 622,929 | 51,258 | 674,187 | 1842.0 | 140.8 | | |

APPENDIX 11A

LAND AND MARINE FOOTAGE DRILLED — 1981

| | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER | OCTOBER | NOVEMBER | DECEMBER | TOTAL |
|--------------------------|---------|----------|--------|--------|--------|--------|--------|--------|-----------|---------|----------|----------|---------|
| LAND | 43,540 | 34,199 | 30,494 | 50,588 | 47,879 | 45,891 | 44,379 | 42,363 | 36,364 | 46,862 | 47,949 | 31,985 | 502,493 |
| MARINE | 26,576 | 24,161 | 23,218 | 26,770 | 13,712 | 29,148 | 33,441 | 24,022 | 22,486 | 29,435 | 17,292 | 13,364 | 283,625 |
| TOTAL | 70,116 | 58,360 | 53,712 | 77,358 | 61,591 | 75,039 | 77,820 | 66,385 | 58,850 | 76,297 | 65,241 | 45,349 | 786,118 |
| DAILY AVERAGE FOOTAGE | 2661.8 | 2084.3 | 1732.6 | 2578.6 | 1986.8 | 2501.3 | 2510.3 | 2141.5 | 1961.7 | 2461.2 | 3174.7 | 1462.9 | 2153.7 |
| DAILY AVERAGE FT/RIG | 174.0 | 158.6 | 122.8 | 182.0 | 132.3 | 167.4 | 181.5 | 153.1 | 139.3 | 157.7 | 216.3 | 114.8 | 12.7 |
| MARINE % OF TOTAL | 37.9 | 41.4 | 43.2 | 34.6 | 22.3 | 38.8 | 43.0 | 36.2 | 38.2 | 38.6 | 26.5 | 29.5 | 36.1 |

APPENDIX 111
ANALYSIS OF MONTHLY PRODUCTION FOR THE YEAR ENDING 31ST DECEMBER 1981

| MONTH | FLOWING | | | | GAS/AIR LIFT | | | | PUMPING | | | | PLUNGER LIFT | | | | OTHER METHODS | | | | SALT WATER | | | | NO. OF WELLS PRODUCED | NO. OF IDLE WELLS | NO. OF WELLS ABANDONED | NO. OF WELLS DRILLING AT MONTH END | NO. OF WELLS STARTED | DAILY AV. PER PRODUCING WELL | TOTAL OIL PRODUCTION | BREAKDOWN OF TOTAL PRODUCTION | | | | | | AVERAGE B.O.P.D. | CROWN C.H.P.S. | PRIVATE C.H.P.S. | TOTAL |
|---|--------------|---------------|----------------|--------------------------|--------------|---------------|----------------|--------------------------|--------------|---------------|----------------|--------------------------|--------------|---------------|----------------|--------------------------|---------------|---------------|----------------|--------------------------|--------------|---------------|----------------|--------------------------|-----------------------|-------------------|------------------------|------------------------------------|----------------------|------------------------------|----------------------|-------------------------------|--------------|------------------------|--------------------|--------------|------------------------|------------------|----------------|------------------|--------|
| | NO. OF WELLS | QUANTITY BBLs | % OF TOTAL OIL | DAILY AV. PER WELLS BBLs | NO. OF WELLS | QUANTITY BBLs | % OF TOTAL OIL | DAILY AV. PER WELLS BBLs | NO. OF WELLS | QUANTITY BBLs | % OF TOTAL OIL | DAILY AV. PER WELLS BBLs | NO. OF WELLS | QUANTITY BBLs | % OF TOTAL OIL | DAILY AV. PER WELLS BBLs | NO. OF WELLS | QUANTITY BBLs | % OF TOTAL OIL | DAILY AV. PER WELLS BBLs | NO. OF WELLS | QUANTITY BBLs | % OF TOTAL OIL | DAILY AV. PER WELLS BBLs | | | | | | | | CROWN | | PRIVATE | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | DAILY AV. PER WELL | NO. OF WELLS | QUANTITY PRODUCED BBLs | DAILY AV. PER WELL | NO. OF WELLS | QUANTITY PRODUCED BBLs | | | | |
| JANUARY | 386 | 2,780,792 | 44.6 | 232.4 | 617 | 2,260,713 | 36.3 | 118.2 | 2,330 | 1,185,819 | 19.0 | 16.4 | — | — | — | — | 4 | 77 | — | 0.6 | 1,690 | 3,905,860 | 62.7 | 74.6 | 3,337 | 8,311 | 1 | 11 | 11,660 | 60.2 | 6,227,401 | 72.2 | 2,682 | 6,000,734 | 11.2 | 655 | 226,667 | 200,884 | 3,557 | 101 | 3,658 |
| FEBRUARY | 374 | 2,339,963 | 41.6 | 223.4 | 623 | 2,110,176 | 37.5 | 120.9 | 2,365 | 1,168,408 | 20.7 | 17.6 | — | — | — | — | 2 | 22 | — | 0.4 | 1,711 | 3,525,345 | 62.7 | 73.6 | 3,364 | 8,291 | 1 | 16 | 11,672 | 59.7 | 5,618,569 | 71.5 | 2,704 | 5,410,463 | 11.3 | 660 | 208,106 | 200,663 | 3,098 | 93 | 3,186 |
| MARCH | 357 | 2,189,105 | 37.5 | 197.8 | 619 | 2,372,014 | 40.5 | 123.6 | 2,369 | 1,281,399 | 21.9 | 17.4 | — | — | — | — | 2 | 12 | — | 0.2 | 1,666 | 3,597,261 | 61.7 | 69.7 | 3,347 | 8,323 | 1 | 14 | 11,685 | 56.3 | 5,842,538 | 67.5 | 2,683 | 5,617,126 | 11.0 | 664 | 225,404 | 186,469 | 3,071 | 70 | 3,141 |
| APRIL | 363 | 2,019,134 | 35.9 | 185.4 | 621 | 2,356,294 | 41.9 | 126.5 | 2,384 | 1,236,763 | 22.0 | 17.3 | — | — | — | — | 2 | 29 | — | 0.5 | 1,726 | 3,776,980 | 67.3 | 72.9 | 3,370 | 8,321 | — | 13 | 11,704 | 55.5 | 5,612,220 | 66.4 | 2,714 | 5,404,384 | 10.6 | 656 | 207,836 | 187,074 | 3,508 | 79 | 3,687 |
| MAY | 377 | 2,134,184 | 36.7 | 182.6 | 642 | 2,473,994 | 42.6 | 124.3 | 2,377 | 1,196,578 | 20.6 | 16.2 | — | — | — | — | 2 | 5 | — | 0.08 | 1,749 | 4,053,696 | 69.8 | 74.8 | 3,398 | 8,312 | 1 | 12 | 11,723 | 55.1 | 5,804,761 | 66.5 | 2,754 | 5,594,248 | 10.5 | 644 | 210,513 | 187,250 | 3,683 | 102 | 3,685 |
| JUNE | 391 | 2,105,468 | 36.6 | 179.5 | 648 | 2,482,414 | 43.2 | 127.6 | 2,353 | 1,159,374 | 20.2 | 16.4 | — | — | — | — | — | — | — | — | 1,786 | 3,998,728 | 69.6 | 74.6 | 3,392 | 8,326 | 2 | 28 | 11,743 | 56.5 | 5,747,266 | 67.5 | 2,737 | 5,543,218 | 10.4 | 655 | 204,038 | 191,576 | 2,728 | 96 | 2,824 |
| PRODUCTION TOTAL 1st JANUARY — 30th JUNE | 375 | 13,568,646 | 38.9 | 199.9 | 628 | 14,055,605 | 40.3 | 123.6 | 2,363 | 7,228,341 | 20.7 | 16.9 | — | — | — | — | 2 | 145 | — | 0.4 | 1,721 | 22,857,870 | 65.6 | 73.4 | 3,368 | — | — | — | — | — | 34,852,737 | 68.4 | 2,712 | 33,570,173 | 10.8 | 656 | 1,282,564 | 192,557 | 19,540 | 541 | 20,081 |
| JULY | 395 | 2,129,879 | 36.6 | 173.9 | 647 | 2,522,439 | 43.4 | 125.7 | 2,390 | 1,156,877 | 19.9 | 15.6 | — | — | — | — | 1 | 42 | — | 1.4 | 1,827 | 4,003,148 | 68.9 | 70.7 | 3,433 | 8,330 | 1 | 16 | 11,763 | 54.6 | 5,809,237 | 65.4 | 2,767 | 5,607,841 | 9.8 | 666 | 201,396 | 187,395 | 2,858 | 51 | 2,909 |
| AUGUST | 403 | 2,094,078 | 40.0 | 167.6 | 653 | 2,591,582 | 44.5 | 128.0 | 2,385 | 1,133,333 | 19.5 | 15.3 | — | — | — | — | 1 | 9 | — | 0.3 | 1,859 | 4,031,591 | 69.3 | 72.3 | 3,442 | 8,312 | 1 | 25 | 11,780 | 54.8 | 5,819,002 | 64.9 | 2,794 | 5,622,664 | 9.8 | 648 | 196,338 | 187,710 | 3,124 | 37 | 3,161 |
| SEPTEMBER | 417 | 2,134,605 | 38.1 | 170.6 | 624 | 2,376,284 | 42.4 | 126.9 | 2,396 | 1,095,705 | 19.5 | 15.2 | — | — | — | — | 1 | 3 | — | 0.1 | 1,854 | 3,676,817 | 66.6 | 64.0 | 3,438 | 8,347 | 1 | 12 | 11,798 | 54.4 | 5,806,697 | 64.7 | 2,788 | 5,414,451 | 9.9 | 650 | 192,146 | 186,886 | 3,087 | 52 | 3,139 |
| OCTOBER | 414 | 2,086,803 | 36.5 | 162.5 | 635 | 2,506,206 | 43.8 | 127.3 | 2,392 | 1,118,183 | 19.5 | 15.1 | — | — | — | — | 4 | — | — | — | 1,942 | 3,732,320 | 65.4 | 62.0 | 3,441 | 8,355 | 2 | 22 | 11,820 | 53.5 | 5,711,192 | 63.9 | 2,779 | 5,505,092 | 10.0 | 662 | 206,100 | 184,232 | 3,289 | 41 | 3,330 |
| NOVEMBER | 412 | 1,996,841 | 35.7 | 161.5 | 626 | 2,495,828 | 44.6 | 132.8 | 2,419 | 1,096,272 | 19.6 | 15.1 | — | — | — | — | 4 | 77 | — | 0.6 | 1,978 | 3,639,946 | 65.1 | 61.3 | 3,461 | 8,355 | 1 | 21 | 11,838 | 53.8 | 5,589,018 | 64.4 | 2,786 | 5,380,603 | 10.3 | 676 | 208,515 | 186,301 | 3,235 | 17 | 3,252 |
| DECEMBER | 412 | 2,001,849 | 34.9 | 156.7 | 602 | 2,544,695 | 44.4 | 136.4 | 2,442 | 1,179,995 | 20.6 | 15.5 | — | — | — | — | 1 | 9 | — | 0.3 | 1,980 | 3,787,817 | 66.1 | 61.7 | 3,457 | 8,371 | 1 | 21 | 11,860 | 53.4 | 5,726,548 | 64.0 | 2,775 | 5,608,428 | 10.3 | 682 | 218,120 | 184,727 | 2,811 | 57 | 2,868 |
| PRODUCTION TOTAL 1st JULY — 31st DECEMBER | 409 | 12,444,055 | 36.3 | 165.4 | 631 | 15,037,034 | 43.8 | 129.5 | 2,404 | 6,780,365 | 19.7 | 15.3 | — | — | — | — | 2 | 140 | — | — | 1,907 | 22,871,639 | 66.8 | 65.2 | 3,446 | — | — | — | — | — | 34,261,594 | 64.5 | 2,782 | 33,038,979 | 10.0 | 664 | 1,222,615 | 186,204 | 18,404 | 255 | 18,659 |
| YEARS PRODUCTION TOTAL | 392 | 28,012,701 | 37.6 | 181.8 | 629 | 29,092,639 | 42.1 | 126.7 | 2,384 | 14,008,706 | 20.3 | 16.1 | — | — | — | — | 2 | 285 | — | 0.4 | 1,814 | 45,729,509 | 66.2 | 69.1 | 3,407 | — | — | — | — | — | 69,114,331 | 66.4 | 2,747 | 66,609,152 | 10.4 | 660 | 2,505,179 | 189,354 | 17,944 | 796 | 38,740 |
| DAILY AVERAGES | — | 71,263 | — | — | — | 79,706 | — | — | — | 38,380 | — | — | — | — | — | — | — | 0.8 | — | — | — | 125,286 | — | — | — | — | — | — | — | — | — | — | 182,491 | — | — | — | 519 | 104 | 2 | 106 | |
| AVERAGES DURING YEAR | 392 | — | — | 183 | 629 | — | — | 127 | 2,384 | — | — | 16.1 | — | — | — | — | 2 | — | — | — | 0.4 | 1,814 | — | — | 69.3 | 3,407 | — | — | — | — | — | — | — | — | 10.4 | 660 | — | — | — | — | — |

APPENDIX 111A

ANALYSIS OF PRODUCTION BY OPERATING COMPANIES - 1981

| COMPANY | FLOWING | | | | GAS LIFTING | | | | PUMPING | | | | OTHER METHODS | | | | SALT WATER | | | | AVERAGE NO. OF WELLS PRODUCED | DAILY AV. PER PRODUCING WELL | TOTAL OIL PRODUCED (BARRELS) | COY'S PRODUCTION AS % OF TOTAL PRODUCTION | CROWN PRODUCTION | | PRIVATE PRODUCTION | |
|---|------------------|----------------------|----------------|--------------------|------------------|----------------------|----------------|--------------------|------------------|----------------------|----------------|--------------------|------------------|----------------------|----------------|--------------------|------------------|----------------------|------------------|--------------------|-------------------------------|------------------------------|------------------------------|---|----------------------|------------|----------------------|------------|
| | AV. NO. OF WELLS | PRODUCTION (BARRELS) | % OF TOTAL OIL | DAILY AV. PER WELL | AV. NO. OF WELLS | PRODUCTION (BARRELS) | % OF TOTAL OIL | DAILY AV. PER WELL | AV. NO. OF WELLS | PRODUCTION (BARRELS) | % OF TOTAL OIL | DAILY AV. PER WELL | AV. NO. OF WELLS | PRODUCTION (BARRELS) | % OF TOTAL OIL | DAILY AV. PER WELL | AV. NO. OF WELLS | PRODUCTION (BARRELS) | % OF TOTAL FLUID | DAILY AV. PER WELL | | | | | PRODUCTION (BARRELS) | % OF TOTAL | PRODUCTION (BARRELS) | % OF TOTAL |
| TRINIDAD-TESORO PETROLEUM COMPANY LIMITED | 69 | 1,197,632 | 13.5 | 47.6 | 54 | 590,500 | 6.7 | 30.0 | 1,272 | 7,081,004 | 79.8 | 15.3 | 0 | 0 | 0 | 0 | 731 | 2,729,326 | 23.5 | 10.2 | 1,395 | 17.4 | 8,869,136 | 12.83 | 7,313,619 | 82.5 | 1,555,517 | 17.5 |
| PREMIER CONSOLIDATED OIL-FIELDS LIMITED | 2 | 2,737 | 2.9 | 3.7 | 0 | 0 | 0 | 0 | 70 | 92,211 | 96.8 | 3.6 | 2 | 285 | 0.3 | 0.4 | 24 | 56,938 | 37.4 | 6.5 | 74 | 3.5 | 95,233 | 0.14 | 19,613 | 20.6 | 75,620 | 79.4 |
| TRINIDAD AND TOBAGO OIL COMPANY | 112 | 1,175,183 | 42.6 | 28.7 | 9 | 54,023 | 2.0 | 16.4 | 362 | 1,531,822 | 55.5 | 11.6 | 0 | 0 | 0 | 0 | 276 | 1,237,184 | 30.9 | 12.3 | 483 | 15.7 | 2,761,028 | 3.99 | 2,514,271 | 91.1 | 246,757 | 8.9 |
| TEXACO TRINIDAD INCORPORATED | 71 | 1,074,732 | 18.0 | 41.5 | 359 | 1,541,866 | 25.8 | 11.8 | 624 | 3,362,206 | 56.2 | 14.8 | 0 | 0 | 0 | 0 | 472 | 6,173,626 | 50.8 | 35.8 | 1,054 | 15.5 | 5,978,804 | 8.65 | 5,351,519 | 89.5 | 627,285 | 10.5 |
| TRINIDAD NORTHERN AREAS | 87 | 4,863,248 | 35.6 | 153.1 | 142 | 6,841,634 | 50.1 | 132.0 | 56 | 1,941,463 | 14.2 | 95.0 | 0 | 0 | 0 | 0 | 226 | 3,886,289 | 22.2 | 47.1 | 285 | 131.2 | 13,646,345 | 19.74 | 13,646,345 | 100.0 | 0 | 0 |
| AMOCO TRINIDAD OIL COMPANY | 52 | 17,699,169 | 46.9 | 932.5 | 66 | 20,064,616 | 53.1 | 832.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 31,646,146 | 45.6 | 1020.0 | 118 | 876.8 | 37,756,743 | 54.64 | 37,756,743 | 100.0 | 0 | 0 |
| TOTAL 1981 | 392 | 26,012,701 | 37.6 | 181.8 | 630 | 29,092,639 | 42.1 | 126.5 | 2,384 | 14,008,706 | 20.3 | 16.1 | 2 | 285 | 0 | 0.4 | 1,814 | 45,729,509 | 39.8 | 69.1 | 3,408 | 55.6 | 69,107,289 | 100.00 | 66,602,110 | 96.4 | 2,505,179 | 3.6 |
| TOTAL 1980 | 396 | 36,165,157 | 46.6 | 249.5 | 633 | 26,564,441 | 34.2 | 114.7 | 2,319 | 14,883,073 | 19.2 | 17.5 | 2 | 289 | 0 | 0.4 | 1,669 | 44,874,056 | 36.6 | 73.5 | 3,350 | 63.5 | 77,612,960 | 100.00 | 74,879,000 | 96.5 | 2,733,960 | 3.5 |

NATURAL GASOLINE C.H.P.S. PRODUCTION 1981

| | CROWN OIL RIGHTS (BBLs) | PRIVATE OIL RIGHTS (BBLs) | TOTAL (BBLs) |
|---|-------------------------|---------------------------|--------------|
| TRINIDAD-TESORO PETROLEUM COMPANY LIMITED | 37,944 | 786 | 38,730 |
| TOTAL 1980 | 35,497 | 1,604 | 37,101 |

APPENDIX IIB

DAILY AVERAGE PRODUCTION FOR ALL COMPANIES — 1981
(ALL QUANTITIES IN BARRELS)

| COMPANY | JANUARY | FEBRUARY | MARCH | APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER | OCTOBER | NOVEMBER | DECEMBER | TOTAL CRUDE | TOTAL B.O.P.D. |
|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|----------------|
| T T P C.L. | 754,985 | 706,421 | 791,501 | 744,705 | 759,933 | 718,953 | 723,723 | 727,488 | 742,047 | 769,470 | 708,219 | 730,691 | 8,869,136 | |
| B.O.P.D. | 24,354 | 25,229 | 25,532 | 24,823 | 24,514 | 23,965 | 23,346 | 23,467 | 24,735 | 24,531 | 23,607 | 23,571 | | 24,299 |
| P.C.O.L. | 8,341 | 7,960 | 8,293 | 7,966 | 8,580 | 8,409 | 7,863 | 8,061 | 7,711 | 7,825 | 6,855 | 7,369 | 95,233 | |
| B.O.P.D. | 269 | 284 | 268 | 266 | 277 | 280 | 254 | 260 | 257 | 252 | 228 | 238 | | 261 |
| TRINTOC | 217,041 | 228,254 | 234,868 | 236,439 | 237,917 | 240,757 | 244,733 | 234,216 | 191,693 | 228,549 | 228,288 | 238,273 | 2,761,028 | |
| B.O.P.D. | 7,001 | 8,152 | 7,576 | 7,881 | 7,675 | 8,025 | 7,895 | 7,555 | 6,390 | 7,373 | 7,610 | 7,686 | | 7,564 |
| T.T.I. | 543,371 | 519,631 | 538,234 | 505,374 | 504,322 | 498,662 | 508,193 | 495,162 | 478,732 | 438,123 | 452,019 | 496,981 | 5,978,804 | |
| B.O.P.D. | 17,528 | 18,558 | 17,362 | 16,846 | 16,268 | 16,622 | 16,393 | 15,973 | 15,958 | 14,133 | 15,067 | 16,032 | | 16,380 |
| T.N.A. | 1,148,442 | 1,035,752 | 1,145,447 | 1,113,692 | 1,121,886 | 1,113,051 | 1,146,560 | 1,184,057 | 1,121,017 | 1,164,388 | 1,159,611 | 1,192,442 | 13,646,345 | |
| B.O.P.D. | 37,047 | 36,991 | 36,950 | 37,123 | 36,190 | 37,102 | 36,986 | 38,195 | 37,367 | 37,561 | 38,654 | 38,466 | | 37,387 |
| AMOCO | 3,555,221 | 3,120,551 | 3,124,187 | 3,000,566 | 3,168,853 | 3,167,130 | 3,178,165 | 3,170,018 | 3,065,397 | 3,111,837 | 3,034,026 | 3,060,792 | 37,756,743 | |
| B.O.P.D. | 114,685 | 111,448 | 100,780 | 100,019 | 102,221 | 105,571 | 102,521 | 102,259 | 102,180 | 100,382 | 101,134 | 98,735 | | 103,443 |
| TOTAL '81 | 6,227,401 | 5,618,569 | 5,842,530 | 5,608,742 | 5,801,491 | 5,746,962 | 5,809,237 | 5,819,002 | 5,606,597 | 5,711,192 | 5,589,018 | 5,726,548 | 69,107,289 | |
| B.O.P.D. | 200,884 | 200,663 | 188,469 | 186,958 | 193,383 | 191,585 | 187,395 | 187,710 | 186,887 | 184,232 | 186,301 | 184,727 | | 189,335 |
| TOTAL '80 | 6,576,136 | 6,215,879 | 6,644,248 | 6,516,210 | 6,502,711 | 6,307,465 | 6,731,423 | 6,594,341 | 6,295,626 | 6,490,924 | 6,317,378 | 6,420,619 | 77,612,960 | |
| B.O.P.D. | 212,133 | 214,341 | 214,331 | 217,207 | 209,765 | 210,249 | 217,143 | 212,721 | 209,854 | 209,385 | 210,579 | 207,117 | | 212,057 |

APPENDIX 111C
MARINE & LAND PRODUCTION — 1981
(ALL QUANTITIES IN BARRELS)

| TYPE OF WELL | JANUARY | | FEBRUARY | | MARCH | | APRIL | | MAY | | JUNE | | JAN. — JUNE | | JULY | | AUGUST | | SEPTEMBER | | OCTOBER | | NOVEMBER | | DECEMBER | | JULY-DEC. | | YEAR 1981 | | | |
|-----------------------------|---------|------------|----------|------------|--------|------------|--------|------------|--------|------------|--------|------------|------------------|------------|--------|------------|--------|------------|-----------|------------|---------|------------|----------|------------|----------|------------|------------------|------------|------------------|------------|--|--|
| | WELLS | PRODUCTION | WELLS | PRODUCTION | WELLS | PRODUCTION | WELLS | PRODUCTION | WELLS | PRODUCTION | WELLS | PRODUCTION | AV. NO. OF WELLS | PRODUCTION | WELLS | PRODUCTION | WELLS | PRODUCTION | WELLS | PRODUCTION | WELLS | PRODUCTION | WELLS | PRODUCTION | WELLS | PRODUCTION | AV. NO. OF WELLS | PRODUCTION | AV. NO. OF WELLS | PRODUCTION | | |
| MARINE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T.N.A. — SOLDADO | 248 | 1,138,876 | 255 | 1,026,265 | 259 | 1,138,246 | 258 | 1,107,489 | 266 | 1,117,023 | 274 | 1,103,975 | 260 | 6,631,674 | 276 | 1,129,370 | 280 | 1,171,653 | 281 | 1,109,557 | 283 | 1,152,679 | 290 | 1,152,347 | 288 | 1,185,868 | 283 | 6,901,474 | 272 | 13,533,148 | | |
| T.T.I. — A.B.M. | 65 | 27,346 | 69 | 23,881 | 68 | 26,339 | 65 | 22,869 | 65 | 23,416 | 70 | 23,406 | 67 | 147,257 | 64 | 23,035 | 71 | 18,946 | 67 | 19,366 | 67 | 22,553 | 67 | 19,808 | 60 | 21,204 | 66 | 124,912 | 66 | 272,169 | | |
| T.T.I. — A.L.M. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | |
| T.T.I. — COUVA MARINE | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | |
| TESORO — NORTH MARINE | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | |
| TESORO — GALEOTA | 39 | 149,668 | 40 | 140,060 | 38 | 167,043 | 41 | 151,924 | 44 | 145,263 | 42 | 167,700 | 41 | 921,658 | 43 | 169,940 | 43 | 150,063 | 41 | 143,881 | 40 | 135,521 | 40 | 117,951 | 42 | 108,575 | 41 | 825,931 | 41 | 1,747,589 | | |
| TESORO — G.B. WELLS | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | |
| AMOCO | 120 | 3,555,221 | 119 | 3,120,551 | 110 | 3,124,187 | 112 | 3,000,566 | 117 | 3,168,853 | 117 | 3,167,130 | 116 | 19,136,508 | 120 | 3,178,165 | 120 | 3,170,018 | 120 | 3,065,397 | 121 | 3,111,837 | 118 | 3,034,126 | 118 | 3,060,792 | 120 | 18,620,235 | 118 | 37,756,743 | | |
| SUB-TOTAL | 472 | 4,870,911 | 483 | 4,310,757 | 475 | 4,455,815 | 476 | 4,282,848 | 492 | 4,454,555 | 503 | 4,462,211 | 484 | 26,837,097 | 503 | 4,500,510 | 514 | 4,510,680 | 509 | 4,338,201 | 511 | 4,422,590 | 515 | 4,324,132 | 508 | 4,376,439 | 510 | 26,472,552 | 437 | 53,309,649 | | |
| DEVIATED FROM SHORE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T.N.A. — F.O.S. | 10 | 9,766 | 12 | 9,487 | 13 | 7,201 | 12 | 6,203 | 12 | 4,863 | 15 | 9,076 | 12 | 46,596 | 15 | 17,190 | 14 | 12,404 | 14 | 11,460 | 13 | 11,709 | 14 | 7,264 | 12 | 6,574 | 14 | 66,601 | 13 | 113,197 | | |
| T.T.I. — A.S. | 49 | 5,928 | 51 | 6,630 | 50 | 5,269 | 48 | 6,682 | 50 | 5,467 | 52 | 5,503 | 50 | 35,479 | 50 | 4,338 | 50 | 4,724 | 51 | 3,826 | 53 | 4,214 | 54 | 3,657 | 45 | 3,891 | 51 | 24,650 | 51 | 60,129 | | |
| T.T.I. — A.L.S. | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | | |
| TESORO — GUAPO M (11551/53) | 10 | 1,171 | 9 | 974 | 9 | 1,071 | 9 | 1,141 | 8 | 1,501 | 10 | 3,143 | 9 | 9,001 | 8 | 2,564 | 8 | 2,747 | 8 | 2,268 | 10 | 2,031 | 8 | 1,579 | 8 | 1,081 | 8 | 12,270 | 8 | 21,271 | | |
| SUB-TOTAL | 69 | 16,865 | 72 | 17,091 | 72 | 13,541 | 69 | 14,026 | 70 | 11,831 | 77 | 17,722 | 71 | 91,076 | 78 | 24,092 | 72 | 19,875 | 73 | 17,554 | 76 | 17,954 | 76 | 12,500 | 66 | 11,546 | 73 | 103,521 | 72 | 194,597 | | |
| MARINE & DEVIATED | 541 | 4,887,776 | 555 | 4,327,848 | 547 | 4,469,356 | 545 | 4,296,874 | 562 | 4,466,386 | 580 | 4,479,933 | 555 | 26,928,173 | 576 | 4,524,602 | 586 | 4,530,555 | 582 | 4,355,755 | 587 | 4,440,544 | 591 | 4,336,632 | 573 | 4,387,985 | 583 | 26,576,073 | 569 | 53,504,246 | | |
| LAND | 2,796 | 1,339,625 | 2,809 | 1,290,721 | 2,800 | 1,373,174 | 2,825 | 1,311,868 | 2,836 | 1,335,105 | 2,812 | 1,267,029 | 2,857 | 7,917,522 | 2,857 | 1,284,635 | 2,856 | 1,288,447 | 2,856 | 1,250,842 | 2,854 | 1,270,648 | 2,870 | 1,252,386 | 2,884 | 1,338,563 | 2,863 | 7,685,521 | 2,838 | 15,603,043 | | |
| TOTAL PRODUCTION | 3,337 | 6,227,401 | 3,364 | 5,618,569 | 3,347 | 5,842,530 | 3,370 | 5,608,742 | 3,398 | 5,801,491 | 3,392 | 5,746,962 | 3,368 | 34,845,695 | 3,433 | 5,809,237 | 3,442 | 5,819,002 | 3,438 | 5,606,597 | 3,441 | 5,711,192 | 3,461 | 5,589,018 | 3,457 | 5,726,548 | 3,445 | 34,261,594 | 3,407 | 69,107,289 | | |
| TOTAL | 3,337 | 6,227,401 | 6,701 | 11,845,970 | 10,048 | 17,688,500 | 13,418 | 23,297,242 | 16,816 | 29,098,733 | 20,208 | 34,845,695 | 23,641 | 40,654,932 | 27,083 | 46,473,934 | 30,521 | 52,080,531 | 33,962 | 57,791,723 | 37,423 | 63,380,741 | 40,890 | 69,107,289 | | | | | | | | |
| MARINE CUMULATIVE | 472 | 4,870,911 | 955 | 9,181,668 | 1,430 | 13,637,483 | 1,906 | 17,920,331 | 2,398 | 22,374,886 | 2,901 | 26,837,097 | 3,404 | 31,337,607 | 3,918 | 35,848,287 | 4,427 | 40,186,488 | 4,938 | 44,609,078 | 5,453 | 48,033,210 | 5,961 | 53,309,649 | | | | | | | | |
| DEVIATED CUMULATIVE | 69 | 16,865 | 141 | 33,956 | 213 | 47,497 | 282 | 61,523 | 352 | 73,354 | 429 | 91,076 | 502 | 115,168 | 574 | 135,043 | 647 | 162,597 | 723 | 170,551 | 799 | 183,051 | 864 | 194,597 | | | | | | | | |
| LAND CUMULATIVE | 2,796 | 1,339,625 | 5,605 | 2,630,346 | 8,405 | 4,003,520 | 11,230 | 5,315,388 | 14,066 | 6,650,493 | 16,878 | 7,917,522 | 19,735 | 9,202,157 | 22,591 | 10,490,604 | 25,447 | 11,741,446 | 28,301 | 13,012,094 | 31,171 | 14,264,480 | 34,055 | 15,603,043 | | | | | | | | |
| DEVIATED & LAND TOTAL | 2,865 | 1,356,490 | 5,746 | 2,664,302 | 8,618 | 4,051,017 | 11,512 | 5,376,911 | 14,418 | 6,723,847 | 17,307 | 8,008,598 | 20,237 | 9,317,325 | 23,165 | 10,625,647 | 26,094 | 11,894,043 | 29,024 | 13,182,645 | 31,970 | 14,447,531 | 34,919 | 15,797,640 | | | | | | | | |

APPENDIX IV
 PRODUCTION AND DISPOSAL OF NATURAL GAS — 1981
 (ALL FIGURES OF GAS PRODUCTION IN MSCF) (MSCF — 1,000 STANDARD CUBIC FEET)

| | CRUDE OIL PRODUCTION (BBLs) | AVERAGE GOR (CU. FT/BBL) | NATURAL GAS PRODUCTION | NATURAL GAS DISPOSAL | | | | | | | | NATURAL GAS RECOVERY | | | | INTER-OIL COMPANY SALES | USED FOR THE MANUFACTURE OF PETROCHEMICALS | |
|---------------------|-----------------------------|--------------------------|------------------------|--------------------------|-------------------------|---------------------|--------------|---------------|----------------------|---------------------|------------|---------------------------------|---------------|---------------------|---------------------------------|-------------------------|--|----------------------------------|
| | | | | SALES TO OTHER COMPANIES | REPLACED INTO FORMATION | CONVERTED INTO CHPS | USED AS FUEL | | VENTED TO ATMOSPHERE | | | PIPELINE LOSSES UNACCOUNTED FOR | NOT COLLECTED | NATURAL GAS TREATED | AVERAGE PLANT RECOVERY (IG/MCF) | | | NATURAL GASOLINE PRODUCED (BBLs) |
| | | | | | | | IN FIELDS | IN REFINERIES | AFTER UTILIZATION | WITHOUT UTILIZATION | TOTAL | | | | | | | |
| JANUARY | 6,227,401 | 2,549 | 15,876,198 | 3,729,821 | — | 3,825 | 863,689 | 2,136,781 | 3,351,231 | 4,484,439 | 7,835,670 | 364,987 | 941,425 | 252,706 | 0.506 | 3,658 | 2,373,933 | 483,759 |
| FEBRUARY | 5,618,569 | 2,693 | 15,130,846 | 4,324,095 | — | 3,342 | 772,018 | 1,793,588 | 2,987,978 | 3,942,686 | 6,930,664 | 352,984 | 954,155 | 217,580 | 0.512 | 3,186 | 1,831,898 | 752,190 |
| MARCH | 5,842,530 | 2,789 | 16,295,326 | 5,047,388 | — | 3,296 | 861,151 | 2,206,735 | 3,139,364 | 3,632,325 | 6,771,689 | 344,643 | 1,060,424 | 210,668 | 0.471 | 2,838 | 2,393,305 | 958,010 |
| APRIL | 5,612,220 | 2,793 | 15,675,886 | 4,743,262 | — | 3,763 | 820,681 | 2,186,565 | 2,850,606 | 3,670,241 | 6,520,847 | 346,993 | 1,053,775 | 231,882 | 0.541 | 3,587 | 2,181,644 | 801,745 |
| MAY | 5,804,761 | 2,808 | 16,300,625 | 5,399,890 | — | 3,869 | 852,446 | 1,981,021 | 3,147,514 | 3,563,646 | 6,711,160 | 216,274 | 1,136,165 | 249,002 | 0.518 | 3,685 | 2,167,633 | 1,220,028 |
| JUNE | 5,747,256 | 2,799 | 16,087,057 | 5,282,599 | — | 3,036 | 808,510 | 2,016,714 | 3,220,926 | 3,434,451 | 6,655,377 | 346,010 | 974,811 | 201,919 | 0.489 | 2,824 | 2,120,009 | 1,104,953 |
| HALF-YEARLY TOTAL | 34,852,737 | 2,736 | 95,365,938 | 28,526,855 | — | 21,131 | 4,978,495 | 12,321,404 | 18,697,619 | 22,727,788 | 41,425,407 | 1,971,891 | 6,120,755 | 1,363,757 | 0.507 | 19,778 | 13,068,422 | 5,320,685 |
| JULY | 5,809,237 | 3,009 | 17,482,690 | 6,165,506 | — | 3,052 | 736,073 | 2,054,691 | 3,210,405 | 3,954,549 | 7,164,954 | 181,550 | 1,176,864 | 251,410 | 0.405 | 2,909 | 2,155,756 | 1,361,132 |
| AUGUST | 5,819,002 | 2,835 | 16,486,169 | 6,192,525 | — | 3,268 | 835,865 | 1,706,128 | 3,222,138 | 3,141,078 | 6,363,216 | 209,784 | 1,185,383 | 240,111 | 0.460 | 3,161 | 1,447,356 | 1,204,039 |
| SEPTEMBER | 5,606,597 | 2,862 | 16,046,468 | 5,709,992 | — | 3,610 | 681,225 | 1,590,735 | 3,279,044 | 3,586,790 | 6,865,834 | 75,089 | 1,120,883 | 202,444 | 0.542 | 3,139 | 1,244,608 | 1,051,231 |
| OCTOBER | 5,711,192 | 3,147 | 17,971,459 | 7,474,141 | — | 3,495 | 761,609 | 1,994,500 | 3,037,044 | 3,567,315 | 6,604,359 | 230,579 | 902,776 | 237,940 | 0.489 | 3,330 | 1,748,617 | 1,366,841 |
| NOVEMBER | 5,589,018 | 2,875 | 16,069,100 | 6,316,822 | — | 3,412 | 752,490 | 1,894,590 | 2,763,649 | 3,102,800 | 5,866,449 | 269,715 | 965,622 | 242,612 | 0.469 | 3,252 | 1,848,609 | 746,867 |
| DECEMBER | 5,726,548 | 2,841 | 16,269,152 | 6,814,145 | — | 3,025 | 794,648 | 1,745,609 | 2,653,078 | 2,981,334 | 5,634,412 | 317,728 | 959,585 | 229,797 | 0.436 | 2,868 | 1,589,714 | 1,017,154 |
| HALF-YEARLY TOTAL | 34,261,594 | 2,928 | 100,335,038 | 38,672,231 | — | 19,662 | 4,561,910 | 10,986,253 | 18,165,358 | 20,333,866 | 38,499,224 | 1,284,445 | 6,311,113 | 1,404,314 | 0.465 | 18,669 | 10,034,660 | 6,747,264 |
| YEAR TOTAL | 69,114,331 | 2,832 | 195,700,976 | 67,199,086 | — | 40,993 | 9,540,405 | 23,307,657 | 36,862,977 | 43,061,654 | 79,924,631 | 3,256,336 | 12,431,868 | 2,768,071 | 0.486 | 18,437 | 23,103,082 | 12,067,949 |
| % DISPOSAL FOR YEAR | | | | 34.3 | — | — | 4.9 | 11.9 | 18.8 | 22.0 | 40.8 | 1.7 | 6.4 | | | | | |

APPENDIX V
DESTINATION OF EXPORT OF CRUDE AND REFINED PRODUCTS FROM TRINIDAD AND TOBAGO — 1981
(ALL QUANTITIES IN BBLs)

| | TOTALS | % OF TOTAL EXPORT | CRUDE PETROLEUM EXPORT | L.P.G. | AVIATION TURBINE FUEL | AVIATION GASOLINE | MOTOR GASOLINE | KEROSINE | GAS AND DIESEL OILS | FUEL OILS | LUBES AND GREASES | ASPHALTIC PRODUCTS | OTHER REFINED PRODUCTS | PETRO- CHEMICALS | NAPHTHA |
|--|------------|-------------------------|------------------------------|---------|-----------------------------|----------------------|-------------------|-----------|---------------------------|--------------|-------------------------|-----------------------|------------------------------|---------------------|-----------|
| NORTH AMERICA: CANADA | 356,943 | 0.615 | - | - | - | - | - | - | - | 96,715 | 85,084 | - | - | - | 175,144 |
| U.S.A. | 12,067,493 | 20.802 | 39,136,252 | - | - | - | 755,009 | 452,632 | 1,250,474 | 6,536,753 | 384,711 | - | - | 178,450 | 2,509,464 |
| TOTAL N.A. | 12,424,436 | 21.417 | 39,136,252 | - | - | - | 755,009 | 452,632 | 1,250,474 | 6,633,468 | 469,795 | - | - | 178,450 | 2,684,608 |
| CENTRAL AMERICA: COSTA RICA | 69,178 | 0.119 | - | - | - | - | - | - | 51,827 | - | - | - | 17,351 | - | - |
| GUATEMALA | 322,495 | 0.556 | - | - | 21,068 | - | - | 39,509 | 216,940 | 25,321 | - | - | - | - | 19,657 |
| HONDURAS | 1,648,067 | 2.841 | - | 2,000 | 9,485 | 438,662 | 198,204 | 999,716 | - | - | - | - | - | - | - |
| REP. OF PANAMA | 1,634,941 | 2.818 | - | 266,368 | 139,947 | 445,863 | 102,813 | 519,298 | - | 245,838 | - | - | 2,989 | - | 37,825 |
| EL SALVADOR | 16,224 | 0.028 | - | - | - | - | - | - | - | - | 16,224 | - | - | - | - |
| TOTAL C.A. | 3,690,905 | 6.362 | - | 268,368 | 44,500 | 884,525 | 340,526 | 1,787,781 | 271,159 | 16,224 | - | - | 20,340 | - | 57,482 |
| SOUTH AMERICA: FRENCH GUIANA | 933,806 | 1.610 | - | 20,502 | 47,487 | 3,318 | 126,929 | 109,287 | 626,283 | - | - | - | - | - | - |
| GUYANA | 2,864,556 | 4.938 | - | 47,603 | 44,718 | 18,128 | 373,034 | 136,986 | 1,364,807 | 878,779 | 501 | - | - | - | - |
| SURINAME | 5,064,445 | 8.730 | - | 4,255 | 33,843 | 9,380 | 434,715 | 30,970 | 1,787,811 | 2,761,548 | - | - | 1,923 | - | - |
| OTHER S.A. ¹ | 400,824 | 0.691 | - | - | - | 8,149 | - | - | 274,009 | - | 11,779 | - | 11,474 | 95,413 | - |
| TOTAL S.A. | 9,263,631 | 15.969 | - | 72,360 | 126,048 | 38,975 | 934,678 | 277,243 | 4,052,910 | 3,640,327 | 12,280 | - | 13,397 | 95,413 | - |
| WEST INDIAN ISLANDS: BRITISH ² | 4,223,307 | 7.280 | - | 98,705 | 280,996 | 44,431 | 400,310 | 651,594 | 1,497,207 | 1,115,819 | 6,137 | 1,666 | 51,283 | - | 75,159 |
| FRENCH ³ | 356,923 | 0.615 | - | 7,893 | 36,270 | 9,798 | 97,373 | 4,915 | 164,299 | 15,889 | - | 5,902 | 14,584 | - | - |
| NETHERLANDS ⁴ | 372,312 | 0.642 | 426,980 | - | - | - | 2,750 | - | 282,731 | - | - | - | - | - | 86,831 |
| PUERTO RICO | 3,274,561 | 5.645 | 3,163,631 | - | - | 10,235 | 2,581,736 | 157,877 | 98,562 | - | - | - | - | - | 426,151 |
| VIRGIN ISLANDS | 102,556 | 0.177 | - | - | 14,295 | 78,261 | - | - | 10,000 | - | - | - | - | - | - |
| OTHER W.I. ISLANDS ⁵ | 2,144,890 | 3.697 | - | 1,748 | 100 | 60,777 | 155,087 | 83,044 | 416,809 | 1,427,325 | - | - | - | - | - |
| TOTAL W.I. ISLAND | 10,474,549 | 18.056 | 3,590,611 | 108,346 | 317,366 | 139,536 | 3,315,517 | 897,430 | 2,469,608 | 2,559,033 | 6,137 | 7,568 | 65,867 | - | 588,141 |
| EUROPE: ITALY | 4,514,327 | 7.782 | 1,181,268 | - | - | - | - | - | 639,382 | 3,170,537 | - | - | - | 228,495 | 475,913 |
| NETHERLANDS | 1,131,469 | 1.950 | - | - | - | - | - | - | - | 369,748 | - | - | - | 382,576 | 379,735 |
| UNITED KINGDOM | 353,765 | 0.610 | - | - | - | - | 200,385 | - | - | - | - | - | - | - | 153,380 |
| HOLLAND | 2,086,937 | 3.597 | - | - | - | - | - | - | - | 1,917,591 | - | - | - | 169,346 | - |
| FED. REPUBLIC OF GERMANY | 302,019 | 0.521 | - | - | - | - | - | - | - | 302,019 | - | - | - | - | - |
| OTHER EUROPE ⁶ | 4,344,774 | 7.489 | - | - | - | 112,914 | 39,488 | 493,009 | 3,342,727 | - | - | - | 34,103 | 322,533 | - |
| TOTAL EUROPE | 12,733,281 | 21.950 | 1,181,268 | - | - | 112,914 | 239,873 | 1,132,391 | 9,102,022 | - | - | - | - | 814,520 | 1,331,561 |
| OTHER: AFRICA ⁷ | 2,384,109 | 4.110 | - | - | - | 5,057 | 308,090 | 91,006 | 363,706 | 1,475,327 | 125,891 | - | 15,032 | - | - |
| CANARY ISLANDS | 411,526 | 0.709 | - | - | - | - | - | - | 192,518 | 219,008 | - | - | - | - | - |
| BERMUDA | 325,149 | 0.560 | - | - | - | - | - | - | - | 325,149 | - | - | - | - | - |
| JAPAN | 3,530 | 0.006 | - | - | - | - | - | - | - | - | - | - | - | 3,530 | - |
| LA SPEIZA | 418,650 | 0.722 | - | - | - | - | - | - | - | 418,650 | - | - | - | - | - |
| LA HARVE FOR ORDERS | 1,554,709 | 2.680 | - | - | - | - | - | - | - | 1,554,709 | - | - | - | - | - |
| TOTAL FOR OTHER | 5,097,673 | 8.787 | - | - | - | 5,057 | 308,090 | 91,006 | 556,224 | 3,992,843 | 125,891 | - | 15,032 | 3,530 | - |
| TOTAL CARGOES | 53,684,475 | 92.541 | 43,908,131 | 449,074 | 443,414 | 228,068 | 6,310,733 | 2,298,710 | 11,249,388 | 26,198,852 | 630,327 | 7,568 | 114,636 | 1,091,913 | 4,661,792 |
| FOREIGN BUNKERS | 4,326,887 | 7.459 | - | - | 426,983 | 1,245 | - | - | 382,859 | 3,193,747 | 3,798 | 318,236 | 19 | - | - |
| TOTAL EXPORT | 58,011,362 | 100.000 | 43,908,131 | 449,074 | 870,397 | 229,313 | 6,310,733 | 2,298,710 | 11,632,247 | 29,392,599 | 634,125 | 325,804 | 114,655 | 1,091,913 | 4,661,792 |

*COUNTRIES NOT DETAILED

(1) OTHER SOUTH AMERICA
(2) BRITISH

(3) FRENCH

(4) NETHERLANDS

(5) OTHER WEST INDIAN ISLANDS

(6) OTHER EUROPE

(7) AFRICA

:- COLUMBIA, BRAZIL, VENEZUELA, ARGENTINA, ECUADOR

:- ANTIGUA, ANGUILLA, ST. VINCENT, GRAND CAYMAN, GRENADA, ST LUCIA, DOMINICA

MONTSERRAT, ST KITTS, NEVIS, CARRIACOU, BEQUIA, BARBADOS, JAMAICA, CASTRIES, BAHAMAS.

:- GUADELOUPE, MARTINIQUE, ST MAARTEN, ST BARTHS, ST BARTHELEMY, VIEUX FORT.

:- SABA, ARUBA, CURACAO, ST EUSTATIUS

:- DOMINICAN REP., HAITI, TORTOLA VIRGIN GORDA

:- BELGIUM, IRELAND, RAMSBURG, ROTTERDAM, SWEDEN, SPAIN, N.E. EUROPE.

:- CONGO, GUINEA, REP. OF CAMEROON, GAMBIA, IVORY COAST, NIGERIA, TOGO, SENEGAL, ZAIRE.

APPENDIX X

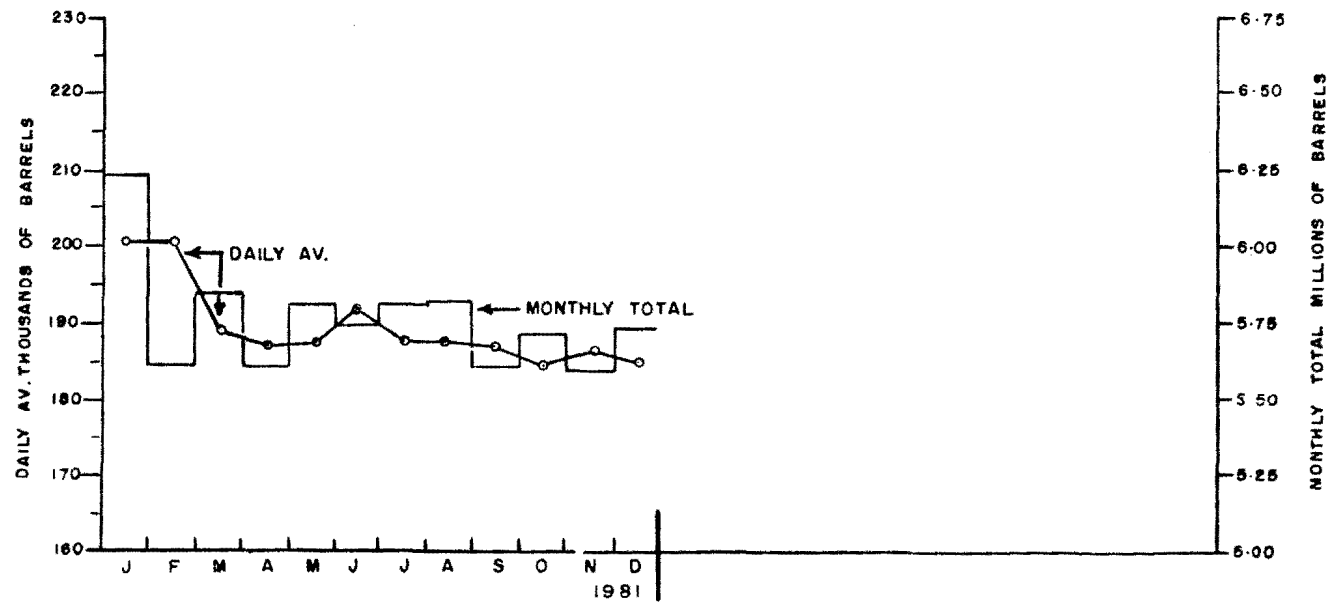
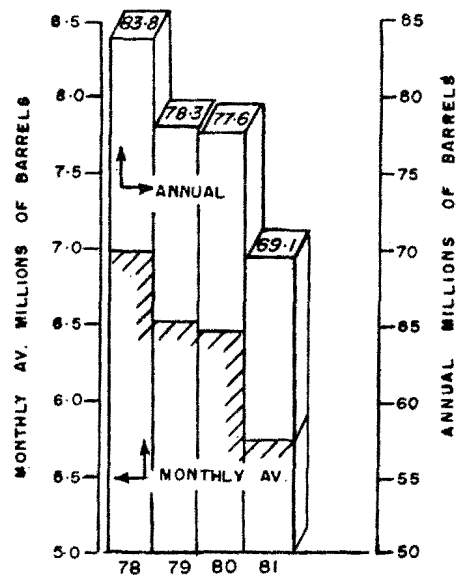
The following Table shows for the years 1979, 1980, 1981 the Quantity of Asphalt extracted from the Pitch Lake and the Quantity of derived Products which was exported and consumed locally.

| NATURAL ASPHALT | | 1979 | | 1980 | | 1981 | |
|---|-----------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | | METRIC TONS | LONG TONS | METRIC TONS | LONG TONS | METRIC TONS | LONG TONS |
| EXTRACTED BY THE MINISTRY OF WORKS FOR LOCAL USE | | 15,625 | 15,377 | 10,111 | 9,951 | 6,725 | 6,619 |
| EXTRACTED BY TRINIDAD LAKE ASPHALT CO., | | 40,068 | 39,433 | 30,451 | 29,968 | 22,975 | 22,611 |
| TOTAL | | 55,693 | 54,810 | 40,562 | 39,919 | 29,701 | 29,230 |
| DERIVED PRODUCTS MANUFACTURED BY THE COMPANY:— | | | | | | | |
| EXPORTED | CRUDE ASPHALT | — | — | — | — | — | — |
| | DRIED ASPHALT | 29,573 | 29,104 | 21,303 | 20,965 | 16,886 | 16,619 |
| | ASPHALT CEMENT | 196 | 193 | 271 | 267 | 1,175 | 1,156 |
| TOTAL | | 29,769 | 29,297 | 21,574 | 21,232 | 18,061 | 17,775 |
| LOCAL SALES | CRUDE ASPHALT | 61 | 60 | 41 | 40 | 8 | 8 |
| | DRIED ASPHALT | 687 | 676 | 223 | 219 | 431 | 424 |
| | ASPHALT CEMENT | 12 | 12 | 22 | 22 | 968 | 953 |
| TOTAL | | 760 | 748 | 286 | 281 | 1,407 | 1,385 |

NOTE: The above tabulation 1 Long Ton = 1.0161 Metre Ton.

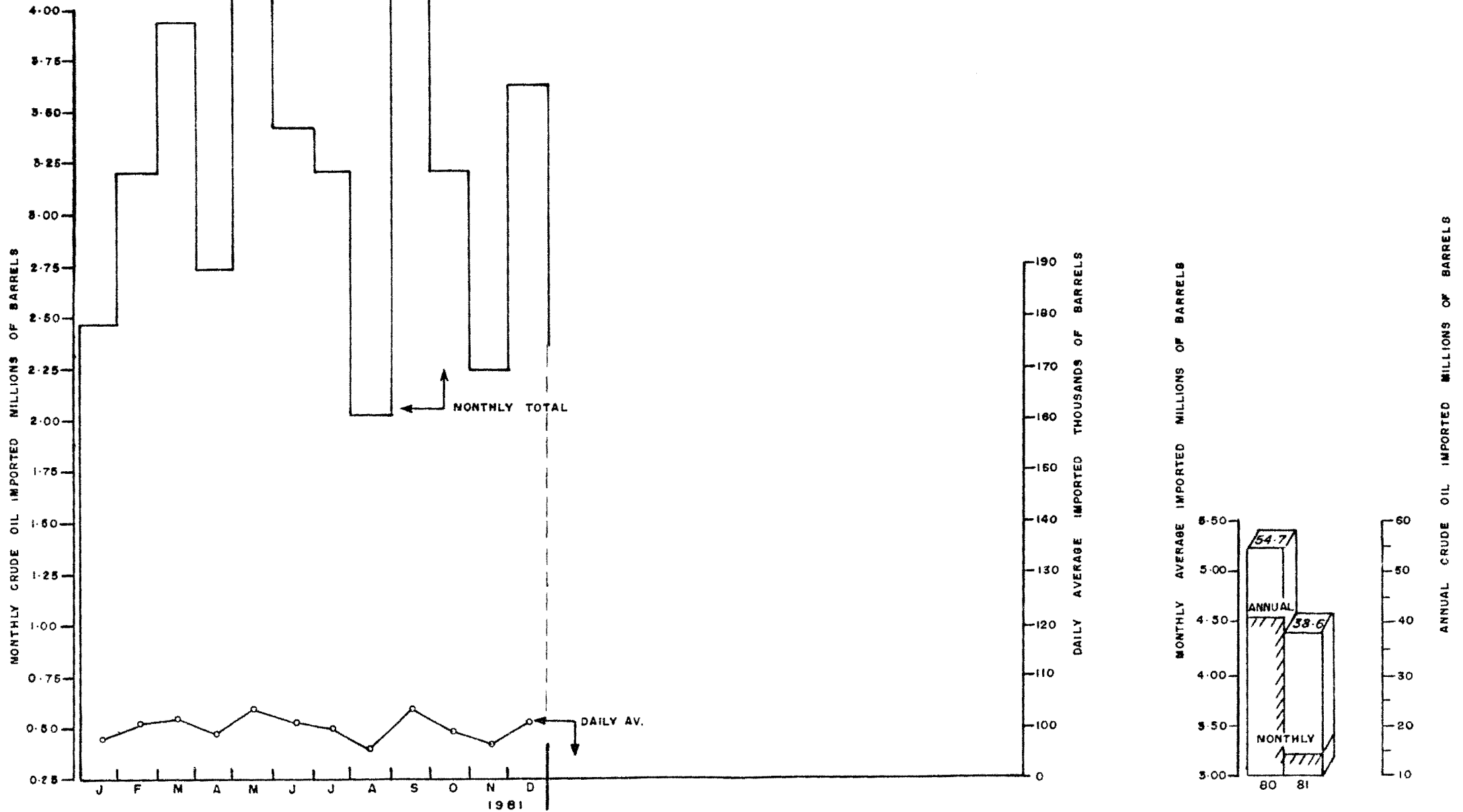
STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

CRUDE OIL PRODUCTION



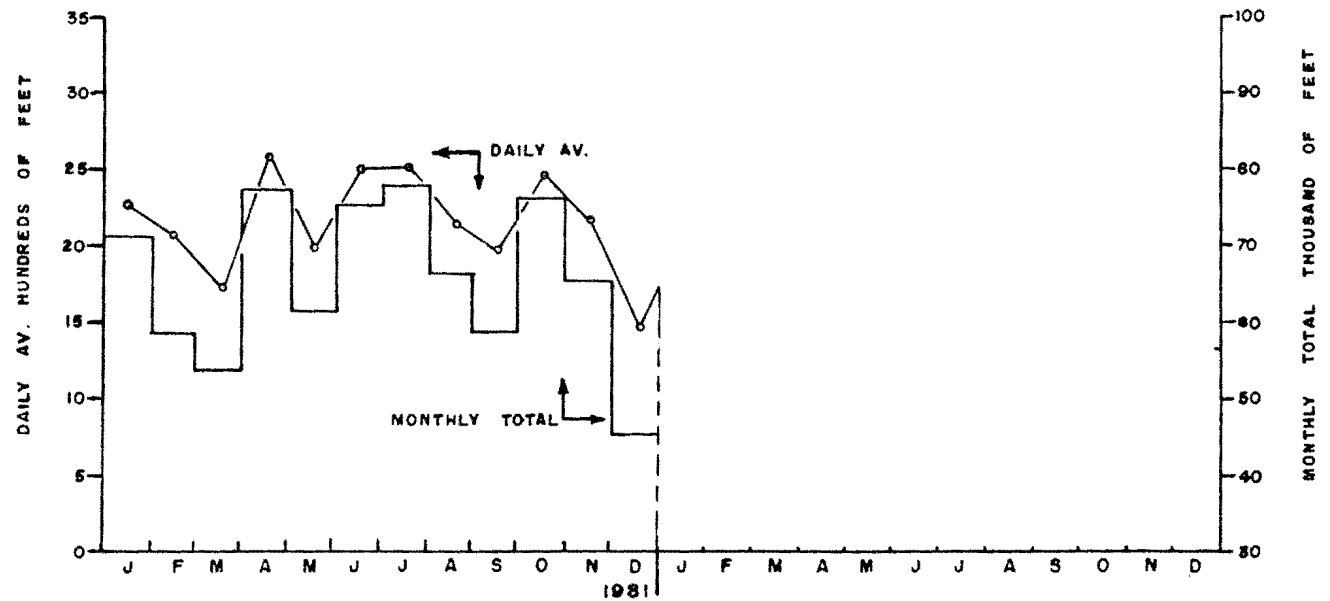
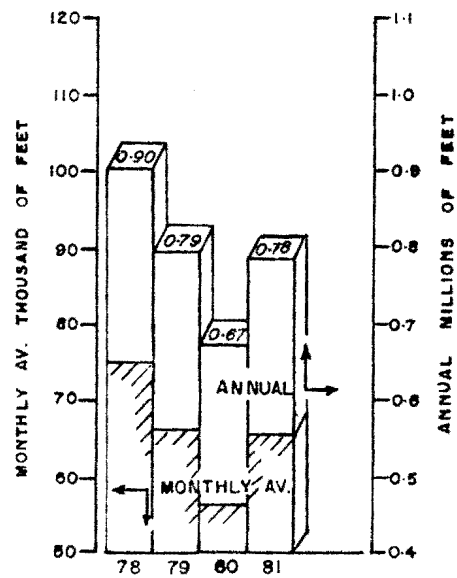
STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

CRUDE OIL IMPORTS



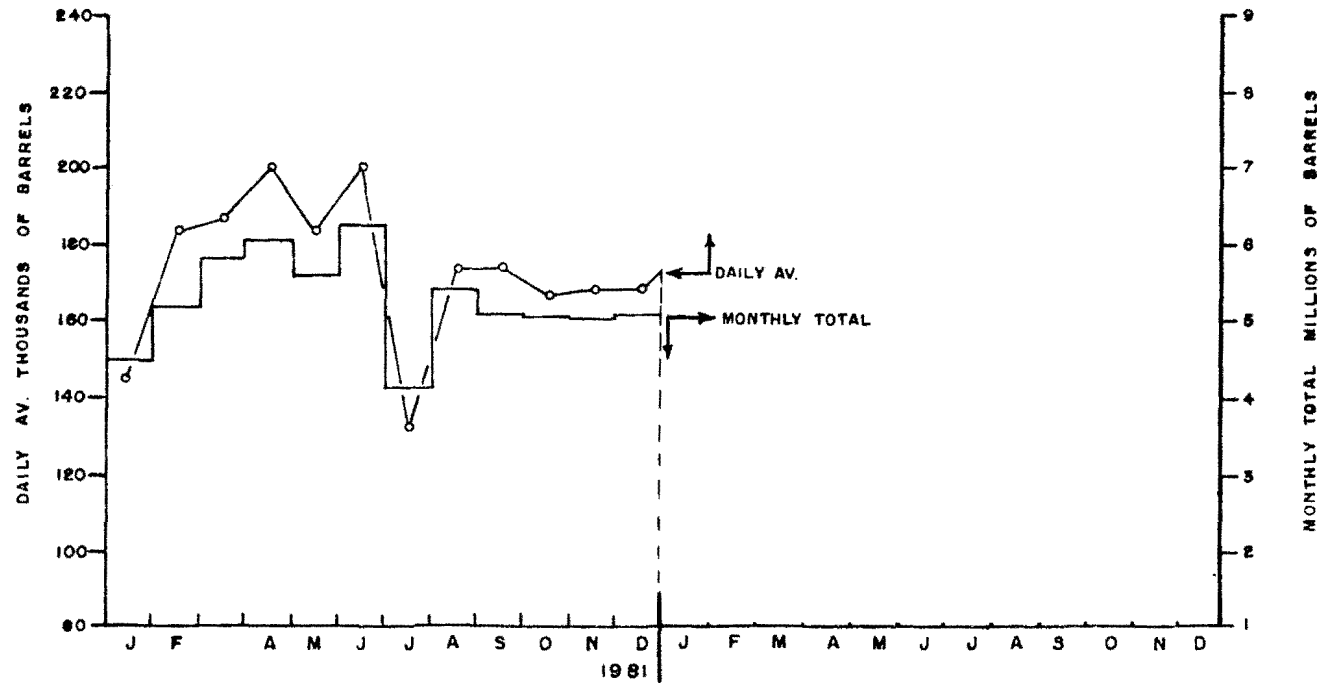
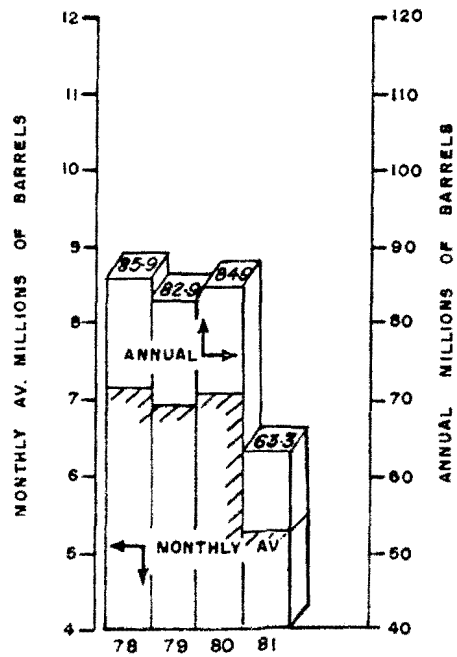
STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

DRILLING



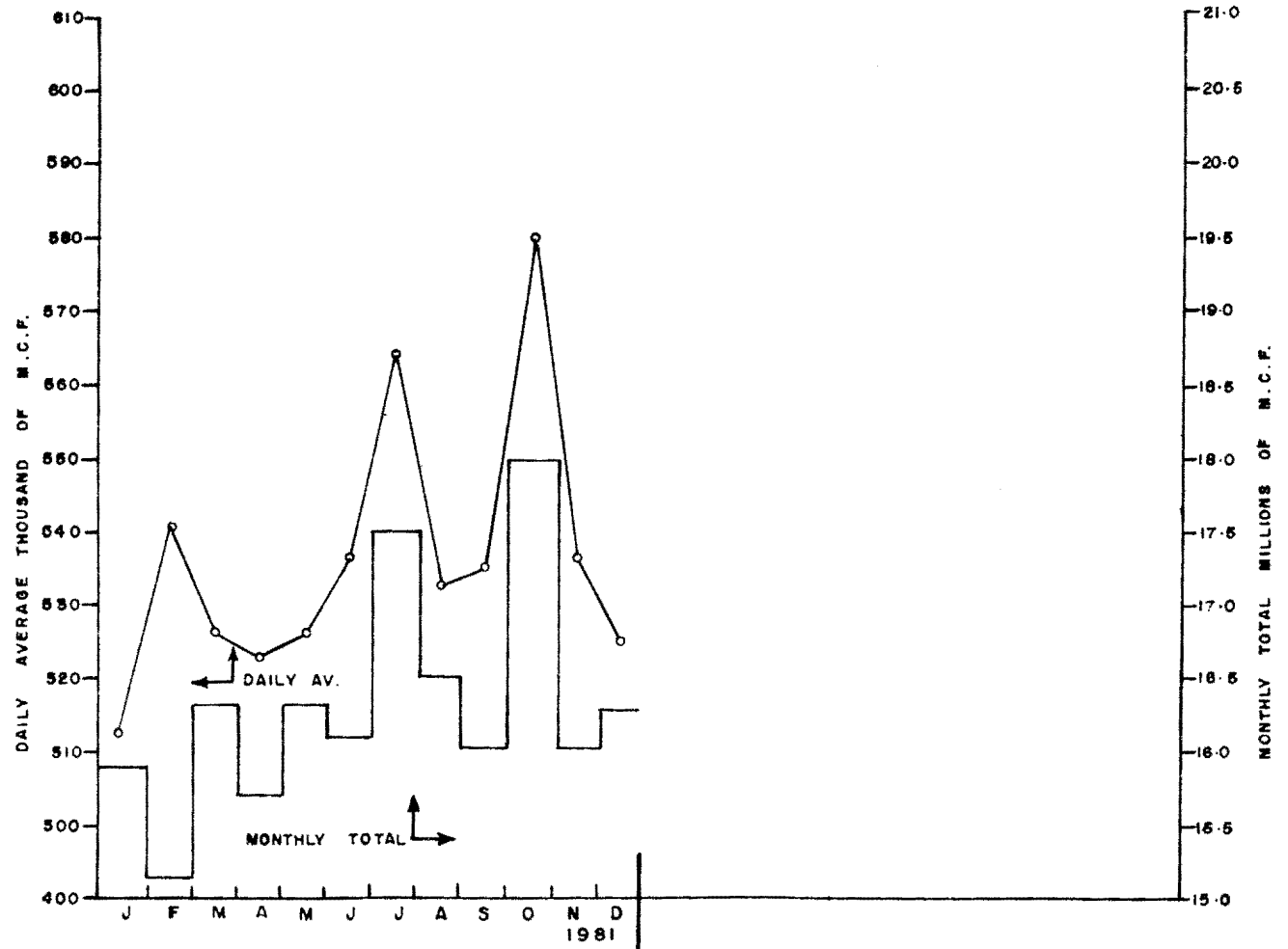
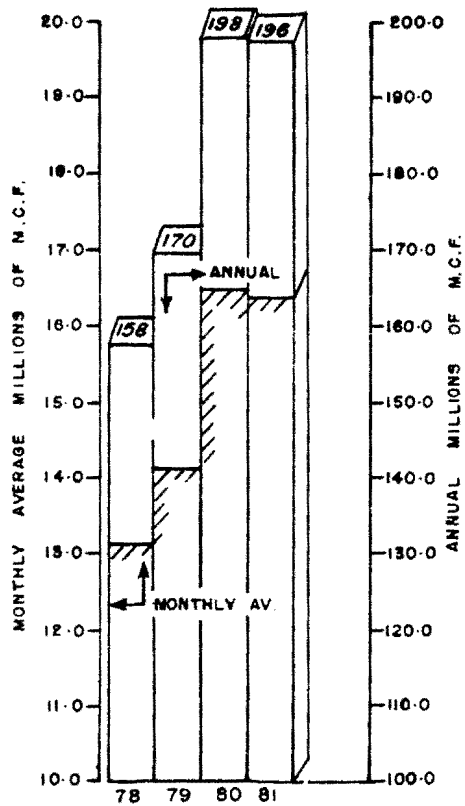
STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

REFINERY THROUGHPUT



STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

NATURAL GAS PRODUCTION



APPENDIX VI - 1981

MOVEMENT OF REFINERY PRODUCTS

(QUANTITIES IN BARRELS)

| PRODUCTS | OPENING INVENTORY | PRODUCTION | IMPORTS | OTHER RECEIPTS | TOTAL | PURCHASES ETC. FROM OTHER PETROLEUM MARKETS | SALES ETC. FROM OTHER PETROLEUM MARKETS | OWN USE | LOCAL CONSUMPTION | | | EXPORTS | | OTHER DISBURSEMENT | CLOSING INVENTORY | TOTAL |
|-------------------------|-------------------|------------|---------|----------------|------------|--|---|---------|-------------------|---------------|-----------|------------|-----------------|-----------------------|----------------------|------------|
| | | | | | | | | | RETAIL ETC. | LOCAL BUNKERS | TOTAL | CARGOES | FOREIGN BUNKERS | | | |
| Liquid Petroleum Gas | 175,459 | 900,982 | 16,585 | 15,246 | 1,567,210 | 458,938 | 461,684 | 523 | 464,047 | | 464,570 | 454,145 | | 7,342 | 179,469 | 1,567,210 |
| Aviation Gasolines | 22,329 | 211,221 | | 32,817 | 275,245 | 8,878 | 8,986 | | 4,517 | 1,782 | 6,299 | 218,530 | 1,245 | 319 | 39,866 | 275,245 |
| Aviation Turbine Fuel | 1,061,318 | 1,252,422 | | | 3,187,295 | 873,555 | 901,030 | | 111,571 | 274,763 | 386,334 | 396,069 | 426,983 | 1,876 | 1,075,003 | 3,187,295 |
| Motor Gasolines | 6,444,587 | 12,790,782 | | 195,487 | 22,306,886 | 2,876,030 | 3,071,354 | 8,174 | 2,904,984 | | 2,913,158 | 9,689,407 | | (14,765) | 6,647,732 | 22,306,886 |
| Kerosine | 269,798 | 2,227,523 | | 37,416 | 2,718,996 | 184,259 | 174,831 | 2,430 | 184,097 | | 186,527 | 2,245,224 | | 165 | 112,249 | 2,718,996 |
| White Spirits | 26,431 | 15,694 | | 3 | 57,312 | 15,184 | 13,034 | 761 | 15,223 | 146 | 16,130 | 3,341 | 15 | 37 | 24,755 | 57,312 |
| Gas Oil | 3,496,668 | 9,964,857 | 896 | 6,983 | 14,754,588 | 1,285,184 | 1,360,723 | 47,960 | 940,094 | 399,441 | 1,387,495 | 9,039,223 | 115,871 | (3,126) | 2,854,402 | 14,754,588 |
| Marine Diesel | 434,750 | 293,263 | | 13,657 | 1,237,873 | 496,303 | 254,996 | 1,264 | 13,407 | 23,163 | 37,834 | 265,454 | 266,988 | 13,876 | 398,725 | 1,237,873 |
| Fuel Oil | 13,876,295 | 29,465,594 | | 460,852 | 46,194,904 | 2,392,163 | 1,077,315 | 44,885 | 118,377 | 147,730 | 310,992 | 28,380,176 | 3,193,747 | 36,193 | 13,196,481 | 46,194,904 |
| Lubes and Greases | 457,338 | 788,934 | 47,396 | 28,929 | 1,422,614 | 100,017 | 96,505 | 11,068 | 119,084 | 806 | 130,952 | 669,503 | 3,798 | 2,013 | 519,837 | 1,422,614 |
| Asphaltic Products | 210,566 | 338,659 | 341 | 29 | 866,417 | 316,822 | | | 314,843 | 9 | 314,852 | 7,568 | 318,236 | 12,823 | 212,938 | 866,417 |
| Petrochemicals | 304,271 | 1,108,648 | | 11,566 | 1,471,723 | 47,238 | 9,901 | 7 | 47,388 | | 47,395 | 1,105,370 | | 1 | 309,056 | 1,471,723 |
| Unfinished Oils | 2,581,726 | 1,069,329 | | | 3,651,055 | | | 2,182 | | | 2,182 | 727,803 | | 451 | 2,920,619 | 3,651,055 |
| Other Finished Products | 364 | 1,258 | | | 1,622 | | 635 | 201 | 675 | | 876 | | 4 | | 107 | 1,622 |
| TOTAL | 29,361,900 | 60,429,166 | 65,218 | 802,885 | 99,713,740 | 9,054,571 | 7,430,994 | 119,455 | 5,238,307 | 847,840 | 6,205,602 | 53,201,813 | 4,326,887 | 57,205 | 28,491,239 | 99,713,740 |

APPENDIX VII

MOVEMENT OF CRUDE AND C.H.P.S. YEAR ENDING 31st DECEMBER, 1981

(All quantities in Barrels)

| MONTH | PRODUCTION | IMPORTS | DECREASE IN INVENTORIES | TOTAL | PURCHASES & EXCHANGES FROM OTHER COMPANIES | SALES & EXCHANGES TO OTHER COMPANIES | OWN USE | TO REFINERY | EXPORTS | GAINS & LOSSES | TOTAL |
|-----------|------------|-----------|----------------------------|------------|---|---|---------|-------------|-----------|-------------------|------------|
| JANUARY | 6,231,059 | 2,470,558 | (1,147,797) | 7,553,820 | 2,165,520 | 2,165,520 | 2,952 | 4,478,267 | 3,031,032 | 41,569 | 7,553,820 |
| FEBRUARY | 5,621,755 | 3,198,544 | (572,518) | 8,247,781 | 1,963,732 | 1,963,732 | 2,372 | 5,141,483 | 3,091,676 | 12,250 | 8,247,781 |
| MARCH | 5,845,671 | 3,933,873 | 297,683 | 10,077,227 | 2,234,119 | 2,234,119 | 2,389 | 5,783,298 | 4,253,414 | 38,126 | 10,077,227 |
| APRIL | 5,615,807 | 2,732,048 | 1,066,022 | 9,413,877 | 2,048,302 | 2,048,302 | 2,120 | 6,020,296 | 3,399,865 | (8,404) | 9,413,877 |
| MAY | 5,808,446 | 4,314,925 | (1,605,655) | 8,517,716 | 1,992,768 | 1,992,768 | 3,745 | 5,628,584 | 2,911,948 | (26,561) | 8,517,716 |
| JUNE | 5,753,118 | 3,415,225 | 950,316 | 10,118,659 | 2,454,706 | 2,454,706 | 2,108 | 6,249,979 | 3,808,006 | 58,566 | 10,118,659 |
| JULY | 5,813,058 | 3,204,102 | (1,037,410) | 7,979,750 | 2,025,718 | 2,025,718 | 2,667 | 4,092,149 | 3,897,157 | (12,223) | 7,979,750 |
| AUGUST | 5,823,642 | 2,023,718 | 1,647,281 | 9,494,641 | 2,137,029 | 2,137,029 | 2,101 | 5,368,431 | 4,155,211 | (31,102) | 9,494,641 |
| SEPTEMBER | 5,609,736 | 4,251,830 | (1,267,248) | 8,594,318 | 1,983,873 | 1,983,873 | 2,550 | 5,197,264 | 3,246,812 | 147,692 | 8,594,318 |
| OCTOBER | 5,712,416 | 3,210,587 | (275,192) | 8,647,811 | 2,302,834 | 2,302,834 | 1,954 | 5,147,241 | 3,527,318 | (28,702) | 8,647,811 |
| NOVEMBER | 5,591,995 | 2,228,455 | 146,496 | 7,966,946 | 2,118,981 | 2,118,981 | 3,808 | 5,058,200 | 2,895,833 | 9,105 | 7,966,946 |
| DECEMBER | 5,734,155 | 3,625,764 | 125,274 | 9,485,193 | 2,190,792 | 2,190,792 | 3,986 | 5,178,515 | 4,304,106 | (1,414) | 9,485,193 |

APPENDIX VIII
SUMMARY OF CRUDE OIL ASSESSED FOR CROWN ROYALTY WITH PRICES AND ANALYSIS 1981
(FOR HALF-YEARLY ASSESSMENT PERIODS ENDING BOTH JUNE AND 31ST DECEMBER)
ONE BARREL — 34.9726 I.G.

| COMPANY | NET ROYALTY PRODUCTION BARRELS | ROYALTY | | AVERAGE PRICE \$/BARRELS | SUB-DIVISION OF (ROYALTY) CRUDE INTO PRODUCTS AS R.L.E.1. ANALYSIS | | | | | | | | | | |
|------------------------------------|--------------------------------|----------------------|-------------|--------------------------|--|------------|---|--------------------|--------------------|--------------------|--------------------|-----------------------|------------|---------------|------------|
| | | 10% ASSESSED BARRELS | VALUE \$ | | LIGHT FRACTIONS | | GAS OIL | | | | | | FUEL OIL | | |
| | | | | | QUANTITY BBLs | PERCENTAGE | TETRA ETHYL LEAD TO BLEND TO 70/72 Oct. Gas 5/s | 55-57 D.I. BARRELS | 48-52 D.I. BARRELS | 43-47 D.I. BARRELS | NO. 2 FUEL BARRELS | TOTAL GAS OIL BARRELS | PERCENTAGE | QUANTITY BBLs | PERCENTAGE |
| TRINIDAD TESORO PETROLEUM CO. LTD. | 2,765,976 | 276,598 | 18,451,699 | 66.710 | 24,070 | 8.70 | 1,725,904.95 | | 18 | 210 | 53,810 | 54,038 | 19.54 | 198,490 | 71.76 |
| TESORO GALEOTA | 921,658 | *115,208 | 9,119,123 | 79.154 | 18,974 | 16.47 | | | | | 53,200 | 53,200 | 46.18 | 43,034 | 37.35 |
| PREMIER CONSOLIDATED OILFIELD LTD | 10,563 | 1,056 | 76,619 | 72.535 | 79 | 7.48 | 93.16 | | 67 | | 271 | 338 | 32.01 | 639 | 60.51 |
| ESTATE OF TIMOTHY ROODAL | 90 | 9 | 606 | 67.333 | | | | | | | 3 | 3 | 33.33 | 6 | 66.67 |
| TRINTOC | 1,261,444 | 126,144 | 8,580,041 | 68.0176 | 15,564 | 12.34 | 4,444,309.65 | 8,724 | | 15,275 | 1,886 | 25,885 | 20.52 | 84,695 | 67.14 |
| TRINIDAD NORTHERN AREAS | 6,678,270 | 667,827 | 44,117,495 | 66.061 | 82,267 | 12.32 | 25,055,956.80 | | 91,451 | | | 91,451 | 13.69 | 494,109 | 73.99 |
| TEXACO TRINIDAD INC. | 2,775,898 | 277,590 | 19,477,104 | 70.160 | 35,985 | 12.96 | 138,210.98 | 12,583 | 14,746 | 39,996 | 6,673 | 73,998 | 26.66 | 167,607 | 60.38 |
| AMOCO TRINIDAD OIL CO. | 19,143,550 | *2,392,944 | 202,240,189 | 84.515 | 261,958 | 10.95 | 23,093,231.28 | | 1,807,512 | | | 1,807,512 | 75.53 | 323,474 | 13.52 |
| TOTAL & AVERAGES JANUARY — JUNE | 33,557,449 | 3,857,376 | 302,062,876 | 78.308 | 438,897 | 11.38 | 54,457,706.82 | 21,307 | 1,913,794 | 55,481 | 115,843 | 2,106,425 | 54.61 | 1,312,054 | 34.01 |
| TRINIDAD TESORO PETROLEUM CO. LTD. | 2,796,358 | 279,636 | 17,337,505 | 62.000 | 23,958 | 8.57 | 1,688,973.10 | | | 12,787 | 41,130 | 53,917 | 19.28 | 201,761 | 72.15 |
| TESORO GALEOTA | 825,931 | *103,241 | 7,912,325 | 79.124 | 18,082 | 17.51 | | | | | 47,466 | 47,466 | 45.98 | 37,693 | 36.51 |
| PREMIER CONSOLIDATED OILFIELD LTD | 9,162 | 916 | 60,233 | 65.757 | 61 | 6.55 | 66.90 | | 39 | | 255 | 294 | 27.73 | 561 | 61.2 |
| ESTATE OF TIMOTHY ROODAL | 103 | 10 | 654 | 65.400 | | | | | | | 3 | 3 | 30.00 | 7 | 70.00 |
| TRINTOC | 1,247,721 | 124,772 | 8,017,009 | 64.253 | 15,443 | 12.38 | 4,474,272.79 | 8,957 | | 17,069 | 1,075 | 27,101 | 21.72 | 82,228 | 65.90 |
| TRINIDAD NORTHERN AREAS | 6,968,075 | 696,808 | 42,786,836 | 61.404 | 84,440 | 12.12 | 25,719,465.12 | | 96,153 | | | 96,153 | 13.80 | 516,215 | 74.08 |
| TEXACO TRINIDAD INC. | 2,556,852 | 255,685 | 16,989,729 | 66.448 | 32,491 | 12.71 | 105,856.37 | 14,912 | 10,148 | 21,398 | 24,525 | 70,983 | 27.76 | 152,217 | 59.53 |
| AMOCO TRINIDAD OIL CO. | 18,622,235 | *2,327,779 | 193,725,642 | 83.223 | 262,679 | 11.29 | 25,064,623.08 | | 1,749,626 | | | 1,749,626 | 75.16 | 315,474 | 13.55 |
| TOTAL & AVERAGES JULY — DECEMBER | 33,026,437 | 3,788,847 | 286,829,933 | 75.564 | 437,154 | 11.54 | 57,053,257.36 | 23,869 | 1,855,966 | 51,254 | 144,454 | 2,045,543 | 53.99 | 1,306,150 | 34.47 |
| YEAR'S TOTAL & AVERAGES | 66,583,886 | 7,646,223 | 588,892,809 | 77.017 | 876,051 | 11.46 | 111,510,964.18 | 45,176 | 3,769,760 | 106,735 | 230,297 | 4,151,968 | 54.30 | 2,618,204 | 34.24 |

* 12¼% Royalty Tesoro Galeota and Amoco

THE ROYALTY ASSESSED ON THE CRUDE OIL, NATURAL GASOLINE AND NATURAL GAS PRODUCED ON CROWN OIL MINING LEASES FOR EACH HALF YEARLY PERIOD DURING 1979, 1980, 1981 IS SHOWN IN THE FOLLOWING TABLE. --

| SOURCE OF REVENUE | 31-12-81 | 30-6-81 | 31-12-80 | 30-6-80 | 31-12-79 | 30-6-79 |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| | \$ | \$ | \$ | \$ | \$ | \$ |
| ROYALTY ON NATURAL GAS | 695,554 | 594,462 | 642,654 | 644,539 | 598,996 | 554,865 |
| ROYALTY ON NATURAL GASOLINE | 175,810 | 176,830 | 149,263 | 145,535 | 183,076 | 167,912 |
| MINIMUM RENT NOT OFFSET BY ROYALTY ON CRUDE OIL | 1,734,239 | 1,528,386 | 1,866,880 | 1,652,465 | 1,667,945 | 1,250,550 |
| ROYALTY ON CRUDE OIL | 286,829,933 | 305,202,213 | 287,134,624 | 257,863,291 | 276,961,776 | 209,099,762 |
| HALF YEARLY TOTAL | 289,435,536 | 307,501,891 | 289,793,421 | 260,305,830 | 279,411,793 | 211,073,089 |
| YEARLY TOTAL | 596,937,427 | | 550,099,251 | | 490,484,882 | |

THE VOLUMES UPON WHICH THE ABOVE ASSESSMENTS WERE MADE ARE AS FOLLOWS:--

| SUBSTANCE ASSESSED FOR ROYALTY | UNIT | HALF YEARLY PERIOD ENDING.-- | | | | | |
|---------------------------------|------|------------------------------|------------|------------|------------|------------|------------|
| | | 31-12-81 | 30-6-81 | 31-12-80 | 30-6-80 | 31-12-79 | 30-6-79 |
| NATURAL GAS | MCF | 46,370,253 | 39,630,822 | 42,843,608 | 42,969,241 | 39,933,049 | 36,990,992 |
| NATURAL GASOLINE | IG | 637,832 | 648,812 | 606,912 | 541,446 | 698,723 | 832,985 |
| CRUDE OIL NET | BBL | 3,788,847 | 3,857,376 | 4,328,042 | 4,302,586 | 4,381,760 | 4,273,549 |
| CRUDE OIL AVERAGE ROYALTY VALUE | \$TT | 75,564 | 79,122 | 66.34 | 59.93 | 63.2079 | 48.9288 |

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 | 31-12-81 | 30-6-81 | 31-12-80 | 30-6-80 | 31-12-79 | 30-6-79 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|
| BUNKER C GRADE FUEL | 57.527968 | 64.358354 | 55.266257 | 37.531426 | 41.018462 | 30.252680 |
| NO 2 FUEL | 95.369888 | 96.392503 | 79.578697 | 74.966227 | 79.878381 | 57.149252 |
| 43-47 D.I. GAS OIL | 95.779659 | 96.407680 | 80.002105 | 75.360932 | 80.387021 | 62.451363 |
| 48-52 D.I. GAS OIL | 95.906126 | 96.534153 | 80.128577 | 75.487405 | 80.513494 | 62.554904 |
| 53-57 D.I. GAS OIL | 96.159076 | 96.787098 | 80.381522 | 75.830350 | 80.766439 | 62.807849 |
| 70-72 OCT. M HEADED MOTOR GAS | 96.307435 | 96.136056 | 84.493253 | 93.221351 | 80.160363 | 71.121581 |
| AVERAGE MIDDLE RATE FOR SIGHTDRAFT ON N.Y. T&T CURRENCY FOR U.S. \$1.00 | 2.409 | 2.409 | 2.409 | 2.409 | 2.409 | 2.409 |
| VALUE OF TETRA ETHYL LEAD IN T&T CENTS PER MILLIMETRE | 1.852028 | 2.273106 | 2.106938 | 1.952117 | 1.704319 | 1.394855 |
| ROYALTY IN T&T CENTS PER GALLON ON NATURAL GASOLINE (C.H.P.S.) | 27.548672 | 27.636829 | 24.490121 | 26.808542 | 25.843494 | 20.648249 |

THE HALF YEARLY VOLUME OF PRODUCTS TO WHICH THE ABOVE PRICES FOR 1980 WERE APPLIED RESPECTIVELY IN CALCULATING ROYALTY ON CRUDE OIL WILL BE FOUND IN APPENDIX VIII