TRINIDAD AND TOBAGO

MINISTRY OF ENERGY AND NATURAL RESOURCES

ANNUAL REPORT

FOR THE YEAR

1984

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1984 – OVERVIEW

The year 1984 saw the continuing over supply of crude oil on the international markets and the concurrent softness in prices that prevailed for both crude oil and petroleum products. The first slight increase in world petroleum demand since 1979 was not sufficient to either strengthen prices or to prevent continuing rationalization of the world refining industry.

In this regard, Government formally started negotiations with Texaco Inc. in respect of their assets in Trinidad and Tobago, including the Pointe-a-Pierre Refinery. The Trinidad and Tobago Negotiating Team was led by the Permanent Representative for Trinidad and Tobago to the United Nations, the Honourable D.H.N. Alleyne, a former Permanent Secretary of this Ministry, under the direction of a Ministerial Committee, chaired by the Honourable Minister of Labour, Social Security and co-operatives, Mr. E.E. Mahabir and which included Minister R. Williams, Minister of State Enterprises, Minister A. Jacelon, Minister in the Ministry of Finance and Minister P. Manning, Minister of Energy and Natural Resources. At year end agreement had been reached in principle for the purchase of the Pointe-a-Pierre refinery, Texaco's real estate holdings and the land producing operations but finalization of the agreement was not yet complete.

The same Ministerial Committee also reviewed the Marine Supplemental Tax Regime in an effort to reverse the decline in activity in the petroleum sector and as a follow-up to adjustments that were made to the Land Supplemental Petroleum Tax regime in 1983. Oil production in Trinidad and Tobago therefore showed its first increase since 1978, in spite of the weak international petroleum markets, as these fiscal incentives soon bore fruit. Production in the second half of the year averaged 28 011 m^3/day, an increase of 8.2% over the figure for first half of the year of 25 878 m^3/day. This was a 6.3% increase over 1983's production of 9 276 000 m^3.

During 1984, the Government also put on sale data from the marine seismic survey conducted in the new areas off the North and East Coasts of Trinidad and Tobago with a view to putting new offshore acreage for competitive bidding for 1985. In an effort to improve international relations, Trinidad and Tobago hosted for the first time in June 1984, the informal meeting of the Ministers of the Latin American and Caribbean petroleum exporting countries of Venezuela, Mexico, Ecuador and itself.

In natural gas, production and demand continued its increase as the methanol and urea plants were brought on stream and the gas transmission system was strengthened with the completion of a new cross-country pipeline and the start of a new line to supply high pressure gas to T&TEC in Port-of-Spain. Agreement was reached in principle with W.R. Grace and Company for the expansion of the Tringen II Ammonia Producing Facility at Pt. Lisas to double capacity.

1984 therefore signalled the likely end of the slump in petroleum industry in Trinidad and Tobago and the industry in general, a trend that had started towards the end of 1981, and despite the weak international petroleum market conditions, it is expected that this turn around should bear further fruit in 1985.

REPORT ON THE DEVELOPMENT PROGRAMME - 1984

Under the Development Programme (Research and Development) Geological Section, approximately $950,000.00 have been spent in 1984 to undertake projects which would mainly identify additional reserves of raw materials to be used in the construction industry in road building and in associated manufacturing industries eg. making of concrete and/or clay blocks. These industries in 1984 have also been affected by the down turn in the economy and there has been a corresponding reduction in demand for their products. Exploration for additional reserves have continued, however, since it is imperative to identify the sources and quantity the reserves of the mineral resources in the country.

In 1984 approximately 540 acres of state lands were investigated in the Valencia Forest Reserve in the area of Tapana Road. Over 85,000 feet of survey lines were run and 240 holes were augered for a total footage of 5140 feet at an average depth of 21 feet. This performance is roughly equivalent to that of 1983 when 179 boreholes were augered and 229 acres were surveyed. In 1983, however, the field crews were used for two months to assist in the land seismic survey programme and in addition the surveys in 1983 were conducted in several unrelated smaller areas which resulted in greater mobilisation and demobilisation time. At the end of the year the survey was more than 75% complete and results were encouraging although it was not possible to calculate the increase in reserves at that time.

The search for a suitable source for produced aggregates in South Trinidad continued in 1984 and a study of a sandstone deposit at Grand Chemin, Moruga was completed. The survey showed "combined reserves of 925,000 tons of quality aggregates as evidenced by engineering tests". Because of the geologic complexity of the area and its remoteness, however, it was found that its exploitation would present very challenging logistical and technological problems but there was the option of mining on a small scale for projects in the area.

In its continuing project for the re-mapping geologically of Tobago, the geological section of the ministry co-ordinated and partially financed a project where seven (7) final year geology students at U.W.I. Mona, Jamaica, supervised by the Head of the Department of Geology mapped several areas in that island for a period of one month. This work is used in partial fulfillment of their undergraduate course requirements.

Under the Development Programme funds were also provided for assisting other ministries, statutory bodies and state enterprises in geological investigations. Several projects have been undertaken.

At the request of the Trinidad and Tobago Secondary Roads Company, the limestone deposit being quarried at Plum Mitan was mapped geologically. This project was in the final stages at the end of the year. In addition several engineering geology studies have been initiated as follows-:

(1) A geotechnical study of an area in Parrylands. This resulted from the failure of several slopes in these areas which caused Trintoc to postpone plans for drilling several wells in the area. The completion of the project was delayed because of the inability of the company's contractor to complete the drilling of several boreholes needed to provide vital information. On completion, it is hoped that the causes of the slope failures would be determined and corrective and/or preventative measures prescribed.

(2) A study to determine the factors contributing to land-sliding on Lady Young Road and to identify areas of high susceptibility to slope failure. This report has been successfully completed.

(3) The preparation of a landslide susceptibility map of Trinidad. This project is expected to be completed in the fourth quarter of 1985.

The Geological Section has also embarked on projects in the petroleum sector where all marine areas with water depths of less than 200 fathoms which are not being actively explored at the present time are being evaluated. This project has been started in an area previously relinquished by Mobil Oil Company known as Block S-7b and is continuing. At the end of 1984, a contract had been awarded for the re-processing of seismic data previously acquired in the area.

In order to complete the above projects, the Ministry incurred direct costs of over $850,000.00 and employed 35 members of staff (excluding professional staff) on a permanent basis. In addition thirteen workers were employed for approximately 167 days on the project in the Moruga area.

GEOPHYSICAL REPORT

During 1984 the Geophysical Section in the Ministry of Energy and Natural Resources was actively involved both in the re-interpretation of seismic data and in the routine evaluation of proposals from oil companies for drilling exploratory wells. A far greater percentage of time was spent in the former activity since a total of only four exploratory wells had been drilled in 1984.

The deep-water seismic survey off the north and east coasts of Trinidad and Tobago, commissioned by the Government of Trinidad and Tobago and conducted by Western Geophysical Co. in 1980/1981, was evaluated to determine suitable divisions for making the areas available for competitive bidding and for surrender purposes later. The ancillary work necessary for offering the seismic data for sale was completed and the data went on sale during the year. Geophysicists were also part of a team selected to establish minimum requirements to be met by prospective operators in the area covered by the survey. This team's report was being finalised at the end of 1984.

Based on the encouraging results of two Vibroseis test lines, approximately 37km, recorded in the Northern Basin in 1983, a seismic programme to evaluate the entire Northern Basin (the land area between the Northern and Central Ranges) is being designed in the Geophysical Section. At the end of 1984 the field checks were approximately 60% complete.

Several marine areas were re-interpreted in 1984. These included Block S-5, Block 30 and Block S-7a. The first two mentioned being part of the 1980/1981 survey. A significant amount of work has been done on Block S-7b and several maps have been prepared. These included 2 time structure maps, isochron maps and preliminary seismic facies maps. This has led to a recommendation for the re-processing of the seismic data previously acquired in the area (approx. 500km) and at the end of the year a contract worth approximately $150,000.00 had been awarded. Work was also in progress at the end of the year on Blocks 21, 22 and 23.

The Geophysical Section continued routine evaluations of proposed seismic and well site survey programmes from oil companies and monitored these during implementation. The major seismic data acquisition programme covered a 160 sq. km. area in the Gulf of Paria. This was a 3-D programme designed jointly by Trintoc and Trinmar and the contractor was Western Geophysical Co. of America. At the year's end approx. 60% of the work had been completed. This programme was designed to use a relatively new acquisition technique, the TELSEIS System which uses radio waves instead of cables to transmit recorded signals back to a Central Recording Unit. This method permits more efficient acquisition near platforms, well heads and other obstacles.

To enable this programme to be completed a Senior Geophysicist and a Geophysicist I were employed and another Geophysicist I transferred into the section to increase the number of geophysicists working in the section from two to five.

CRUDE OIL PRODUCTION

Trinidad and Tobago's crude oil production registered its first increase since 1978 with an annual output of 9 863 861 m^3. The average daily production was 26 950 m^3, an increase of 6.0% above the 1983 average. The average daily production climbed to a maximum of 28 312 m^3 in October from a minimum of 25 462 m^3 in January with production at the year's end being 28 636 m^3. All companies except Texaco Trinidad Incorporated recorded production increases.

The total annual production from marine fields was 7 682 600 m^3, up 7.8% from last year's figure. This accounted for 77.9% of the country's total as compared with 76.6% in 1983. The average daily production from marine fields was 20 991 m^3 and that from land fields was 5 959 m^3.

Amoco Trinidad Oil Company, the country's largest producer, registered, an average daily production of 14 330 m^3, up 10.3% from the previous year's figure. Production for the first quarter was the lowest of any quarter at 12 979 m^3/day. Increases of 6.3% 10.5% and 6.6% were seen from the first to the second quarter, the second to the third quarter and the third to the fourth quarter respectively. The increasing trend shown throughout the year was largely as a result of the drilling and workover program carried out. When compared with 1983 there were production increases in the Teak and Cassia fields but declines from the Poui and Samaan Fields.

Trinidad Northern Areas had an average daily output of 6 059 m^3, a 2.6% rise over the 1983 average mainly due to new oil from drilling and oil gained from workovers. All fields except East Soldado showed production increases. South West Soldado, the newest producing field, registered a large production increase due to the successful completion of a semi-exploratory well. Gas lift compressor problems continued to adversely affect production.

Trinidad Tesoro Petroleum Company Limited produced a daily average of 3 590 m^3 which was 5.5% more than in 1983. Land fields contributed 82.4% of the company's total. The Trintes 'D' platform came onstream in April and boosted the company's marine production to 632 m^3/day, up 35.6% over the 1983 average, representing 17.6% of the company's total. Oil from thermal schemes furnished 37.0% of the total crude oil production.

Texaco Trinidad Incorporated had a daily average of 1 539 m^3, down 13.5% from the previous year and approximately one half of the production recorded in 1980. The decrease was due to natural decline and the absence of significant drilling and workover activity.

Trinidad and Tobago Oil Company achieved an average production rate of 1 369 m^3/day. This was a 7.0% increase due to new oil from drilling and increases in secondary oil production.

Premier Consolidated Oilfields Limited had a daily average of 62 m^3, a 17.0% increase mainly due to increased development drilling in the company's San Francique fields.

DRILLING AND COMPLETIONS:

In Trinidad and Tobago there was an increase in drilling activity during 1984 as compared with the previous year. An increase of 12.5% in the total annual depth penetrated was recorded when 206 830 m were drilled. Exploratory drilling accounted for 9 410 or 4.5% of the depth penetrated, drilling associated with thermal schemes contributed 42 692 m or 20.6% and the remaining 154 728 m represented other development drilling. In terms of rig months there was a decrease of 16.2% with a total of 98.6 being achieved. At the end of the year there was 9 drilling rigs in service.

A total of 213 wells was completed in 1984. This was an increase of 19.0% over 1983 when 179 wells were completed. Of the wells completed in 1984, 165 were oil producers, 7 were gas wells, 15 were injectors, 9 were classified as other and 17 were abandoned. On land 157 wells were completed including 118 oil producers, 4 gas producers and 11 abandonments. Five of the six exploratory wells spudded in 1984 were drilled on land. Two were abandoned, one was wet, one was being drilled at year's end and the other was completed as an oil well.

In the marine environment there were 56 completions of which 55 were development and 1 was exploratory. There were 47 oil producers, 3 gas producers and 6 abandonments.

Amoco Trinidad Oil Company showed increased drilling activity during 1984 as indicated by a 47.1% rise in rig months over the 1983 figure. Rig months totalled 19.0 while the total depth drilled was 25 455 m representing an increase of 60.6%. No exploratory drilling was done by this company. Nine wells were completed comprising 3 gas wells, 5 oil wells and one abandonment. This was a 50.0% increase over 1983 when there were 6 completions.

At Trinidad Northern Areas a total of 40 848 m was penetrated, down 3.2% from the previous year despite the fact that a larger number of wells was drilled. One exploratory well was drilled to a depth of 2 662 m. Two drilling rigs were used in the first nine months and only one in the last quarter yielding a rig months total of 18.5, a decrease of 28.5% from 1983. Thirty-four wells were completed, ten more, or an increase of 41.7% over the number completed in 1983. Seventeen were in Main Soldado and eleven were in North Soldado. The company completed thirty wells as oil producers and four were abandoned. The exploratory well drilled in South West Soldado was a successful oil producer. No gas wells were drilled.

Trinidad Tesoro Petroleum Company achieved a 34.0% increase in depth penetrated when it registered 82 467 m in 1984. Fifty-two percent of this total was non-thermal development depth, 47.0% was thermal depth and 1.0% was appraisal depth. Three drilling rigs were utilized during the year resulting in a rig months total of 24.8, up 23.3% from 1983. Ninety-seven wells were completed, of which 78 were oil producers, 2 were gas wells and 5 were abandoned. In the company's Galeota field, twelve oil wells were completed and one well was abandoned. The only exploratory well, drilled in the Quarry field, was abandoned for mechanical reason.

The Trinidad and Tobago Oil Company registered a 7.5% decrease in the number of wells spudded. Depth penetrated dropped by 7.9% to a total of 50 462 m. The two exploratory wells drilled

by the company accounted for 5 754 m or 11.4% of the total. Three drilling rigs were used for the majority of the year producing a rig month total of 29.4, down 30.5% from 1983. The number of wells completed, 53, was deceptively high since 22 wells drilled before 1984 were listed as completed. Of the wells completed during the year, 34 were oil producers, 2 were gas wells and 7 were abandoned.

Texaco Trinidad Incorporated recorded a total drilled depth of 3 857 m from the two wells spudded in 1984. This was a 78.8% increase over the 1983 figure. Both wells were drilled in the company's Barrackpore field during 4.1 rig months. One was completed as an oil producer while the other was suspended before attaining the proposed depth.

The country's smallest producing company, Premier Consolidated Oilfields Limited, drilled 19 wells in 1984, which was more than the combined total for the previous three years. Seventeen were classified as development wells whilst the other two were semi-appraisal wells. Total depth penetrated was 3 741 m, up 329.2% over the 1983 figure. Development drilling, concentrated in the company's San Francique fields, accounted for 88.5% of the total. Because of the shallow depths of the wells, averaging 197 m, the rig months total was small at 2.8. Seventeen of the wells drilled were completed as oil producers.

TABLE I

SUMMARY OF STATISTICS FOR THE TRINIDAD AND TOBAGO PETROLEUM INDUSTRY
1981 – 1984

	UNIT	1984	1983	1982	1981
ANNUAL CRUDE OIL PRODUCTION	Cubic Metres	9863861	9276000	10273546	10987161
ANNUAL NATURAL GAS PRODUCTION	Cubic Metres	7227955536	6318586981	5480386335	5604171429
AVERAGE G.O.R.	M 3/M 3	733	681	568	510
ANNUAL C.H.P.S. (NATURAL GASOLINE) PROD.	Cubic Metres	4914	5146	4493	6158
DAILY REFINERY CAPACITY	M 3/Day	48491	50876	72498	72498
ANNUAL REFINERY THROUGHPUT	Cubic Metres	4475160	4319775	8761460	10069620
TOTAL WELLS COMPLETED DURING THE YEAR	NO.	213	180	215	210
AVERAGE DEPTH OF COMPLETED WELLS	Metres	1153	1051	1083	1128
TOTAL DEPTH DRILLED DURING THE YEAR	Metres	206829	183797	252937	239609
OIL AND GAS WELLS COMPLETED DURING THE YEAR	NO.	172	162	174	169
DRILLING SUCCESS RATIO	Percent	80.8	90.5	80.9	80.5
AVERAGE RIGS RUNNING	NO.	8.2	9.5	12.8	14.1

TABLE II

SUMMARY OF EXPLORATORY AND SEMI-EXPLORATORY DRILLING IN 1984

Operator	Well Name	Location	Basis for Location	Lahee Exploratory Classification	Date Spudded	Date Completed	Total Depth		Geological Objective	Result Remarks
							Metres	(Feet)		
TRINIDAD NORTHERN AREAS LIMITED	AM-1	D5 JL-9	S&SSG	B 2b	79.09.21	84.11.30	2 522	8,274	MANZANILLA	COMPLETED-GAS
	AM-3	D5 KH-7	S&SSG	B 1	80.01.04	84.11.30	2 552	8,373	HORIZON-3	COMPLETED-GAS
	IN 35	G15 LK-17/ LN-18	S&SSG	B 2b	80.09.01	84.11.30	2 310	7,580	HERRERA SANDS	COMPLETED-OTHER
	IN 36	H11 IL-3/ IK-4	S&SSG	B 2b	80.11.19	84.11.30	2 134	7,000	HERRERA SANDS	COMPLETED-OTHER
	BW 9	H2 ON-10/OL-5	S&SSG	C 1	81.09.15	84 11.30	2 641	8,665	MIOCENE	ABANDONED-MECHANICAL
	BE 31	H4 EN-18/FN-1	S&SSG	B 1	81.10.12	84.11 30	1 384	4,540	MIOCENE	COMPLETED-OIL
	P 279 ST	G13 MG-7(2)	S&SSG	B 1	83.07 29	84.01.08	3 226	10,583	UNDER THRUST HERRERA	COMPLETED-OIL
	CO 180	H7 CD-7	S&SSG	B 1	80.10.27	84.11.30	1 615	5,300	CATSHILL SANDS	COMPLETED-OTHER
	CO 132ST	H7 NH-10	S&SSG	C 1	84.06.04	84.07 31	2 591	8,500	KARAMAT, HERRERA 1&11 SANDS	ABANDONED-DRY
	FC 331ST	F15 NN-8	S&SSG	A 2b	84.10 29	—	3 163	10,377	UNDERTHRUST 173 'B' SAND	DRILLING
TRINIDAD-TESORO PETROLEUM CO. LTD	GAL D 1ST	P11FK-11/FK-13	S&SSG	B 1	82.09.15	84.05.01	1 774	5,821	PLIOCENE	COMPLETED-OIL
	GAL D 16	P11FK-13	S&SSG	A 2b	83.03.28	–	2 137	7,012	UPPER MIOCENE 11	SUSPENDED
	QU 352ST	G21 CL -18	S&SSG	C 1	84.01.27	84.04.13	566	1,856	CRUSE 1-IVSANDS	ABANDONED-MECHANICAL
PREMIER CONSOLIDATED OILFIELDS LTD.	SFE 26	G12 FG-3	S&SSG	A 1	83.06.18	–	303	995	UPPER CRUSE	TESTING
	SFE 34	G12 FA-4	S&SSG	B 1	84.04.24	84.04.28	246	806	CRUSE	COMPLETED-OIL
	SFE 35	G12 FB-5	S&SSG	A 1	84.04.28	–	183	600	CRUSE	SUSPENDED
TRINIDAD NORTHERN AREAS	S 567	K19 OI-14	S&SSG	B 1	84.02.22	84.04.17	2 662	8,734	UPPER, MIDDLE LOWER CRUSE	COMPLETED-OIL

TABLE III

SUMMARY OF DEVELOPMENT DRILLING IN TRINIDAD AND TOBAGO-1984

FIELD, AREA, OR DISTRICT	NUMBER OF PRODUCERS COMPLETED OIL & GAS	NUMBER OF ABANDONED WELLS	TOTAL COMPLETIONS	TOTAL DEPTH DRILLED		NUMBER OF RIGS ACTIVELY DRILLING DEVELOPMENT WELLS ON DECEMBER 31, 1984
				METRES	FEET	
1	29	4	33	38 186	125,281	1
2	22 [a]	2	24 [a]	28 580	93,767	3
4	48 [b]	1	49 [b]	56 094 [b]	184,036 [b]	1
5	32 [c]	–	32 [c]	10 083 [c]	33,081 [c]	–
6	24 [d]	2	26 [d]	20 394 [d]	66,910 [d]	–
8	9 [e]	1	10 [e]	14 934	48,996	–
9	3	2	5	3 694	12,118	—
11	19	2	21	25 455	83,514	1
TOTAL	186	14	200	197 420	647,703	6

(a) INCLUDES 2 WELLS COMPLETED – OTHER

(b) INCLUDES 5 STEAM INJECTORS – DEPTH 2 525m(8,284') AND 1 WELL – OTHER

(c) INCLUDES 3 WATER INJECTORS – DEPTH 1 036m(3,400') AND 1 WELL – OTHER

(d) INCLUDES 7 STEAM INJECTORS – DEPTH 5 764m(18,912')

(e) INCLUDES 2 WELLS COMPLETED – OTHER

TABLE III A 1984

KEY TO AREA – NUMBER ON MAP (FIGURE II) ON TABLES IV AND IN TEXT'

AREA NUMBER	DESCRIPTION
1.	Soldado, North Marine, Couva Marine, Manicou, (Gulf of Paria 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, Mackenzie.
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, Inniss, Trinity, Catshill, Balata, Bovallius.
10.	Guayaguayare, Moruga East.
11.	Galeota, Teak, Samaan, Poui, Dolphin (Block 6) Diamond Prospect, East Coast, Reverse 'L' East, Reverse 'L' West.
12.	South Marine (South Coast).
13.	Tabaquite, Pointe-a-Pierre.
14.	Icacos, South West Peninsula.
15.	North Coast Marine area.

TABLE IV

OIL PRODUCTION BY FIELDS, AREAS OR DISTRICTS – 1984

COMPANY, FIELDS, AREA OR DISTRICT	DISCOVERY YEAR	TOTAL WELLS COMPLETED	ANNUAL PRODUCTION 1984 CUBIC METRES	ANNUAL PRODUCTION 1984 BARRELS	ANNUAL PRODUCTION 1983 CUBIC METRES	ANNUAL PRODUCTION 1983 BARRELS	CUMULATIVE PROD THROUGH DECEMBER 1984 – 1983 CUBIC METRES	CUMULATIVE PROD THROUGH DECEMBER 1984 – 1983 BARRELS
TRINIDAD AND TOBAGO OIL COMPANY								
BALATA EAST AND WEST	1952	72	23 195	145,889	25 851	162,600	448	2,819
CATSHILL	1950	134	24 360	153,220	23 642	148,706	3 598	22,632
INNISS	1956	41	8 132	51,149	7 820	49,183	968	6,089
ROCK DOME	1962	3	–	–	–	–	3	16
PENAL	1936	284	76 194	479,247	70,913	446,031	9 668	60,811
NEW DOME	1928	31	1 217	7,657	777	4,883	496	3,120
POINT FORTIN EAST	1929	165	64 463	405,459	61 174	384,774	4 088	25,709
SAN FRANCIQUE	1929	27	1 500	9,437	1 707	10,738	947	5,953
AREA IV AND GUAPO	1963	192	74 021	465,578	69 596	437,748	5 929	37,291
PARRYLANDS 1 – 5	1913 – 18	476	97 080	610,615	86 704	545,355	6 083	38,261
POINT FORTIN CENTRAL	1916	200	102 678	645,829	89 454	562,649	2 872	18,063
POINT FORTIN WEST	1907	316	28 197	177,353	29 245	183,947	3 158	19,863
LOS BAJOS	1918	29	–	–	–	–	87	546
ERIN	1963	4	–	–	–	–	113	710
MAHAICA	1954	6	–	–	–	–	–	–
TOTAL		1,980	501 037	3,151,433	466 883	2,936,614	38 456	241,883
TRINIDAD-TESORO PETROLEUM								
COMPANY LIMITED								
FYZABAD/APEX QUARRY	1920 – 38	1,017	246 896	1,552,934	225 852	1,420,568	26 428	166,226
GUAPO/BOODOOSINGH	1922	643	129 858	816,781	139 708	878,736	6 979	43,896
MORUGA EAST	1933	77	6 719	42,264	7 984	50,216	412	2,592
MORUGA NORTH	1956	23	835	5,250	853	5,367	164	1,028
MORUGA WEST	1957	129	8 823	55,495	6 423	40,401	1 444	9,081
COORA/QUARRY	1936	712	133 175	837,646	123 809	778,737	14 120	88,855
PALO SECO/ERIN/MC KENZIE	1926	1,443	458 616	2,884,615	486 350	3,059,057	17 085	107,462
NORTH MARINE	1956	19	–	–	–	–	202	1,269
GALEOTA	1963	102	231 205	1,454,241	169 948	1,068,941	1 827	11,492
CENTRAL LOS BAJOS	1973	168	94 835	596,494	76 537	481,405	928	5,826
OROPOUCHE	1975	3	1 626	10,224	1 725	10,852	39	246
BARRACKPORE	1977	4	1 516	9,538	2 205	13,868	15	95
TOTAL		4,340	1 314 104	8,265,482	241 394	7,808,148	69 647	438 068
TEXACO TRINIDAD INCORPORATED								
GUAYAGUAYARE	1902	698	80 688	507,511	80 180	504,320	13 474	84,746
TRINITY	1956	95	17 295	108,780	16 837	105,901	2 366	14,886
BARRACKPORE	1911	335	59 634	375,085	63 826	401,453	4 554	28,641
OROPOUCHE	1944	128	14 967	94,137	16 617	104,515	1 023	6,433
MORNE DIABLO/QUINAM	1926	91	3 599	22,640	2 439	15,354	1 212	7,625
FOREST RESERVE	1913	2,032	238 370	1,499,302	266 817	1,678,232	40 410	254,173
PALO SECO	1929	37	108 265	680,970	137 641	865,738	14 436	90,804
BRIGHTON	1903	615	22 515	141,618	44 255	278,355	11 439	71,951
ERIN	1963	23	204	1,285	3 317	20,864	366	2,305
COUVA MARINE	1963	6	–	–	–	–	48	301
CRUSE	1913	150	5 450	34,282	4 433	27,883	4 110	25,848
WILSON	1936	81	9 939	62,5144	10 897	68,540	3 143	19,768
TABAQUITE	1911	225	2 376	14,946	1 867	11,742	275	1,729
BALATA CENTRAL	1949	6	–	–	–	–	59	371
MAYARO		9	–	–	–	–	–	–
TOTAL		4,531	563,302	3,543,070	649 126	4,082,888	96 915	609,581
PREMIER CONSOLIDATED OILFIELDS								
LIMITED								
SIPARIA	1957	5	940	5,911	1 546	9,722	134	843
SAN FRANCIQUE	1929	91	8 265	51,986	5 342	33,597	499	3,141
FYZABAD/ROODAL	1918	256	8 685	54,630	8 642	54,359	2 102	13,220
PALO SECO	1915	83	498	3,130	675	4,248	260	1,637
BARRACKPORE	1970	7	3 595	22,610	1 944	12,227	28	176
ICACOS	1955	11	890	5,597	1 039	6,536	76	467
DEFUNCT FIELDS	1954	19	–	–	–	–	51	323
TOTAL		472	22 873	143,864	19,188	120,689	3 150	19,815
TRINIDAD NORTHERN AREAS								
FOS/FT	1954	35	24 254	152,556	15 779	99,247	1 062	6,680
SOLDADO	1955	610	2 193 505	13,796,755	2 139 o40	13,454,180	666,992	421,364
TOTAL		645	2 217 759	13,949,311	2 154 819	13,553,427	68 054	428,044
AMOCO TRINIDAD OIL COMPANY								
TEAK	1971	85	2 487 770	15,647,633	1 803 922	11,346,349	29 577	186,032
SAMAAN	1971	46	1 299 714	8,174,973	1 428 797	8,986,880	25 142	158,140
POUI	1974	43	1 109 323	6,977,442	1 412 469	8,884,182	19 570	123,094
CASSIA	1973	7	347 979	2,188,726	99 274	624,417	447	2,813
TOTAL		181	5 244 786	32,988,774	4 744 462	29,841,828	74 736	470,079
GRAND TOTAL		12,149	9 863 861	62,041,934	9 275 873	58,343,594	350 958	2,207,470

FLUID INJECTION OPERATIONS — 1984

Secondary Oil Recovery Operations in Trinidad and Tobago produced approximately 1.34 million cubic metres of oil at an average rate of 3672 cubic metres per day. This figure represents 13.6% of the Country's total oil production of 9.86 million cubic metres. A total of 34 schemes was reported by the oil companies, one more than the amount of the previous year. The additional scheme reactivated this year was a water injection project in Trinidad-Tesoro's Fyzabad field.

There were increases this year in both waterflood and thermal oil production. These increases were concomitant with the increases in volume of water and steam injected. Fluid injection operations for the period 1980-1984 are summarised in Table V.

WATER INJECTION

There were 23 waterflood injection scheme in operation in 1984, and a total of 2.4 million cubic metres of water was injected, representing an increase of 51% above the volume injected during the previous year. Oil production from the projects correspondingly rose by 16.7 percent to 1943 cubic metres per day.

Much of the incremental production this year was due to the enhanced performance of a single waterflood-Amoco's Teak ACE waterflood.

Amoco Trinidad Oil Company operated the Country's largest waterflood in 1984 by injecting a cumulative of 1.66 million cubic metres of water in 4 injectors in its Teak ACE waterflood project. Oil production from the nine producing wells averaged 1448 cubic metres per day and reflected the response to recommencement of injection in October, 1983.

An expansion programme undertaken in that year has brought the number of horizons flooded to three — MMOIL, MMOIU, and Upper T Sand. The most recent unit added to the scheme was the MMOIU horizon and there are some indications of response to injection in this horizon.

Texaco Trinidad Incorporated injected water into only four of its eleven waterflood schemes. Volume of water injected fell to 0.08 million cubic metres, a decrease of 81% from the previous year's figure.

Diverse mechanical problems associated with the injection system were reported as being responsible for the lack of injection. By year's end injection into six projects were deemed terminated by the company and these included all waterflood projects at Forest Reserve and Palo Seco, and the 307 extension at Trinity. Oil production averaged 250 cubic metres per day, a decrease of 2.28% from 1983's figure.

Trinidad Tesoro Petroleum Company Limited operated eight waterflood projects during 1984, one more than the amount of 1983. A total of 0.14 million cubic metres of water was injected into

reservoirs in Coora, Fyzabad, Mackenzie and Palo Seco. This represents a 90% increase over the amount injected during 1983. Production from these schemes averaged 84.5 cubic metres per day an increase of 71% above 1983'3 figure.

The bulk of the oil production came from the Mackenzie field waterflood, where there is some indication of response to injection in the Cruse formation. A small portion of this reservoir has achieved fill up. Volume of water injected increased by 375% this year to 56849 cubic metres. The injection rate however, was below the targeted objective principally because of surface breakouts of injected water and frequent electrical outages. Production from the scheme averaged 58.2 cubic metres per day.

The Fm 169/1 waterflood project in Fyzabad was the next largest oil producer. Production averaged 13 cubic metres per day. The Fm 169/1 reservoir received 7194 cubic metres of fresh water during the eight months injection period, after recommencement of injection in April. The other scheme in Fyzabad, the FZ 172, suffered set backs of fracture related problems associated with low injectivity and increased injection pressures.

There were alterations to the injection well configuration at the Coora 110/1 and Coora 100/1 Upper Cruse Sand Waterfloods. Increased injection however, could not have been achieved due to the shortage of fresh water for injection.

The Palo Seco 500 waterflood was resusciated with the recommencement of injection into well PS 500 in late 1983 Fill up has not been achieved in the Upper Forest reservoir. Injection for the year was 41592 cubic metres of water.

Trinidad Northern Areas Main Field waterflood had approximately 0.56 million cubic metres of water injected into it, a decrease of 7.6% from the 1983's level. This decrease in injection volume is attributed to the continued high down time of injection plant and the frequency of electrical outages. Production showed a small increase of 4.8% to 131 cubic metres per day.

Trinidad and Tobago Oil Company operated two water injection projects. The Co 24 waterflood was converted from a line drive to pattern drive in September, 1984, and injection was stepped up. Cumulative water injected for the year increased substantially by 166% to 22742 cubic metres, while oil production remained at 1983's level of approximately 17 cubic metres per day. Injection into the Catshill N Sand was doubled when a cumulative of 56013 cubic metres was injected.

A summary of water injection projects by company is presented in Table VII.

THERMAL INJECTION:

During 1984, nine thermal injection projects were in operation, the same number as during 1983. Overall injection of steam increased by 5% to 1.98 million cubic metres. Simultaneously production from the schemes rose by approximately 3% to 1717.2 cubic metres per day. All companies increased their volume of steam injected this year and stepped up activities.

Trinidad Tesoro Petroleum Company Limited operated five steam injection projects and injected 1.54 million cubic metres of steam. This was 2.1% greater than in 1983. The company's average oil production rate from these schemes increased by 1.4% to 1393 cubic metres per day. All schemes, with the exception of Palo Seco and Guapo showed increases in production.

At Palo Seco, the average production rate from the DEF and G sands was 45.7 cubic metres per day, down 4.5% from the previous years'. The decrease is attributed to the high water cut from the depleted G sand. Nothwithstanding the decrease in production, development activity continued at the field. Development drilling has brought the number of wells in the project to 91, with 14 wells added this year for the North West Palo Seco expansion. Also increased injection capacity was established in July, when a 50 MMBTU steam generator was commissioned.

At Central Los Bajos the average oil production rate from the LMLE DE and F sands, increased to 168.8 cubic metres per day from last year's average of 160.7 cubic metres per day. This increase was coincident with increased steam injection which rose from 1983's average of 173 cubic metres per day to 293 cubic metres of steam per day during 1984. The increased steam injection was made possible by the commissioning of a 50 MMBTU generator in July. In addition the drilling of eight infill development wells enhanced the scheme's performance by improving its displacement efficiency.

Unlike the Central Los Bajos Scheme, the Guapo Thermal Scheme was dominated by problems of low injectivity to the LMLE Reservoir, inadequate supply of feed water to the generators and low gas pressures. As a result injection volume fell by 50% to 0.18 million cubic metres of steam. Oil production correspondingly fell by 19.5% to 239 cubic metres per day.

Despite the occurrence of similar setbacks of low gas supply and shortage of feed water at Fyzabad, Thermal production from the Fyzabad Thermal Scheme remained at the 1983's level of approximately 227 cubic metres per day.

At Apex Quarry, injection commenced in the expansion area to the LMLE DE and F sands. A 50 MMBTU generator was incorporated into the mature phases of the earlier project.

Texaco Trinidad Inc. injected steam into only one of its three thermal schemes, the project III Forest Sands Thermal Project. Problems associated with fresh water supply wells resulted in only 0.38 million cubic metres of steam being injected at an average rate of 1.031 cubic metres per day. This was 36% below the injection requirement of 1589 cubic metres of steam per day. Oil production averaged 225 cubic metres per day, a 12.6% decrease when compared with last year's.

The other two schemes, Phase 1 and Project IV Hot waterflood produced an average of 34.9 cubic metres of oil per day.

Trinidad and Toabgo Oil Company's Parrylands's E project, a cyclic steam injection scheme had 58040 cubic metres of Water injected into it during 1984.

Improved injectivity is reported to the field and all the wells have undergone at least three

cycles of stimulation. Production from the scheme averaged 64 cubic metres per day, and there are 18 wells in the scheme. The relatively high production this year is an indication of the good response of the reservoir to application of steam injection.

Table VIII gives a summary of steam injection by projects.

CARBON DIOXIDE INJECTION

Texaco Trinidad Inc. had a 300% increase in the volume of Carbon Dioxide injected this year to a cumulative of 34.2 million cubic metres. Production from the two schemes averaged 12 cubic metres per day. This was more than twice the production of the previous year.

TABLE V

SUMMARY OF FLUID INJECTION OPERATION IN TRINIDAD AND TOBAGO 1980 – 1984

NO. OF PROJECTS IN OPERATION AT END OF YEAR					INJECTION VOLUMES			CRUDE OIL PRODUCTION				
								OIL PRODUCED BY WELLS UNDER PROJ. INFLUENCE (CUBIC METRES)				
YEAR	GAS	WATER	STEAM	CARBON DIOXIDE	NATURAL GAS (CUBIC METRES)	WATER AND OTHER FLUIDS (CUBIC METRES)	STEAM CUBIC METRES)	WATER INJECTION PROJECTS	THERMAL RECOVERY PROJECTS	CARBON DIOXIDE PROJECTS	ALL PROJECTS	OIL EXPRESSED AS A PERCENTAGE OF COUNTRY'S TOTAL PRODUCTION
1980	–	19	10	2	18 384 569* 144 546	3 039 235	1 267 536	849 748	455 673	6 837	1 312 258	10.6
1981	–	19	12	2	–	3 159 553	1 388 815	893 722	533 715	4 238	1 431 675	13.0
1982	–	19	9	2	16 866 840*	1 672 559	1 541 248	793 618	592 994	2 187	1 388 799	13.5
1983	–	22	9	2	8 142 789*	1 606 478	1 885 050	609 662	623 720	2 000	1 233 382	13.3
1984	–	23	9	2	34 285 196*	2 417 420	1 978 677	689 929	628 493	4 410	1 322 832	

* Carbon Dioxide Injection

TABLE VI
FLUID INJECTION OPERATIONS 1984

WATER INJECTION

COMPANY	NO. OF ACTIVE PROJECTS	WATER INJECTED (CUBIC METRES)	OIL PRODUCED (CUBIC METRES)	WATER PRODUCED (CUBIC METRES)	GAS PRODUCED (CUBIC METRES)	WATER CUT %
AMOCO	1	1 656 853	530 046	141 291	66 069 208	21
TRINMAR	1	556 923	48 073	38 123	19 714 139	44
TEXACO	11	83 382	91 607	133 759	39 507 543	59
TRINIDAD-TESORO	8	137 109	30 940	11 516	1 294 404	27
TRINTOC	2	78 756	10 560	3 014	608 372	22
ALL COS	23	2 513 020	711 225	327 702	124 083 119	315

STEAM INJECTION

COMPANY	NO. OF ACTIVE PROJECTS	STEAM INJECTED (CUBIC METRES)	OIL PRODUCED (CUBIC METRES)	WATER PRODUCED (CUBIC METRES)	GAS PRODUCED (CUBIC METRES)	OIL/ STEAM PRO RATIO
TRINIDAD-TESORO	5	1 543 108	510 011	686 678	5 850 306	0.33
TEXACO	3	377 522	95 047	313 269	10 787 048	0.25
TRINTOC	1	58 048	23 434	15 574	1 550 525	0.4
ALL COS	9	1 978 677	628 492	1 015 519	18 187 879	0.32

CARBON DIOXIDE INJECTION

COMPANY	NO. OF ACTIVE PROJECTS	GAS INJECTED (CUBIC METRES)	OIL PRODUCED (CUBIC METRES)	WATER PRODUCED (CUBIC METRES)	GAS PRODUCED (CUBIC METRES)	GOR M^3/M^3
TEXACO	2	34 285 196	4 410	174	3 279 481	743
ALL COS	2	34 285 196	4 410	174	3 279 481	743

TABLE VII
WATER INJECTION SUMMARY BY PROJECTS 1984
(All quantities in Cubic Metres)

COMPANY	FIELD	PROJECT	WATER INJECTED	OIL PRODUCED	WATER PRODUCED	GAS PRODUCED	WATER CUT %
ATOC	TEAK	MM/O/(m) (L) Waterflood	1656853	530046	141291	66069208	21
		All	1656853	530046	141291	66069208	21
TNA	SOLDADO	8011 Waterflood	556923	48073	38123	19714139	44
		All	556923	48073	38123	19714139	44
TESORO	PALO SECO	Ps/uf/500/1	41592	748	17	102345	2
	COORA	Co/uc/317/1	0	1161	2959	161106	72
		Co/uc/314/1	3498	155	45	17182	22
		Co/uc/110/1	9660	0	0	–	
		Co/uc/100/1	5997	56	751	7273	93
	FYZABAD	FM/uf/172/1	12317	2706	779	359725	
	MACKENZIE	Mackenzie	56849	21297	–	–	–
	All	FM/uf/169/1	7194	4817	6965	646773	59
TEXACO		All	137109	30940	11516	1294404	27
	FOREST	Uc 645	–	8592	7583	8274974	47
	RESERVE	Barnstein UMC	–	2593	768	531685	43
		UCWE Middlefield	–	6449	85	1151053	1
		UCRA	–	3430	20	825032	1
	PALO SECO	Rancho Quemado	–	7243	346	1843328	5
	GUAYAGUAYARE	Navette 410	25232	14914	54656	3140081	79
		410 Extension	–	3099	10705	644997	78
		307	4214	17278	19827	3625461	51
		307 Extension	–	1658	462	343489	22
		Navette 007	21153	9055	15444	11443117	63
	TRINITY	Shallow Herrera	24753	19295	25917	573799	60
	All	All	83382	91607	133759	30396995	594
TRINTOC	CATSHILL	CO 24 Block	22742	6113	1689	263663	22
		Cathshill NE N. SD	56013	4447	1325	339709	23
	All	All	78756	10560	3014	608372	22
ALL COS	ALL FIELDS	All Projects	2513020	711225	327702	124083119	315

TABLE VIII

STEAM INJECTION SUMMARY BY PRODUCTS 1984

COMPANY	FIELD	PROJECT	STEAM INJECTED (CUBIC METRES)	OIL PRODUCED (CUBIC METRES)	WATER PRODUCED (CUBIC METRES)	GAS PRODUCED (CUBIC METRES)	OIL STEAM PROD/RATIO
TEXACO	Forest	Project 111 Forest SDS	377522	82243	304571	8955547	0.22
	Reserve	Project IV Hot Water	0	1307	1918	95071	–
		Phase 1 Expansion	0	11497	6780	1736430	–
TEXACO	ALL	ALL	377522	95047	313269	10787048	0.25
TRINIDAD TESORO	Fyzabad	All Patterns	158257	84019	103394	11597	0.53
	Palo Seco	Main/UF	2609	3660	1701		0.48
		Patterns 1-24	566548	162186	230176	1483202	0.29
		Huff-N-Puff	0	1404	124	0	–
	Guapo	Exp. Cen. 3	0	44	104	0	–
		Other Than 3	0	1900	1366	0	–
		Areas 1 and 2	179619	85694	149271	2075365	0.67
	Apex Quarry	Patterns 1-14	528690	109315	161996	1887456	0.21
	Central	Main Project	104688	49897	30543	387875	0.48
	Los Bajos	Pattern 1	2697	11892	8003	4811	4.41
TRINIDAD TESORO	ALL	ALL	1543108	510011	686678	5850306	0.33
TRINTOC	Parrylands	Parrylands "E" Project 2	58048	23434	15574	1550525	0.40
TRINTOC	ALL	ALL	58048	23434	15574	1550525	0.4
ALL COS	All Fields	All Project	1978677	628492	1015519	18187879	0.32

CARBON DIOXIDE INJECTION

COMPANY	FIELD	PROJECT	CO 2 INJECTED (CUBIC METRES)	OIL PRODUCED (CUBIC METRES)	WATER PRODUCED (CUBIC METRES)	GAS PRODUCED (CUBIC METRES)	GOR M^3/M^3
TEXACO	Forest	Forest SDS	1196104	535	0	92065	172
	Reserve	Forest SDS Zone 5	33089002	3875	174	3187416	822
TEXACO	ALL	ALL	34285196	4410	174	3279481	743

REFINING AND PETROCHEMICAL INDUSTRY 1984

REFINING

The Trinidad refining industry continued to operate at low levels, the percentage utilization of the installed capacities of both Texaco and Trintoc refineries for 1984 being 25.5% and 19.8% respectively.

Refinery throughput of crude showed a slight overall increase of 3.3% compared to 1983, with a total daily average of 76,907 bbl/day (12 226 m^3/d).

The following table lists the daily average throughputs for Texaco and Trinidad and Tobago Oil Company (Trintoc) refineries for the last decade.

Average Daily Throughput

YEAR	TRINTOC		TEXACO		TOTAL	
	M^3/day	bbl/day	M^3/day	bbl/day	M^3/day	bbl/day
1975	7 438	46,782	29 868	187,866	37 206	234,648
1976	8 743	54,994	42 334	266,274	51 007	321,268
1977	8 764	55,124	34 588	217,555	43 352	272,679
1978	8 172	51,398	29 232	183,866	37 404	235,264
1979	8 210	51,638	27 881	175,367	36 091	227,005
1980	8 001	50,325	26 027	163,703	34 028	214,028
1981	6 297	39,628	21 291	133,917	27 588	173,545
1982	7 959	50,061	16 042	100,897	24 004	150,975
1983	1 995	12,550	9 840	61,890	11 835	74,440
1984	2 694	16,943	9 532	59,952	12 226	76,907

Texaco maintained a daily average throughput of 9 532 m^3/day (59,952 bbls/day) or a total of 3 488 712 m^3(21,942,432 bbls). This represents a decrease of 2.9% below 1983's figure.

In 1984 Trintoc supplied 2 188 491 m^3 (13,765,219 bbls) of crude to Texaco for processing, averaging 5 979 m^3 /day (37,610 bbls/day). This follows from a Processing Agreement with Textrin which commenced in January 1983. In 1983 a total of 2 228 053 m^3 (14,014,057 bbls) of crude were transferred averaging 6 104 m^3/day (38,394 bbls/day.

As part of the processing arrangement, Trintoc processed 2,105,287 bbls of Wide Range Naphtha from the Texaco refinery (average 5 768 bpcd) in 1983 and 1,736,156 bbls (average 4 743 bpcd) in 1984.

The Trintoc refinery processed a total of 985 842 m^3 (6,200,772 bbls) averaging 2 694 m^3/day (16,942 bbls/day). Of this 112 771 m^3 (709,308 bbls) represents Oriente crude processed, at an average of 308 m^3 /day (1,938 bbls/day). The total throughput for 1984 represents a 35% increase over that for 1983.

Refinery output showed an overall decrease of 8.7% below 1983's product outturn. A breakdown of the main refinery products is listed in the following table:

REFINERY OUTPUT 1984

PRODUCTS	1984 MILLIONS M3	1984 MILLIONS BBLS	1983 MILLIONS M3	1983 MILLIONS BBLS	% CHANGE FROM 1983 TO 1984
Fuel Oil	2.32	14.62	2.31	14.54	0.60
Motor Gasoline	0.95	5.97	1.33	8.39	–28.8
Gas/Diesel Oil	0.67	4.24	0.72	4.52	–6.2
Av. Tur. Fuel	0.30	1.91	0.32	2.01	–5.0
Kerosene	0.19	1.17	0.17	1.08	8.3
L.P.G.	0.09	0.59	0.11	0.66	–10.6
Petrochemicals	0.05	0.34	0.63	0.40	–15.0

REFINED PRODUCT BALANCE 1984

AVAILABILITY	MILLIONS M3	MILLIONS BBLS	DISPOSAL	MILLIONS M3	MILLIONS BBLS
Stock at 1st January	0.55	3.47	Exports	4.58	28.78
Imports	1.02	6.41	Local Consumption	1.03	6.45
Refined Products	4.20	26.44	Stock at 31st Dec.	0.58	3.64
Adjustments	0.42	2.55			
TOTAL	6.19	38.87	TOTAL	6.19	38.87

In 1984 the following products were imported:

IMPORTS OF REFINED PRODUCTS

PRODUCTS	IMPORTS	
	M3	BBLS
L.P.G.	20 558	129,306
Motor Gasoline	123 218	775,019
Naphtha	11 881	74,727
Kero/Avjet	3 132	19,698
Gas Oil	7 047	44,327
Lubricants	5 567	35,017
Vacuum Bottoms	–	–
Bunker C/Fuel Oil	8 789	55,283
TOTAL	180 192	1,133,377

CRUDE OIL BALANCE

AVAILABILITY	MILLIONS M3	MILLIONS BBLS	DISPOSAL	MILLIONS M3	MILLIONS BBLS
Stock at 1st January	0.57	3.57	Export	5.54	34.84
Production	9.86	62.04	Delivery & Refinery	4.48	28.16
Imports	0.11	0.71	Loss from Production	0.01	0.09
			Stock at 31st Dec.	0.51	3.23
TOTAL	10.54	66.32	TOTAL	10.54	66.32

PETROCHEMICALS

Petrochemical intermediate production from the Texaco refinery was 52 788 m^3 (332,027 bbls) which represents a decline of 21.5% from 1983's production.

Low crude throughput resulted in low charge stock for several units, causing continued shut downs for long periods or reduced activity on these units.

The following table lists the main petrochemicals intermediate production and exports.

PRODUCTION AND EXPORTS OF PETROCHEMICAL INTERMEDIATE

(Quantities in Cubic Metres)

	1984		1983	
PRODUCTS	PRODUCTION	EXPORT	PRODUCTION	EXPORT
Benzene	2 780	2 794*	3 739	3 750
Toluene	11 470	11 331	15 428	17 167*
Xylene	4 291	5 051*	5 505	5 228
Nonene	1 146	1 550*	5 741	6 014*
Tetramer	2 38	407*	1 928	2 527*
Normal Paraffins	32 720	35 764*	31 483	29 076
Naphthenic Oil Residues	932	1 217*	2 627	406

* Excess of exports over production made up from stocks

NATURAL GAS PRODUCTION

Natural gas production rate continued the steady increase, evident over the past decade to record an all-time high of 197, 750 m^3/day (690 MMSCFD) in 1984. This represents a 14.1% increase over the corresponding annual average for last year.

Amoco Trinidad Oil Company, the country's largest gas producer, accounted for 83.3% of the total gas produced. Trinmar produced a further 8.9% whilst the other companies were responsible for the remaining 7.8%.

Amoco's gas production increased by 19.2% primarily due to the continued good performance of wells in the Cassia field. During 1984 wells Cassia 4, 5 and 6 were drilled and completed. Amoco has expressed plans to produce the Teak field to a level that will satisfy the gas requirements in that field. Wells in the Cassia field will produce gas for Gas sales and for Poui gas lift requirements.

CONSERVATION

The operation of the National Gas Company's compressor platforms in the Teak and Poui fields was seriously affected by low suction pressures. In a new arrangement, which was initiated in July 1984, high-pressure (850 psig) compressed gas from NGC Poui is cycled back into the Amoco Poui gas lift system; this change in operation appears to have significantly improved the perfomance and reliability of the compressors on the NGC Poui platform. During 1984, compressors on the Teak platform were on-stream 86% of the time, However, on Poui, downtime for major maintenance on compressors No. 4 and No. 5 together with the low suction pressure problem resulted in an onstream factor of 68%.

During 1984, a total of 64 $7x10^6$ m^3 (22.6 bcf) of low pressure, associated gas was compressed at an average daily rate of $1.77x10^6 m^3$/day, (61.7 MMSCFD) representing a 61.7% utilization of the rated compression capacity and registering a slight increase of 2.8% over the corresponding figure for 1983.

NATURAL GAS UTILIZATION

Overall gas utilization rate was $16x10^6$ m^3/day (558 MMSCFD) or 81% of total production. The utilization split was follows:-

Oil Companies

Gas utilized by oil companies amounted to $7.1x10^6 m^3$/day (249 MMSCFD) or 45% of gas utilized. There was a significant increase in the volume of gas used for gas lift, especially by Amoco. The oil companies also used natural gas as fuel at a rate of $2.4x10^6$ m^3/day (85 MMSCFD).

Power Generation:

The Trinidad and Tobago Electricity Commission, the largest non-oil consumer, accounted for

18% of the gas utilized. T&TEC's gas consumption rate was $2.9 \times 10^6 m^3$/day (100 MMSCFD) which was 5.7% lower than last year.

Fertilizer Industry

The fertilizer manufacturers consumed gas at a daily rate of 4.7×10^6 m^3 /day (164 MMSCFD). This was slightly less than last year. The bulk of the drop was due to Fedchem's lower gas consumption. It is noteworthy that the Urea Plant began production this year and has utilized gas at a rate of $0.2 \times 10^6 m^3$/day (6 MMSCFD).

Iron and Steel

Iscott's gas take decreased 16.7% to $0.3 \times 10^6 m^3$/day (10 MMSCFD).

Methanol

The NEC's* methanol plant began commercial production towards the end of the first quarter this year. Its gas take for this year averaged $0.6 \times 10^6 m^3$ /day (22 MMSCFD).

Cement

Trinidad Cement Limited had doubled its gas take from 0.1×10^6 m^3 /day to $0.2 \times 10^6 m^3$/day (3 to 7 MMSCFD). This was due to the commissioning of the new plant.

GAS TRANSMISSION

During 1984, two major pipelines were under construction. The construction of the second cross-country pipeline was 100% complete apart from minor civil works, lighting system, fencing, installation of cathodic protection etc. Adverse weather conditions have led to the suspension of these works until the dry season. The pipeline has already been pressure tested and dewatered along its entire length. In its present condition, it could be used to transmit gas should the need arise. The overall management of the pipeline was handed over to the NGC by the NEC during the 3rd quarter of 1984. The NGC estimates that official commissioning of the pipeline will be in April, 1985.

The T&TEC 16-inch pipeline between City Gate and Power Station 'B' was completed in late December and pre-commissioning works are currently in progress. This pipeline will replace the present 16-inch line (now over 20 years old), and will transmit high pressure gas (300 psig) to T&TEc's "Blackstart" generators.

The National Gas Company continued the expansion of the gas transmission network, laying small pipe to consumers along the East West Corridor.

*National Energy Corporation

TABLE IX

ANNUAL STATISTICS FOR NATURAL GAS PRODUCTION AND UTILIZATION 1980-1984

	1980		1981		1982		1983		1984	
	MILLION M^3	%	MILLION M^3	%	MILLION M^3	%	MILLION M^3	%	MILLION M^3	%
PRODUCTION	5665	100	5604	100	5841	100	6319	100	7229	100
GOR (M^3/M^3)	459	–	510	–	569	–	681	–	733	–
A. USED AS FUEL IN FIELDS	277	4.9	273	4.9	301	5.2	360	5.7	355	4.9
IN REFINERIES	769	13.6	667	11.9	595	10.1	552	8.7	534	7.4
IN OTHER INDUSTRIES	1264	22.3	1579	28.2	1947	33.2	2171	34.4	1663	23.0
SUB TOTAL	2310	40.8	2519	45.0	2842	48.5	3083	48.8	2552	35.3
B. OTHER COMPLETE UNTILIZATION:										
USED AS PROCESS GAS	454	8.0	346	6.1	689	11.9	919	14.5	1105	15.3
INJECTED INTO FORMATION	–	–	–	–	–	–	–	–	–	–
CONVERTED TO C.H.P.S.	1	–	1	–	–	–	1	–	1	–
SUB TOTAL	455	8.0	347	6.1	689	11.9	920	14.5	1106	15.3
C. VENTED										
AFTER USE OF PNEUMATIC ENERGY	925	16.3	1056	18.8	958	16.4	1121	17.7	1715	23.7
WITHOUT USE	1975	34.9	1682	30.1	1350	23.2	1195	19.0	1857	25.7
SUB TOTAL	2900	51.2	2738	48.9	2308	39.6	2316	36.7	5572	49.4

NATURAL GAS PRODUCTION – 1958-1984

YEAR	M m^3/day	MMSCF/day
1958	6 214	217
1959	7 216	252
1960	7 703	269
1961	8 018	260
1962	7 846	274
1963	7 789	272
1964	8 677	303
1965	8 734	305
1966	9 335	326
1967	10 997	384
1968	11 856	414
1969	10 796	377
1970	9 508	332
1971	8 614	301
1972	8 162	265
1973	9 422	329
1974	10 066	352
1975	9 909	346
1976	10 796	377
1977	11 741	410
1978	12 400	433
1979	13 316	465
1980	15 464	540
1981	15 349	536
1982	16 002	559
1983	17 311	605
1984	19 750	690

NATURAL GAS PRODUCTION BY COMPANIES (1980 - 1984)

UNITS – THOUSAND CUBIC METRE PER DAY

COMPANY	1980	1981	1982	1983	1984
AMOCO	11 785 (411,556)	11 479 (400,846)	12 210 (426,376)	13 828 (482,899)	16 445 (574,276)
TRINMAR	1 771 (61,854)	1 827 (63,802)	1 698 (59,312)	1 637 (57,179)	1 749 (61,072)
T.T.P.C.L.	808 (28,223)	781 (27,263)	746 (26,046)	705 (24,623)	604 (21,077)
TEXACO	587 (20,488)	838 (29,252)	895 (31,243)	643 (22,454)	493 (17,199)
TRINTOC	521 (18,177)	426 (14,887)	450 (15,727)	494 (17,236)	457 (15,954)
P.C.O.L.	5 (168)	3 (177)	3 (107)	4 (126)	2 (52)
TOTAL	15 477 (540,466)	15 354 (536,167)	16 002 (558,811)	17 311 (604,517)	19 750 (689,630)

N.B. FIGURES IN PARENTHESIS ARE MSCF/DAY

NATURAL GAS UTILIZATION 1980-1984

UNITS $M^3 \times 10^9$day

	COMPANY	1980	1981	1982	1983	1984
REFINERY (AS FUEL)	TEXACO	1.69 (59)	1.55 (54)	1.35 (47)	1.26 (44)	1.20 (42)
	TRINTOC	0.40 (14)	0.29 (10)	0.29 (10)	0.26 (9)	0.26 (9)
	REFINERY SUB-TOTAL	2.09 (73)	1.83 (64)	1.63 (57)	1.52 (53)	1.46 (51)
FIELD USE (AS FUEL)	–	0.74 (26)	0.74 (26)	0.83 (29)	1.00 (35)	0.97 (34)
PRODUCTION USE	–	2.55 (89)	2.89 (101)	2.63 (92)	3.06 (107)	4.70 (164)
TOTAL OIL COMPANY UTILIZATION	SUB-TOTAL	5.38 (188)	5.47 (191)	5.10 (178)	5.58 (195)	7.13 (249)
FERTILIZER MANUFACTURE	FEDCHEM	1.23 (43)	0.74 (26)	1.09 (38)	1.12 (39)	0.80 (28)
	FERTRIN	–	0.49 (17)	1.69 (59)	2.52 (88)	2.52 (88)
	TRINGEN	1.23 (43)	1.20 (42)	1.15 (40)	1.20 (42)	1.20 (42)
	UREA	–	–	–	–	0.17 (6)
	FERTILIZER SUB-TOTAL	2.46 (86)	2.43 (85)	3.92 (137)	4.84 (169)	4.70 (164)
POWER GENERATION	T&TEC	1.92 (67)	2.43 (85)	2.86 (100)	3.04 (106)	2.86 (100)
CEMENT MANUFACTURE	TRINIDAD CEMENT LIMITED	0.11 (4)	0.09 (3)	0.09 (3)	0.09 (3)	0.20 (7)
OTHER LARGE CONSUMERS	METHANOL	–	–	–	–	0.63 (22)
	ISCOTT	0.03 (1)	0.23 (8)	0.29 (10)	0.34 (12)	0.29 (10)
SMALL CONSUMERS	–	0.17 (6)	0.17 (6)	0.17 (6)	0.17 (6)	0.17 (6)
TOTAL		10.08 (352)	10.82 (378)	12.43 (434)	14.06 (491)	15.98 (558)
% UTILIZATION		65	71	78	81	81

*FIGURES IN PARENTHESIS ARE IN MMSCF/DAY

GAS UTILIZED BY NON-OIL COMPANIES (1980-1984)
UNITS -- THOUSANDS CUBIC METRES PER DAY

COMPANY	1980	1981	1982	1983	1984
T.T.E.C.	1912 (67)	2436 (85)	2771 (100)	3047 (106)	2852 (100)
FERTRIN	– –	495 (17)	1688 (59)	2528 (88)	2513 (88)
TRINGEN	1252 (43)	1200 (42)	1148 (40)	1189 (42)	1200 (42)
METHANOL	–	–	–	–	641 (22)
FEDCHEM	1233 (43)	739 (26)	1074 (38)	1128 (39)	816 (28)
ISCOTT	37 (1)	227 (8)	284 (10)	347 (12)	291 (10)
T.C.L.	106 (4)	85 (3)	97 (3)	94 (3)	192 (7)
OTHERS	161 (6)	163 (6)	172 (6)	172 (6)	178 (6)
TOTAL	4701 (164)	5344 (187)	7590 (256)	8505 (297)	8848 (309)

FIGURES IN PARENTHESIS ARE IN MMSCF/DAY

OVERALL GAS UTILIZATION

1984

units – MMCF/D

OIL COMPANIES	JAN.-JUN.	JULY-DEC.	YEAR AV.
(i) REFINERY	53.3	49.0	51.2
(ii) FIELD USE	36.4	32.2	34.3
(iii) PRODUCTION USE	147.7	175.5	161.6
SUB-TOTAL	237.4	256.7	247.1
NON-OIL COMPANIES			
(i) POWER GENERATION	102.2	97.0	99.5
(ii) FERTILIZER MANUFACTURE	158.8	168.9	163.9
(iii) IRON AND STEEL MANUFACTURE	10.2	10.1	10.2
(iv) CEMENT MANUFACTURE	6.1	7.3	6.7
(v) SMALL USERS	7.3	5.2	6.3
(vi) METHANOL	14.3	30.4	22.4
SUB-TOTAL	299.0	318.9	309.0
GRAND TOTAL	536.4	575.6	556.0
% UTILIZATION	81.0	81.0	81.0

NITROGENOUS FERTILIZERS AND METHANOL

Total production of anhydrous ammonia during 1984 was 1 310 240 tonnes, representing an increase of 9.0% over the 1983 production of 1 202 016 tonnes.

At Federation Chemicals Limited, the Braun Plant produced a total of 226 961 tonnes of ammonia, a rise of 28.6% over their 1983 production. This increase was due to less plant downtime both for planned and unscheduled shutdowns.

Tringen produced a total of 344 247 tonnes of ammonia in 1984, a rise of 9.8% over the 1983 production. Again, less plant downtime accounted for this increased production. Both of Fedchem's urea plants viz. the 'Once Thru' and the 'Total Recycle' were shut down permanently in August, 1983. The ammonium sulphate plant was also permanently shut down in November, 1983.

At Fertrin, the '01' unit produced 360 111 tonnes of ammonia during 1984, representing a 2.4% decrease below 1983's figure.

The New Urea Plant, commissioned on December 12 1983, produced a total of 162 803 tonnes in 1984 at a rate of 433 tonnes per day. Total exports for 1984 were 121 981 tonnes. The plant operated at reduced capacity throughout the year in accordance with demand. This plant is operated by Fertrin under a contractual arrangement with the National Energy Corporation.

The new methanol plant, started up on March 30, 1984, produced a total of 240 238 tonnes of refined methanol in 1984 averaging 875 tonnes per day. A total of 197 492 tonnes was exported.

TABLE X

PRODUCTION AND EXPORT OF NITROGENOUS FERTILIZER & METHANOL
1984

(TONNES)

	FEDCHEM (Braun)				TRINGEN				FERTRIN				NATIONAL ENERGY CORP.				TOTAL			
	NET PRODUCTION		EXPORT		NET PRODUCTION		EXPORT		NET PRODUCTION		EXPORT		NET PRODUCTION		EXPORT		NET PRODUCTION		EXPORT	
	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984	1983	1984
ANHYDROUS AMMONIA	176450	226961	164696	216246	313560	344247	237550	334049	712006	739032	696016	638405	–	–	–	–	1202016	1310240	1098262	1188700
AMMONIUM SULPHATE	32928	S/D	26622	S/D	–	–	–	–	–	–	–	–	–	–	–	–	32928	–	26622	–
UREA	33356	S/D	34858	S/D	–	–	–	–	–	–	–	–	10797	162803	7179	121981	44153	162803	34858	121981
METHANOL	–	–	–	–	–	–	–	–	–	–	–	–	–	240438	–	197492	–	240438	–	197492

REPORT ON THE QUARRYING INDUSTRY – 1984

The Quarrying Industry has suffered like most other industries from the downturn in the economy in 1984. There has been a significant reduction in demand for both naturally occuring and produced aggregates as a result new strategies have had to be adopted by entrepreneurs to encourage sales. These measures have included price reductions and the establishment of retail outlets nearer to the consumer. In spite of this several licensed quarries have been closed and in efforts to cut costs unacceptable quarrying practices have increased and illegal quarry operations have proliferated where infrastructural costs and other costs relating to environmental protection have been ignored.

In St. George East there were 13 operators for naturally occuring aggregates (sand and gravel). They produced a total of 176,631 cu. yds of material. This compared with a total production of 201,671 cu. yds in 1983, a decrease of 12.4%. In 1983 also there were 27 listed quarry operators of which 14 actually produced.

In the counties of St. Andrew-St. David 17 operators produced a total of 312,832 cu. yds. From this area also, the National Quarries Company produced 250,480 cu. yds of sand and gravel for a total of 563,312 cu. yds. This compared with 26 operators who produced a total of 715,088 cu. yds in 1983. This represents a decrease of 21.2%.

The total production of sand and gravel for 1984 was 739,943 cu. yds compared with 916,759 cu. yds in 1983. This represented a decrease of 19.2%.

The royalty payments accruing to the Government as a result of these operations were $1,021. 869 while there where outstanding payments to the value of $849,236. The major part of this outstanding sum approx. 57.2% is for the account of one operator from whom there is an outstanding query about the quantity of material produced.

The major problem with the quarrying industry has been the almost universal refusal of quarry operators to follow acceptable quarry practices to properly plan their operations and to attempt any form of restoration. In addition there has been the continuing problem of pollution of natural water courses. It has been established that most of the quarries are inefficiently operated and it must be realised that there will be an even greater resistance from quarry operators to spend money on what is regarded as non-profit making areas e.g. environmental controls, in view of the declining revenue from sales. The control of these operations by officers of the Ministry of Energy and Natural Resources will, therefore be even more difficult in the future.

1984 – STATISTICS ON REPORTED POLLUTION INCIDENTS

POLLUTION

In 1984 there was a total of eight-nine (89) reported incidents of pollution resulting in the escape of 1206 cubic metres of crude oil. Of this amount 892 cubic metres were recovered. The remaining 314 cubic metres which represents 26.0% of the total escaped, were unrecovered.

With forty two (42) reported incidents, Texaco Trinidad Inc experienced the greatest number of physical losses. This company recovered 242 cubic metres (66.6%) of the estimated 364 cubic metres which escaped during the year. The majority of the reported incidents occurred in the company's Eastern District fields – Morne Diablo, Barrackpore, Wilson, Trinity, Oropouche and Guayaguayare. The vast majority of the incidents were relatively minor and occurred in the main, as a result of pipeline leaks.

Trinidad-Tesoro achieved the greatest success in the recovery of escaped oil during the year. Of the estimated 586 cubic metres escaped, 523 cubic metres (89.2%) were recovered. There was one (1) incident of particular significance when 318 cubic metres of oil escaped near the company's Los Bajos Tank Farm. It occurred as a result of human error. Fortunately, there was almost total recovery of the escaped oil. The company was affected by a number of pipeline leaks in its Moruga field during the year. However the incidents were relatively minor.

Trintoc recovered 127 cubic metres (71.9%) of the estimated 177 cubic metres which escaped during the year. Most of the twenty-three (23) reported incidents occurred in the Point Fortin and Parrylands areas. This company seemed to be especially affected during the year by oil overflowing its pollution pits during heavy rainfall.

Amoco reported eight (8) relatively minor incidents offshore Point Galeota, resulting in an estimated net loss of 7 cubic metres of oil.

Of Trinmar's two (2) reported incidents, one involved the loss of 48 cubic metres of oil and occurred as a result of the mal-functioning of the emergency shut-in valve on one of its offshore platforms.

TABLE XI
POLLUTION STATISTICS – 1984

Company	No. of Incidents	Estimated Quantity Lost (m^3)	Estimated Recovery (m^3)	Estimated Net Loss (m^3)	% Recovery
TEXACO	42	364	242	122	66.6
TRINIDAD-TESORO	14	586	523	63	89.2
TRINTOC	23	177	127	50	71.9
PCOL	–	–	–	–	–
AMOCO	8	7	–	7	0
TRINMAR	2	72	–	72	0
TOTAL	89	1206	892	314	74.0

ACCIDENT REPORT 1984

In the petroleum industry, the number of accidents reported for the year 1984 numbered 455 showing a slight increase over the figure for the previous year.

Refinery accidents which do not fall under the jurisdiction of the Ministry of Energy and Natural Resources totalled 222, which was a decrease of 57 from last year's figure of 279.

Accidents which occurred during drilling and producing operations numbered 157 showing a slight decrease of 3 from last year's figure. Amoco Trinidad Oil Company accounted for the highest percentage.

Accidents were classified as serious and non-serious depending on the extent of the injuries sustained. Serious accidents totalled 90, showing an increase of 13 over last year's figure of 77 and consisted mainly of crush injuries, first degree burns, lacerations, orthopaedic problems, deep cuts, low back injuries and dislocations.

Non-serious accidents comprised 143 showing a slight increase of 4 over last year's figure. These accidents resulted in injuries consisting of abrasions, soft tissue injuries, bruises and superficial burns.

Of the total number of accidents reported 1 was fatal representing a decrease of 4 from last year's figure. This accident occurred in the Pointe-a-Pierre refinery area.

On 14th September a tractor trailer was negotiating the left turn to enter the Administration Building, when the left rear wheels of the unit crushed a pedestrian who was entering the said gate on the left side while on her way to work.

A summary of accident statistics is given in Table XII.

TABLE XII

ACCIDENT STATISTICS – 1984

COMPANY	FIELD	TOTAL	FATALITY	SERIOUS				NON SERIOUS			
				D	P	E	O	D	P	E	O
TEXACO	Guayaguayare	10		1	4	–	–	1	4	–	–
	Barrackpore	4		3	–	–	–	1	–	–	–
	Forest Reserve	7		–	2	–	1	–	4	–	–
	Brighton	0		–	–	–	–	–	–	–	–
	Contractors	3		–	2	–	–	–	1	–	–
	Pointe-a-Pierre	222*	*1								
		24		4	8	–	1	2	9	–	–
NATIONAL GAS COMPANY	All	2							1	1	
TRINMAR	All	81		6	8	6	1	10	22	16	12
TRINTOC	All	17		7	1	–	–	6	–	–	3
TESORO	All	39		–	13	2	4	2	14	1	3
AMOCO	All	70		14	5	2	8	14	11	6	10
		233	1	31	35	10	14	34	57	24	28

D – Drilling P – Production E – Engineering O – Others

*Refinery accidents under the jurisdiction of the Inspectorate Division (not included in totals)

ROYALTY ASSESSMENT 1984

Revenue collected through royalty payments for 1984 was $452,471,335 as against $413,852,932 (9.3% increase). This increase is a reflection of the increase in production of Amoco Trinidad Oil Company Limited and of Tesoro Galeota, which licences attract a higher royalty rate. The rate of royalty on crude oil is 10 percent (10%) for all fields, except those licences of Amoco and Tesoro Galeota where the rate is 12½% of the field storage value.

Appendix VIII provides a summary of the crude production assessed for Crown Royalty and the Field Storage Value of said production. Production for 1984 was 59,714,936 barrels whereas in 1983 it was 55,882,845 barrels. Consequently, the total storage value showed an increase. However there was a slight decrease in the field storage value per barrel and this was mainly due to the decrease in the prices of petroleum during the second half of 1984.

The division of crude production into products viz, light fractions, gas oil and fuel oil, is based on Royalty Lease Evaluation Analysis. Through this method a sample of crude is analyzed in order to arrive at the percent (%) constituent elements of the products noted above. The value of each element is used in arriving at the field storage value of production.

Royalty on natural gas is paid at a rate of 1.5c per thousand cubic feet sold. Royalty is paid on natural gas won and saved except where it is used in the licensed area for the carrying out of petroleum operations. During 1984 the total royalty on natural gas was $1,714,385 (based on 114,292,374 m.c.f) as against $1,571,822 on 104,788,194 m.c.f. in 1983. Appendix IX gives a summary of the royalty on natural gas by companies.

ROYALTY ON NATURAL GAS

COMPANY	PRODUCTION m.c.f.	ROYALTY $
Amoco Trinidad Oil Company	51,543,243	733,148.66
Trinidad Northern Area	4,424,532	66,367.99
Trinidad Tesoro Petroleum Company Limited	167,501	2,512.52
Trinidad and Tobago Oil Company Limited	1,010,948	15,164.23
Total January – June 1984	57,146,224	857,193.40
Amoco Trinidad Oil Company	52,405,408	786,081.14
Trinidad Northern Areas	3,879,004	58,185.06
Trinidad Tesoro Petroleum Company Limited	47,960	719.40
Trinidad and Tobago Oil Company Limited	813,778	12,206.68
Total June – December 1984	57,146,150	857,192.28
YEAR'S TOTAL	114,291,374	1,714,385.68

PETROLEUM PRODUCTS SUBSIDY

During 1984, owing to increases in the wholesale prices of petroleum products, the subsidy was removed on most petroleum products, except Liquefied Petroleum Gas (LPG) and Auto Diesel sold to fishermen through the National Fisheries Company.

The subsidy on petroleum products for 1984 therefore showed a steep decrease from that of previous years. In 1984 the total subsidy paid was $31.8 million, as against a subsidy of $156.6 million in 1983 and $345.7 million in 1982. In 1984 the subsidy on the sale of LPG ($15.7 m) accounted for 49 percent of the total subsidy, whilst the subsidy on the sale of auto diesel to National Fisheries Company accounted for 37 per cent.

The subsidy is levied against the oil producing companies, in the ratio of their monthly production. However, their daily average rate of production must be in excess of 3000 barrels.

	TOTAL SUBSIDY	CENTS PER BARREL
1984	31,807,121	52.00
1983	155,616,925	265.83
1982	345,694,251	533.15
1981	327,286,922	469.48
1980	286,628,408	368.84
1979	178,674,425	227.85
1978	93,636,718	111.42
1977	87,341,068	105.00
1976	68,320,677	88.31
1975	43,319,928	56.08
1974	33,648,953	54.44

PETROLEUM PRODUCTS SUBSIDY
YEAR ENDING 31ST DECEMBER 1984
LEVY PAID BY OIL PRODUCING COMPANIES

MONTH	AMOCO	TEXACO	TESORO	TRINTOC	TOTAL
JANUARY	2,653,323.62	731,650.71	1,096,206.38	678,884.33	5,160,065.04
FEBRUARY	1,211,570.51	336,653.03	507,832.53	321,437.07	2,377,493.14
MARCH	1,213,381.98	352,413.41	532,633.10	333,686.12	2,432,114.61
APRIL	1,561,858.44	437,443.59	659,245.97	422,040.64	3,080,588.64
MAY	1,088,943.32	304,610.89	468,708.58	283,103.70	2,145,366.49
JUNE	1,218,914.12	306,206.09	501,502.00	296,598.60	2,323,220.81
JULY	1,056,852.03	265,714.35	422,374.02	255,301.86	2,000,242.26
AUGUST	1,767,730.22	436,226.83	694,259.56	409,655.52	3,307,872.13
SEPTEMBER	959,203.48	226,027.85	362,662.05	212,049.38	1,759,942.76
OCTOBER	1,217,595.73	284,368.09	455,643.48	259,805.47	2,217,412.77
NOVEMBER	1,548,484.22	355,500.28	565,482.85	331,755.09	2,797,222.44
DECEMBER	1,246,857.21	270,416.48	429,797.15	258,508.93	2,205,579.77
TOTAL	16,744,714.88	4,303,231.60	6,696,347.67	4,062,826.71	31,807,120.86
PERCENTAGE	52.65%	13.53%	21.05%	12.77%	100.00%

ANNUAL REPORT 1984 – LEGAL SECTION

The officers in the Legal Section performed routine duties which included the giving of advice on miscellaneous legal matters relevant to petroleum operations in the industry, drafting of licences and attending committee meetings.

Specific matters completed in 1984 were as follows:-

A. Legislation

(a) The Price of Petroleum Products (Amendment) Order, 1984 (Legal Notice No. 7 of 1984) made under Section 31 of the Petroleum Act fixing the wholesale and retail prices of petroleum products.

(b) The Price of Petroleum Products (L.P.G.) (Amendment) Order, 1984 (Legal Notice No. 3 of 1984) made under Section 31 of the Petroleum Act fixing the wholesale and retail prices of liquified petroleum gas.

(c) The Petroleum Production Levy and Subsidy (Gross Margin) (L.P.G.) (Amendment) Order, 1984 made section 8 (4) of the Petroleum Production Levy and Subsidy Act to provide for the gross margin in respect of liquified petroleum gas.

(d) The Price of Petroleum Products (Bunkers for Trawlers) (Amendment) Order, 1984 made under section 31 of the Petroleum Act fixing the price of bunker fuel for National Fisheries trawlers.

(e) The Petroleum Production Levy and Subsidy (Gross Margin) (Amendment) Order, 1984 made under section 8 (4) of the Petroleum Production Levy and Subsidy Act to provide for the gross margin in respect of petroleum products.

(f) The Petroleum Production Levy and Subsidy (Variation of Schedule) Order, 1984 made under section 20 of the Petroleum Production Levy and Subsidy Act varying the schedule to the said Act.

B. Application for Pipeline Licences

(a) Applications were received from the National Gas Company for the following:-

(i) 406 mm pipeline from the City Gate Valves Station to the Trinidad and Tobago Electricity Company Port of Spain B Compound.

(ii) 101.6 mm pipeline from a 406 mm gas main to Caroni Ste. Madeleine.

C. PETROLEUM TAXATION

Considerable technical and economic assistance was provided to the Ministry of Finance in making proposals for amending the Petroleum Taxes Act (1974).

GENERAL ADMINISTRATION

During 1984 General Administration continued to provide the necessary services to ensure the smooth functioning of the Ministry within the framework of existing regulations and instructions. The year could be described as a progressive one as the Ministry experienced some positive changes.

STAFF

The re-organization of the Ministry which commenced in 1981 culminated in 1984, with most of the key positions filled. Mrs. Aimee Bertrand was recruited on contract for three (3) years as a Senior Geophysicist. Mr. Horace Scobie, Administrative Officer IV was appointed to act in the post of Senior Economist in the Energy Section.

The newly created post of Administrative Officer II, Development Section was filled by Mrs. Joy Creese who joined the Ministry as a replacement for Mr. Scobie. Mrs. Rita Adam, Administrative Officer IV also joined the Ministry to replace Mrs. Althea Mc Intosh, Administrative Officer IV, who was transferred to the Ministry of Labour. Miss Cassandra Rogers, Geologist II was seconded to the University of the West Indies for a three year period.

Two officers who gave invaluable service to the Ministry and were staff members since its inception in 1964, Mr. Ovid Fernandes, Special Adviser to the Minister and Mr. Stanley Marshall, Draughtsman III, proceeded on pre-retirement leave during 1984.

EQUIPMENT

The Ministry continued its efforts to modernize its tools and equipment for increasing productivity. The Ministry procured two micro-computers in 1983 and because of the exceedingly satisfactory results obtained in terms of flexibility and speed with respect to engineering and economic evaluations of drilling and workover programmes and project studies, two additional micro-computers were acquired in 1984, its use being extended to cover selected aspects of the accounting function.

The Ministry succeeded in acquiring its own telex facilities in 1984. These facilities were identified as a priority for efficiency of oil market monitoring operation and in assisting the Ministry in its decision making and policy recommendations based on timely information in areas of economics, marketing and political developments which affect changes in patterns of international oil production and product movement.

The acquisition of several new pieces of equipment has called for greater security and in 1984 a card-pass system was introduced which made it easier for security officers to monitor the movement of persons who came to but are not employees of the Ministry.

INFORMATION

Staff guidance manuals were introduced for the benefit of new members of staff, and Desk manuals were provided for the guidance of the Registry staff.

A booklet entitled "Information on the Petroleum Industry of Trinidad and Tobago" was published in June, 1984.

ENERGY PLANNING DIVISION

The increased multi-disciplinary staff of the Energy Planning Division facilitated the scheduling and completion of several exercises and projects during 1984.

These were as follows:-

(1) the preparation and publication of the 1982 and 1983 Annual Reports of the Ministry;

(2) the timely publication of the Monthly Statistical Bulletins of the Ministry for 1984;

(3) the continuation of the National Energy Balances Project (1979-83), a summary of which was presented at the annual technical seminar of the Society of Petroleum Engineers of Trinidad and Tobago;

(4) participation in the committee appointed by the Minister of Energy and Natural Resources to study and make proposals on the rationalization of the locations and operation of service stations in Trinidad and Tobago;

(5) participation in the exercises dealing with the revision of the rate of Supplemental Petroleum Taxation for marine operations and other related fiscal matters;

(6) participation in the study on the possible utilization of compressed natural gas (c.n.g.) as an alternate fuel for motor vehicles and another on the blending of methanol in gasolene for similar use;

(7) a study of the long term projection of natural gas supply and demand for Trinidad and Tobago;

(8) participation in the development of Tringen (ammonia production) expansion project;

(9) the preparations for the joint UNDP/World Bank Energy Sector Assessment of Trinidad and Tobago.

The staff of the Division also continued its ongoing work in the following areas:

(i) improving the system for the processing and granting of retail marketing licences for service stations;

(ii) assisting with the determination for tax purposes of the fair market values for locally produced crudes as a part of the Petroleum Pricing Committee;

(iii) monitoring and analyzing developments and trends in the international markets for oil, gas and other energy forms as well as the energy based products;

(iv) evaluating proposals for the establishment of energy based industries, particularly fertilizer plants;

(v) continuation of work related to future long-term gas supply and demand;

(vi) maintaining continuous contact (formal and informal) with international agencies and foreign countries in the field of energy.

The staff of the Division also played an important role in the work of the Informal Group of Ministers of Energy of Latin America and the Caribbean as Trinidad and Tobago hosted the Third Meeting and performed the functions of the Interim Secretariat of the group between the Second and Third Meetings.

REPORT ON TRAINING 1984

In general the training effort in the Ministry during 1984, was both intensive and successful. A total of 49 officers received training either in the form of short courses, attachments, conferences or seminars. Of this figure 18 were Petroleum Engineers, 2 Chemical Engineers, 3 Mechanical Engineers, 2 Geophysicists, 3 Geologists, 3 Petroleum Inspectors, 3 Economists, 3 from Administration and Accounts and 12 from the clerical and secretarial Division.

In the technical area many of the young engineers and Petroleum Inspectors were sent on attachment to the various oil companies and some of the chemical (fertilizer) plants "hands-on" training and familiarization with the companies' operations. Several local technical courses including log interpretation, reservoir engineering, gas lift analysis, analysis of secondary recovery projects were attended by Petroleum Engineers, Geologists, and Geophysicists.

The Ministry was represented at some of the more important Conferences and Seminars including the SPE Conference, both local and overseas, the APETT's Conference on Computers in Engineering, the PLATT's International Gas Conference in Italy and the Offshore Oil Show in Caracas, Venezuela.

Management training was given its due attention and several of the Engineers, Inspectors and senior management staff attended courses designed to improve their efficiency as Managers. Such courses included "The effective use of time", "Staffing for Strength", "Executive Contribution", "Performance Appraisal and Staff Reporting".

Secretarial and clerical staff attended courses to improve their skills in communication, supervision, while payroll officers attended courses in payroll related topics.

Members of Staff from the Energy Planning Division (EPD) attended a course in Economic and Financial Analysis of Projects and Energy Management.

Worthy of specific mention are the 2 in-house courses conducted in the Ministry. The first was the Computer Programming Course in BASIC which was conducted February/April and which was quite enthusiastically received. Examinations for this course were held and graduation certificates were issued in December. The second was held by the Institute of Languages which conducted an Intensive Course in Conversational Spanish for Senior Officials and some of their Secretaries. This course was also completed in December.

There was also two one-day Seminars in Technical Report Writing put on by personnel from CARIRI. One was held in the San Fernando office and the other in the Port-of-Spain office.

COMPUTERIZATION OF MINISTRY'S RECORDS – 1984

The Ministry of Energy and Natural Resources continued the efforts to computerize its records in 1984. This was started in late 1983. The first phase involved the development of a PAYROLL SYSTEM for monthly-paid employees. This system was designed, created and tested during the year. The programming language used was BASIC and 4 programs were developed to accomplish the following:-

- the inputting of new records on the payroll file,
- the altering and updating of existing payroll-file records,
- the print out of file numbers/names/NIS numbers list,
- the print out of totals for numeric data,
- the print out of the monthly-paid paysheet with the alternatives of printing all or part of the paysheet,
- the print out of the monthly-paid payslips with the alternatives of printing all or some of the payslips,
- generation of "Banklists" for persons whose salaries go to banks directly.

The system was also designed such that one year's data would be kept on computer file (in addition to the pay record cards). This will allow for a speedier generation of the TD-4 slips at year end.

All programmes were protected from being listed, hence preventing any unauthorized modifications to the programs. There was also security with respect to utilization of the programs via access codes which are only available to the accounts clerk responsible for the generation of the monthly-paid payroll.

During late 1984 also, the programming effort towards a daily paid payroll system was initiated and 1985 will see the fruition of these efforts.

REPORT ON ACTIVITIES IN DATA BANK AND MICROFILM SECTION FOR THE YEAR 1984

(a) Data Bank

During 1984, the Ministry continued to seek the service of Gaffney, Cline and Associates and Trintoplan Consultants Ltd.

The system which was stored at Gaffney, Cline & Associates had to be transferred to Trintoplan's computer. Gaffney, Cline & Associates who continued to be responsible for system maintenance and development was very familiar with the system and had to work closely with Trintoplan so that its professional staff could acquire expertise in its operations. By early 1984, the entire system had been transferred to Trintoplan's ME-29. Current data was coded and inputted and old data corrected so that files contain 1974 -- 84 oil and gas well data.

Gaffney, Cline and Associates continued to work on the Bulletin System which was fine tuned to the needs of the Ministry by writing or modifying several retrieval programs. The Bulletin System was modified for use on the Ministry's micro-computers. Program corrections, program conversions to the IBM-XT format and data transfer unto 5¼" diskette for use on a IBM-XT or PC was conducted Gaffney, Cline & Associates. The system with 10 years of data was actually handed over to the Ministry in September, where it was to be installed on a hard-disk drive.

No work was actually done on the Main Well File System except inputting of data. Discussions were held with the National Energy Corporation on the possibility of:-

(i) re-designing the Main Well File System into a form that is easier to use;

(ii) having direct access to information stored on their IBM main frame.

In September, 1984, Gaffney, Cline & Associates curtailed operation locally. As a result, Trintoplan has had to increase its data management activities to incorporate system maintenance and development.

In October, 1984, the Data Bank Section presented a paper entitled "The Establishment of a Computerised Petroleum Industry Data Base" at the SPE Conference.

(b) **Microfilm Project**

The Microfilm Section continued to microfilm and file well information that was processed during the year. All of the wells existing in the country have been microfilmed and filed according to company and field.

Three readers were purchased to facilitate staff using microfilmed information. A fire-proof cabinet was obtained for the storage of films. A service contract for maintenance of all the equipment in the Section expired in July and has not been renewed since.

APPENDIX I

ANNUAL STATISTICS OF PRODUCTION, DRILLING, REFINING, EXPORT AND IMPORTS 1974 – 1984

	ITEM	UNIT (1)	PERCENTAGE DIFFERENCE 1984–1983	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	UNIT (2)
1.	CRUDE OIL	'000 M3	6 3	9 860	9 276	10 274	10 987	77,613	78,249	83,778	83,619	77,673	78,621	68,136	'000 bbls
2.	CASING HEAD GASOLINE (C H P S)	'000 M3	33.0	4	6	4	6	37	44	60	61	53	61	69	'000 bbls
3.	TOTAL CRUDE OIL AND NATURAL GASOLINE (1+2)	'000 M3	6 3	9 864	9 282	10 278	10 993	77,650	78,293	83,838	83,680	77,726	78,682	68,205	'000 bbls
4	CRUDE OIL PRODUCTION CROWN OIL RIGHTS	'000 M3	6 7	9 497	8 901	9 891	10 589	74,879	75,399	80,701	80,612	74,704	76,018	65,078	'000 bbls
5	CRUDE OIL PRODUCTION PRIVATE OIL RIGHTS	'000 M3	–2 1	367	375	383	398	2,734	2,850	3,077	3,007	2,969	2,603	3,058	'000 bbls
6	TOTAL IMPORTS	'000 M3	–16 7	1 077	1 293	4 300	6 208	55,309	51,631	56,817	67,441	87,459	58,796	95,636	'000 bbls
7	IMPORTS OF REFINED PRODUCTS	'000 M3	–21 0	1 022	1 293	581	70		–	–	1,681	2,503	260	46	'000 bbls
8.	IMPORTS OF CRUDE OIL FOR REFINING	'000 M3	100 0	55	–	3 719	6 138	55,309	51,631	56,817	65,760	84,784	58,144	95,472	'000 bbls
9	IMPORTS OF OTHER OILS FOR REFINING AND BLENDING	'000 M3	—	—	—	—	–	–	–	–	0	172	392	118	'000 bbls
10	TOTAL EXPORTS	'000 M3	6 0	9 725	9 176	13 938	15 185	113,493	113,105	126,604	140,753	147,896	139,714	153,297	'000 bbls
11	EXPORT OF CRUDE OIL	'000 M3	4 7	5 170	4 939	5 956	6 760	46,075	46,282	54,008	50,936	44,408	48,307	31,870	000 bbls
12	EXPORTS OF REFINED PRODUCTS	'000 M3	8 0	4 575	4 237	7 982	8 425	67,418	66,823	72,596	89,817	103,488	91,407	121,427	'000 bbls
13	RUNS TO STILLS	'000 M3	3 6	4 475	4 321	8 761	10 071	78,343	82,857	85,882	99,536	117,595	85,660	130,819	'000 bbls
14	NUMBER OF WELLS STARTED	AS STATED	13 8	198	174	232	206	156	190	236	235	224	182	219	AS STATED
15	TOTAL NUMBER OF WELLS COMPLETED	AS STATED	19 0	213	179	215	206	183	184	215	217	207	189	212	AS STATED
16	NUMBER OF DRILLING WELLS COMPLETED AS OIL WELLS	AS STATED	1 9	165	162	169	161	140	144	170	170	153	150	176	AS STATED
17	NUMBER OF DRILLING WELLS ABANDONED	AS STATED	30 8	17	13	26	14	19	40	45	47	54	24	21	AS STATED
18	TOTAL DEPTH DRILLED	METRE	12 5	206 830	183 797	252 936	239 609	670,928	787,132	895,098	922,295	919,705	839,649	909,980	FEET
19	DEPTH DRILLED ON CROWN OIL RIGHTS	METRE	22.6	200 438	163 539	220 747	220 806	623,384	1,228,181	863,989	882,023	879,132	772,279	766,787	FEET
20	DEPTH DRILLED ON PRIVATE OIL RIGHTS	METRE	68 4	6 392	20 258	32 189	18 803	51,258	20,479	31,109	40,272	40,573	67,370	143,193	FEET
21	AVERAGE DEPTH OF COMPLETED WELLS (15)	METRE	9 7	1 153	1 051	1 083	1 132	3,557	6,786	3,868	4,196	4,443	4,442	4,509	FEET
22	TOTAL NUMBER OF WELLS PRODUCING (AV DURING YEAR)	AS STATED	—	3 142	3 140	3 372	3 408	3,351	3,399	3,275	3,148	2,997	2,777	2,981	AS STATED
23.	NO OF WELLS PRODUCED BY FLOWING (AV DURING YEAR)	AS STATED	–7 3	319	344	392	392	397	516	507	428	438	438	498	AS STATED
24	NO OF WELLS PRODUCED ARTIFICIAL LIFT (AV DURING YEAR)	AS STATED	1 0	2 823	2 796	2 980	3 016	2,954	2,883	2,768	2,720	2,559	2,339	2,483	AS STATED
25	AVERAGE DAILY PRODUCTION PER PRODUCING WELL	M3	6 2	8 6	8 1	8 3	8 8	63 3	63 0	70 1	72 8	71 0	77 6	62 6	BARREL
26	AVERAGE DAILY. PRODUCTION PER FLOWING WELL	M3	5 0	22 2	19 3	23.7	28.9	248 9	215 4	271 4	335 7	328 5	358 7	248 0	BARREL
27	AVERAGE DAILY PRODUCTION PER ARTIFICIAL LIFT WELL	M3	4 5	7 0	6 7	6 3	6 2	42 1	35 8	33 2	31 4	25 5	24 9	25 4	BARREL
28	TOTAL VALUE OF DOMESTIC EXPORTS	'000 $	7 5	5 044 400	5 431 684	7 118 368	9 025 898	9,715,719	6,175,213	4,810,025	5,188,987	5,331,557	3,939,370	3,934,151	'000 $
29	TOTAL VALUE OF PETROLEUM PRODUCTS (ITEM 28)	'000 $	–11 2	4 168 910	4 692 967	6 491 617	8 051 501	9,127,773	5,715,496	4,379,188	4,787,280	4,960,604	1,925,785	2,532,081	'000 $
30.	TOTAL VALUE OF LAKE ASPHALT PRODUCTS	'000 $	65 2	11 130	6 737	6 782	1 134	3,253	3,355	360	3,051	4,426	4,240	4,857	'000 $
31	TOTAL NATURAL GAS PRODUCED	MILLION M3	4 4	7 228	6 318	5 841	5 604	197,811	169,740	157,920	149,589	137,959	126,434	128,293	MMCF
32	USED AS FUEL	MILLION M3	33 2	4 132	3 102	2 842	941	80,624	71,990	69,209	62,968	52,931	46,618	50,599	MMCF
33.	REPLACED IN FORMATION	MILLION M3	—	—	–	–		4	19	114	333	1,699	2,017	5,706	MMCF
34	LOSSES NOT COLLECTED	MILLION M3	16 4	249	214	297	356	12 607	82,236	73,381	8,518	76,095	70,890	63,760	MMCF

(1) Metric Units from 1981 – 1984 (2) Imperial Units from 1974 – 1980

APPENDIX II

MONTHLY ANALYSIS OF DRILLING AND WORKOVER WELLS, 1984
DEPTH DRILLED IN METRES

MONTH	RIG-MONTHS	NEW WELLS STARTED	DRILLING WELLS COMPLETED												MONTHLY DEPTH DRILLED			AVERAGE DEPTH DRILLED		OLD WELLS	
			OIL & GAS PRODUCERS		INJECTION AND OBSERVATION WELLS		ABANDONED						TOTAL	AGGREGATE DEPTH	AVERAGE DEPTH	CROWN	PRIVATE	TOTAL	PER DAY	PER RIG-DAY	RE COMPLETED	ABANDONED
							AFTER TESTING		DRY HOLES		TECHNICAL CAUSES											
			NO	AGGREGATE DEPTH DRILLED	NO	AGGREGATE DEPTH DRILLED	NO	AGGREGATE DEPTH	NO	AGGREGATE DEPTH	NO	AGGREGATE DEPTH										
JANUARY	870	15	8	11458	–	–	–	–	–	–	–	–	8	11458	1432	20200	–	20200	652	75	11	–
FEBRUARY	838	13	10	13639	–	–	–	–	1	1049	–	–	11	14688	1335	14604	43	14647	505	60	8	–
MARCH	780	12	11	10035	–	–	–	–	1	2835	2	1351	14	14221	1016	16184	971	17155	553	71	11	–
APRIL	921	21	25	21992	–	–	–	–	–	–	1	566	26	22558	868	17641	870	18511	617	67	12	–
MAY	857	13	18	19268	2	1558	–	–	–	–	1	2640	21	23466	1117	16502	540	17042	550	64	19	1
JUNE	795	13	11	16738	2	1619	–	–	1	823	1	914	15	20094	1340	18297	–	18297	610	77	10	2
JULY	830	10	9	10753	2	1728	–	–	1	2591	1	2521	13	17593	1353	13775	327	14102	455	55	12	–
AUGUST	782	12	8	14115	1	860	–	–	–	–	–	–	9	14974	1664	13817	1206	15023	485	62	11	1
SEPTEMBER	730	14	9	11703	2	833	–	–	–	–	–	–	11	12536	1140	13398	–	13398	447	61	9	–
OCTOBER	820	22	17	19958	–	–	–	–	–	–	1	88	18	20046	1114	16966	1021	17987	580	71	15	–
NOVEMBER	816	26	41	51594	5	3734	–	–	2	3052	3	3818	51	62198	1220	19923	1218	21141	705	86	9	–
DECEMBER	819	27	14	10190	1	975	–	–	–	–	1	655	16	11820	739	19131	195	19326	623	76	3	–
TOTAL 1984	9858	198	181	211 443	15	11307	–	–	6	10349	11	12553	213	245652	1153	200438	6392	206830	565	69	130	4
TOTAL 1983	11452	174	162	166 625	4	3009	2	2692	7	10867	5	6019	180	189213	1051	163539	20258	183797	509	53	148	4

APPENDIX IIA
LAND AND MARINE DEPTH DRILLED — 1984
DEPTH DRILLED IN METRES

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LAND	11190	8512	8298	12876	11426	11293	10430	8913	9770	15850	16282	15687	140527
MARINE	9010	6135	8857	5635	5616	7005	3673	6110	3627	2137	4859	3638	66302
TOTAL	20200	14647	17155	18511	17042	18298	14103	15023	13397	17987	21141	19325	206829
DAILY AVERAGE DEPTH	652	505	553	617	550	610	455	485	447	580	705	623	565
DAILY AVERAGE DEPTH/RIG	74.9	60.3	70.9	67.0	64.1	76.7	54.8	62.0	61.2	70.8	86.4	76.1	68.7
MARINE % OF TOTAL	44.6	41.9	51.6	30.4	33.0	38.3	26.0	40.7	27.1	11.9	23.0	18.8	32.1

APPENDIX III

MONTHLY ANALYSIS OF OIL PRODUCTION FOR YEAR ENDING 31ST DECEMBER 1984
ALL PRODUCTION FIGURES IN CUBIC METRES

MONTH	FLOWING				GAS LIFT				PUMPING				OTHER METHODS				SALT WATER				NO OF WELLS ABANDONED	NO. OF WELLS DRILLING AT MONTH END	NO. OF WELLS PRODUCING	DAILY AV. PER PRODUCING WELL	TOTAL OIL PRODUCTION	BREAKDOWN OF TOTAL PRODUCTION								
																										CROWN			PRIVATE			AVERAGE B.O.P.D.	CROWN CHPS	PRIVATE CHPS	TOTAL CHPS
	NO. OF WELLS	PROD.	% OF TOTAL	AV PER WELL	NO OF WELLS	PROD.	% OF TOTAL	AV PER WELL	NO OF WELLS	PROD	% OF TOTAL	AV PER WELL	NO OF WELLS	PROD.	% OF TOTAL	AV PER WELL	NO OF WELLS	PROD	% OF TOTAL OIL	DAILY AV. PER WELL						NO. OF WELLS	PROD.	AV PER WELL	NO. OF WELLS	PROD.	AV PER WELL				
JANUARY	323	199326	25 3	19 9	453	410306	52 0	29 2	2355	179752	22 7	2 5	8	30	–	0 1	2214	634657	44 6	9 2	–	11	3139	8 1	789324	2509	755885	9.7	630	33439	1 7	25462	521	10	531
FEBRUARY	323	186256	25.3	19 9	450	380123	51 5	29 1	2365	171022	23 2	2 5	14	61	–	0 2	2218	609262	45 2	9.5	–	8	3152	8 1	737485	2530	708043	9 7	622	29422	1.6	25430	536	10	536
MARCH	325	216566	27.5	21.5	456	394568	50 2	27 9	2361	175456	22 3	2 4	–	–	–	–	2202	641824	44 9	9 4	–	7	3142	8 1	786589	2515	755398	9.7	627	31191	1.6	25374	575	9	484
APRIL	332	209569	26.9	21.0	464	391106	50 2	28 1	2356	177920	22 9	2 5	–	–	–	–	2163	661911	45 9	10 2	–	8	3152	8 2	778595	2531	747406	9.8	621	31188	1.7	25963	379	7	386
MAY	322	222780	27.4	22 3	457	406407	49.9	28 7	2333	185268	22 7	2 6	9	41	–	0 1	2168	719378	46.9	10 7	1	5	3121	8 4	814495	2501	783493	10 1	620	31002	1 6	26274	487	10	497
JUNE	321	223548	27.8	23.2	441	361210	47 5	28 8	2338	198522	24 7	2 8	11	63	–	0 2	2096	699389	46 5	11 1	2	8	3111	8.6	803343	2498	773241	10 3	613	30101	1 6	26778	446	9	455
JAN – JUNE	324	1257957	26 7	21 3	454	2363720	50 2	28 6	2351	1087939	23 1	2 5	7	195	–	0 2	2177	3966420	45 7	10 0	3	47	3136	8 3	4709811	2514	4523467	9 9	622	186344	1 6	25878	2844	54	2898
JULY	322	251619	30 2	25.2	481	392971	47 2	26 4	2320	188284	22 6	2 6	6	15	–	0 1	2190	719936	46 4	10 6	–	1	3129	8 6	832888	2513	803072	10 3	616	29816	1 6	26867	418	8	426
AUGUST	328	249352	29 1	24 5	472	419776	48 9	28 7	2361	188750	22 0	2 6	8	17	–	0 1	2161	755762	46 8	11.3	1	7	3169	8 7	857895	2541	827641	10 5	628	30254	1.6	27674	371	7	378
SEPTEMBER	321	240244	28.5	25 0	474	418732	49 7	29.5	2380	183135	21.8	2 6	8	26	–	0 1	2175	741096	46 8	11 4	–	5	3183	8 8	842136	2544	810876	10 6	639	31259	1.6	28071	62	1	63
OCTOBER	302	217371	24.8	23 2	477	476207	54 2	32 2	2378	184100	21 0	2 5	8	16	–	0 1	2228	730412	45 4	10 6	–	7	3165	8 9	877694	2531	846414	10.8	634	31280	1 6	28313	276	5	281
NOVEMBER	308	192700	22 5	20 9	484	491146	57 4	33 8	2330	171848	20 1	2 5	3	8	–	0 0	2209	657282	43 4	9 6	–	6	3125	9 1	855702	2492	826891	11.1	633	28811	1 5	28523	245	3	248
DECEMBER	304	182779	20 6	19 4	462	526472	59 3	36 8	2336	178461	20 1	2 5	8	24	–	0 1	2209	655740	42 5	9 6	–	..	3110	9 2	887736	2482	858553	11 2	628	29182	1 5	28637	313	4	314
JULY – DEC	314	1334064	25 9	23 1	475	2725303	52 9	31 2	2351	1094578	21 2	2 5	7	105	–	0 1	2195	4270228	45 3	10 6	1	26	3147	8 9	5154050	2517	4973448	10 7	630	180602	1.6	28011	1885	28	1913
TOTAL 1984	319	2592021	26 3	22 2	464	5089023	51 6	30 0	2351	2182517	22 1	2 5	7	300	–	0 1	2186	8236648	45 5	10 3	4	73	3142	8 6	9863861	2516	9496915	10 3	626	366946	1 6	26950	4709	82	4791
AVERAGE 1984	–	7082	–	–	–	13904	–	–	–	5963	–	–	–	1	–	–	–	22505	–	–	–	–	–	–	26950	–	25948	–	–	1002	–	26950	13	–	13

APPENDIX IIIA
ANALYSIS OF PRODUCTION BY OPERATING COMPANIES – 1984
(All quantities in Cubic Metres)

COMPANY	FLOWING				GAS LIFT				PUMPING				OTHER METHODS				SALT WATER				TOTAL FOR EACH COMPANY				CROWN PROD.		PRIVATE PROD.	
	NO OF WELLS	PROD.	% OF TOTAL	AV PER WELL	NO. OF WELLS	PROD	% OF TOTAL	AV PER WELL	NO. OF WELLS	PROD	% OF TOTAL	AV PER WELL	NO. OF WELLS	PROD.	% OF TOTAL	AV PER WELL	NO. OF WELLS	PROD.	% OF TOTAL	AV PER WELL	NO. OF WELLS	AV PER WELL	TOTAL OIL PRODUCED	% OF PROD.	PROD.	% OF PROD.	PROD.	% OF TOTAL
TRINIDAD TESORO PETROLEUM COMPANY LIMITED	65	101860	7 8	4.3	7	8149	0 6	3 2	1331	1204096	91 6	2 5	—	—	—	—	1237	852841	39.4	1 9	1403	2 6	1314104	13.3	1076532	81 9	237573	18.1
TEXACO TRINIDAD INC	35	70491	12 5	5 5	160	122097	21 7	2 1	513	370715	65 8	2 0	—	—	—	—	336	609168	52.0	5 0	708	2.2	5663302	5 7	499348	88.6	63954	11.4
PREMIER CONSOLIDATED OILFIELDS LIMITED	2	805	3.5	1 1	—	—	—	—	79	21768	95 2	0 8	7	300	1 3	0 1	30	8500	27 1	0.8	88	0 7	22873	0.2	3860	16 9	19013	83.1
TRINIDAD NORTHERN AREAS	65	509943	23 0	21 4	201	1417961	63 9	19.3	52	289855	13 1	15 2	—	—	—	—	228	416934	15 8	5.0	318	19.1	2217759	22.5	2217759	100.0	—	—
AMOCO TRINIDAD OIL CO	39	1715461	32 7	120.2	86	3529325	67 3	112 1	—	—	—	—	—	—	—	—	97	6168266	54.0	173.7	125	114.6	5244786	53.2	5244786	100.0	—	—
TRINIDAD & TOBAGO OIL CO.	115	193462	38.6	4.6	10	11491	2.3	3 1	377	296083	59.1	2 1	—	—	—	—	258	180939	26 5	1.9	502	2 7	501037	5.1	454630	90 7	46407	9 3
TOTAL 1984	319	2592021	26 3	22 2	464	5089023	51 6	30 0	2351	2182517	22 1	2 5	7	300		0 1	2186	8236848	45 5	10 3	3141	8.6	9863861	100.0	9496915	96.3	366946	3.7
TOTAL 1983	344	2422406	26.1	19 3	496	4789651	51 6	26 5	2292	2063416	22 3	2.5	8	400		0 1	2058	7286028	44 0	9 7	3140	8 1	9275873	100 0	8901375	96.0	374498	4.0

APPENDIX IIIB
DAILY AVERAGE PRODUCTION BY MONTHS FOR ALL COMPANIES – 1984
(All quantities in Cubic Metres)

COMPANY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL CRUDE	TOTAL C.M.P.D
TRINIDAD TESORO PETROLEUM COMPANY	106172	101603	105436	107493	112944	108204	113479	114943	112247	114568	106941	110074	1314104	
C.M.P.D.	3425	3504	3401	3583	3643	3607	3661	3708	3742	3696	3565	3551		3590
PREMIER CONSOLIDATED OILFIELDS	1608	1573	1839	2036	2031	1935	1940	1929	1955	1865	1993	2169	22873	
C.M.P.D.	52	54	59	68	66	65	63	62	65	60	66	70		62
TRINIDAD AND TOBAGO OIL COMPANY	44464	41411	44346	41164	41261	41226	41949	41671	38009	41345	40605	43587	501037	
C.M.P.D.	1434	1428	1431	1372	1331	1374	1353	1344	1267	1334	1353	1406		1369
TEXACO TRINIDAD INC.	49398	46950	48900	47863	44565	45303	48539	48408	47244	47463	45151	43519	563302	
C.M.P.D.	1594	1619	1577	1595	1438	1510	1566	1562	1575	1531	1505	1404		1539
TRINIDAD NORTHERN AREAS	186243	178794	186575	188129	187402	183210	182893	184401	181311	187598	178376	192826	2217759	
C.M.P.D.	6008	6165	6019	6271	6045	6107	5900	5948	6044	6052	5946	6220		6059
AMOCO TRINIDAD OIL COMPANY	401438	367134	399495	391910	426292	423465	444088	466543	461371	484854	482635	495561	5244786	
C.M.P.D.	12950	12660	12887	13064	13751	14116	14325	15050	15379	15641	16088	15986		14330
ALL COMPANIES – 1984	789324	737465	786589	778595	814495	803343	832888	857895	842136	877694	855702	887736	9863861	
C.M.P.D.	25460	25430	25374	25953	26274	26778	26867	27674	28071	28313	28523	28637		26950
ALL COMPANIES – 1983	817517	720433	795089	774233	780001	760576	775690	776182	747468	784222	764222	780241	9275873	
C.M.P.D.	26371	25730	25648	25808	25161	25353	25022	25038	24916	25298	25474	25169		25413

APPENDIX - IIIC
LAND AND MARINE 1984
(All quantities in Cubic Metres)

TYPE OF WELL	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JAN - JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		JULY - DEC		JAN — DEC	
	WELLS	PROD.	WELLS	PROD	WELLS	PROD	WELLS	PROD	WELLS	PROD	WELLS	PROD	WELLS	PROD	WELLS	PROD	WELLS	PROD	WELLS	PROD	WELLS	PROD	WELLS	PROD	WELLS	PROD	WELLS	PROD	WELLS	PROD
MARINE																														
TNA SOLDADO	298	184647	295	176773	298	184325	293	185786	303	185078	296	180993	297	1097602	298	180847	304	182077	307	179409	308	185733	314	176655	316	191181	308	1095903	302	2193505
TTI· A B M	33	2461	35	1756	31	1297	33	1273	29	687	32	1080	32	8554	34	1216	39	1121	34	615	33	656	35	404	22	537	33	4550	33	13104
TTPCL GALEOTA	36	14677	40	15520	40	14208	48	17552	47	22083	48	19095	43	103136	45	21791	43	22284	45	21224	46	21317	41	20603	42	20851	44	128070	44	231205
AMOCO	121	401438	124	367134	123	399495	126	391910	126	426292	129	423465	125	2409734	127	444088	29	466543	131	461371	127	484854	123	482635	126	495561	126	2835052	125	5244786
SUB-TOTAL	488	603223	494	561183	492	599325	500	596521	505	634140	505	624633	497	3619025	504	647943	515	672025	517	662619	514	692561	513	680298	497	708130	510	4063575	504	7682600
DEVIATED FROM SHORE																														
TNA – F O S	13	1597	15	2021	15	2250	15	2343	15	2324	15	2218	15	12752	15	2046	15	2324	16	1901	15	1865	15	1721	15	1645	15	11502	15	24254
TTI – A S	10	251	11	325	10	319	9	211	8	58	6	74	9	1238	17	163	17	183	17	90	17	146	17	46	16	224	17	851	13	2089
TTPCL – GUAPO M 1151/53	9	273	9	218	9	238	8	285	9	304	9	669	9	1986	9	701	9	590	9	545	9	460	9	463	9	523	9	3281	9	5267
SUB-TOTAL	32	2121	35	2564	34	2806	32	2839	32	2686	30	2961	33	15976	41	2909	41	3097	42	2535	41	2471	41	2230	40	2391	41	15634	37	31610
MARINE & DEVIATED	520	605344	529	563746	526	602131	532	599360	537	636826	535	627594	530	3635001	545	650852	556	675122	559	665154	555	695032	554	682529	537	710521	551	4079209	541	7714211
LAND	2619	138980	2623	173719	2616	184458	2620	179235	2584	177669	2576	175749	2606	1074810	2584	182037	2613	182773	2624	176982	2610	182662	2571	173173	2573	177215	2596	1074841	2601	2149650
TOTAL PRODUCTION	3139	789324	3152	737465	3142	786589	3152	778595	3121	814495	3111	803343	3136	4709811	3129	832888	3169	857895	3183	842136	3165	877694	3125	855702	3110	887736	3147	5154050	3142	9863861

APPENDIX IV

NATURAL GAS DISPOSAL — 1984
(In Cubic Metres)

MONTH	NATURAL GAS PRODUCTION	SALES TO OTHER COMPANIES	REPLACED INTO FORM	CONVERTED TO C H P S	NATURAL GAS DISPOSAL							NATURAL GAS RECOVERY				
					USED AS FUEL		VENTED TO ATMOSPHERE			PIPELINE LOSSES	NOT COLLECTED	NATURAL GAS TREATED	AVERAGE PLANT RECOVERY	NATURAL GASOLINE PRODUCED	INTER-OIL COMPANY SALES	USED FOR THE MANUFACTURE OF PETROCHEMICAL
					IN FIELDS	IN REFINERY	AFTER UTILIZ	WITHOUT UTILIZ	TOTAL							
JANUARY	581379916	262295535		100829	28494077	49174082	113566751	67595793	181162544	4098442	20173571	9282861	0 067	530232	288531718	3880433
FEBRUARY	520996487	225569896		103120	26109410	45793183	111163298	59389746	170553044	3899075	20185913	8627002	0 063	545654	257062548	2484007
MARCH	602032000	265931929		91407	36600474	54376543	128903776	75446920	204350696	4427331	13926511	10386193	0 047	483807	306991916	8021428
APRIL	577302149	250264467		73051	33284832	46021014	133049611	76162372	209211983	4295804	13836564	7706714	0 050	386505	281938674	11860996
MAY	613756401	276320556		93870	39421699	43930929	142425254	88459443	230884697	5098539	11967495	9631395	0 052	496685	289619100	16263299
JUNE	575252021	277558708		85909	27921343	38244886	140803346	71998754	212802100	4708454	11866208	8631927	0 053	454393	271342376	22468119
HALF YEARLY TOTAL	3470718965	1557941091		548186	189841835	277540637	769912036	439053028	1208965064	26527645	91956262	54266092	0 053	2897276	1695486332	64978282
JULY	602862198	272495048		80554	30813797	44828852	146148588	86913851	233062439	4548577	4150534	7540565	0 057	426252	281468980	11282054
AUGUST	620382005	273716677		84792	30450831	47766775	149436362	127795648	277231910	4590615	17172075	8048002	0 047	378237	297207545	16030428
SEPTEMBER	630838272	285873630		11913	27975157	46577821	149568805	120485706	270054511	4006748	15304609	1301095	0 048	62165	313040582	22719117
OCTOBER	644597775	285509433		53206	27020877	47875220	160828294	125529836	286358130	6992150	16490300	7378884	0 038	281571	301594269	20606524
NOVEMBER	610419115	269917314		46763	25622877	32535847	158780104	113969808	272749912	9570543	14501588	7346611	0 034	247865	284681526	19787924
DECEMBER	648152011	292333487		59850	27576853	43243427	159776479	119323612	279100091	9015598	14443599	7075052	0 045	316549	326749829	21479791
HALF-YEARLY TOTAL	3757251376	1679845589		337078	169460392	257827942	924538632	694018361	1618556993	38724231	92062705	38690209	0 044	1712639	1804742731	111905838
YEAR TOTAL	7227970341	3237786680		885264	359302227	535368579	1694450668	1133071389	2827522057	65251876	184018967	92956301	0 049	4609915	3500229063	176884120
% DISPOSAL FOR YEAR		44 8			5 0	7 4	23 4	15 7	39 1	0 9	2 5					

APPENDIX V

DESTINATION OF EXPORTS OF CRUDE AND REFINED PRODUCTS FOR TRINIDAD AND TOBAGO – 1984

(In Cubic Metres)

COUNTRY	TOTAL REFINED PRODUCTS	% OF TOTAL EXPORTS	CRUDE PETROLEUM EXPORTS	L P G.	AVIATION GASOLENE	MOTOR GASOLENE	KEROSENE	GAS & DIESEL OILS	FUEL OILS	LUBES & GREASES	PETRO-CHEMICALS	OTHER REFINED PRODUCTS
NORTH AMERICA –												
CANADA	–	–	–	–	–	–	–	–	–	–	–	–
U. S. A	466723	14 63	5457490	–	–	–	–	69258	377885	–	19580	–
TOTAL N.A.	466723	14.63	5457490	–	–	–	–	69258	377885	–	19580	–
CENTRAL AMERICA –												
REPUBLIC OF PANAMA	4176	0 13	–	–	–	–	–	2800	399	–	–	976
COSTA RICA	728	0.02	–	–	–	–	–	–	–	–	–	728
GUATEMALA	3019	0.09	–	–	–	–	–	2385	–	–	–	634
HONDURAS	87567	2.75	–	–	1810	27925	–	56889	–	–	–	944
OTHER C.A. (a)	–	–	–	–	–	–	–	–	–	–	–	–
TOTAL C.A	95490	2.99	–	–	1810	27925	–	62074	399	–	–	3282
SOUTH AMERICA –												
GUYANA	166600	5.23	–	1027	–	51934	20658	76672	15461	–	2902	–
SURINAME	115536	3.62	–	796	–	40447	16406	–	57468	–	–	419
FRENCH GUIANA	103174	3 23	–	322	–	22841	5635	59547	10104	–	4725	–
OTHER S.A.	15012	0.47	–	–	–	–	–	–	–	–	15012	–
TOTAL S. A.	400322	12.55	–	91	–	115222	42699	136219	83033	–	22639	419
WEST INDIES –												
BRITISH	861421	27 01	–	53648	6377	146839	220241	161695	262838	–	6968	2815
FRENCH	95433	2.99	–	608	370	45895	18980	23564	6016	–	–	–
NETHERLANDS	58066	1 82	–	–	–	777	–	979	56309	–	–	–
VIRGIN ISLANDS	4443	0 14	–	–	2376	2067	–	–	–	–	–	–
HAITI	66884	2.10	–	–	1118	17100	12796	32584	3286	–	–	–
OTHER W I ISLANDS	146579	4 60	–	308	2393	99077	91	7878	30614	–	6217	–
TOTAL W. I	1232824	38 66	–	54564	12634	311755	252108	226700	359063	–	13185	2815
EUROPE –												
ITALY	–	–	–	–	–	–	–	–	–	–	–	–
ENGLAND	622604	19.52	–	–	–	–	–	–	622604	–	–	–
OTHER EUROPE	157888	4 95	–	–	–	–	–	–	152827	–	5061	–
TOTAL EUROPE	780492	24.47	–	–	–	–	–	–	775431	–	5061	–
OTHERS –												
TAHITI	74795	2.34	–	–	835	12534	21702	28390	11334	–	–	–
NOUMEA	1262	0.04	–	–	–	798	–	464	–	–	–	–
AFRICA	609	0.02	–	–	–	–	–	–	–	–	–	609
OTHERS	–	–	–	–	–	–	–	–	–	–	–	–
TOTAL OTHERS	76686	2 4	–	–	835	13332	21702	28854	11334	–	–	609
TOTAL CARGOES	3052517	95.70	5457490	54655	15279	468234	316509	523105	1607145	–	60465	7125
FOREIGN BUNKERS	137172	4.30	–	–	–	–	–	10186	126986	–	–	–
TOTAL EXPORT	3189689	100 00	5457490	54655	15279	468234	316509	533291	1734131	–	60465	7125

Countries Not Detailed

(a) Other Central America — Belize, Ecuador

(b) Other South America — Chile, Peru, Brazil, Columbia

(c) British — Antigua, Anguilla, Barbados, Bahamas, Bequia, Carriacou, Dominica, Grand Cayman, Grenada, Jamaica, Montserrat, Nevis, St Kitts, St Lucia, St Vincent.

(d) French — Guadeloupe, Martinique, St Barthelemy, St. Barths, St Maarten

(e) Netherlands — Saba, St Eustatius

(f) Other W I I — Puerto Rico, Dominican Republic, Tortola, Aruba.

(g) Other Europe — Netherlands, Copenhagen, France, Gibraltar.

(h) Africa — Dakar, Gambia, Ivory Coast, Nigeria, Republic of Guinea, Senegal, Togo

(i) Other — Canary Islands, Japan.

APPENDIX VI – 1984
MOVEMENT OF REFINED PRODUCTS
(All quantities in Cubic Metres)

PRODUCT	OPENING INVENTORY	PRODUCTION	IMPORTS	TRANSFERS	REC FROM LOCAL COMPANIES	TOT OPEN IVENTORY & RECEIPTS	DISBURSE TO LOCAL COMPANIES	LOCAL CONSUMPTION				EXPORTS		(GAIN)/ LOSS	CLOSING INVENTORY	TOT CLOS INVENT. & DISBURSE	STAT. ADJUST
								OWN USE	RET. & CON. SALES	LOCAL BUNKERS	TOTAL	CARGOES	FOREIGN BUNKERS				
L P G	4013	93156	20350	0	70309	187828	65240	99	86563	0	86662	29737	0	–302	6623	187961	133
MOGAS – PREMIUM	11505	702259	0	205	501652	1215621	499918	1110	505266	0	506376	177074	0	–4360	36613	1215621	0
MOGAS – REGULAR	25412	163820	123218	–212	30175	342413	31555	2	30336	0	30338	267002	0	–238	13744	342401	12
MOGAS – UNFINISHED	43116	98471	0	0	0	141587	271	4	10	0	14	69763	0	0	71551	141599	12
NAPHTHA	65026	–76137	102492	0	220331	311713	278119	0	113	0	113	17601	0	0	15881	311713	0
AVIATION GASOLINE	1230	12470	7161	0	720	21581	725	0	614	0	614	17252	78	27	2885	21581	0
AVIATION TURBINE FUEL	39100	323048	0	14450	73031	449629	29279	41	30904	0	30946	267603	56543	–15	65273	449629	0
KEROSENE	17728	193750	37997	–14783	32388	267080	78062	262	19539	0	19801	159703	0	–345	11859	267080	0
WHITE SPIRITS	397	1995	0	0	0	2391	1440	17	48	0	65	146	0	0	740	2391	0
GAS OIL	32590	646527	308105	658	192358	1180238	168526	4349	164517	35083	203949	705381	26438	–1085	77043	1180253	15
MARINE DIESEL	5524	28135	0	–2133	6541	38067	6489	321	754	1153	2228	13381	11831	14	4125	38069	2
FUEL OIL	160128	2403032	8789	1815	28000	2601764	28238	747	13661	7456	21863	2254494	153213	–9	143965	2601763	0
LUBES & GREASES	7945	7842	6113	0	80	21980	5824	1123	5063	0	6185	5507	0	0	4464	21980	0
ASPHALTIC PRODUCTS	3984	28674	0	0	21785	54442	24575	0	23251	0	23251	1524	0	–7	5099	54442	0
PETROCHEMICALS	8919	53644	1644	0	0	64206	49	1422	965	0	2387	58124	0	0	3645	64206	0
OTHER FINISHED PRODUCTS	1597	1727	0	0	1440	4764	2	0	1310	0	1310	1	0	161	3276	4749	15
UNFINISHED OILS	110436	–333283	364831	0	0	141985	33	175	0	0	175	0	0	0	141776	141984	0
TOTAL	538649	4349128	980701	0	1178810	7047289	1216344	9673	882914	43692	936278	4044293	248103	–6158	608563	7047423	134

APPENDIX VII

MOVEMENTS OF CRUDE AND C.H.P.S. – YEAR ENDING 31ST DECEMBER 1984

(All quantities in Cubic Metres)

MONTH	PRODUCTION	IMPORTS	CHANGE IN INVENTORIES	TOTAL	PURCHASES AND EXCHANGES FROM OTHER COMPANIES	SALES AND EXCHANGES TO OTHER COMPANIES	OWN USE	TO REFINERY	EXPORTS	GAINS AND LOSSES	TOTAL
JANUARY	789 324	–	51 641	840 965	555 257	555 257	116	391 975	445 584	3 289	840 965
FEBRUARY	737 465	–	–82 394	655 071	488 645	488 645	86	286 736	366 769	1 481	655 071
MARCH	786 589	–	75 707	862 297	540 757	540 757	70	418 516	442 090	1 620	862 297
APRIL	778 595	–	–76 110	702 485	536 251	536 251	105	326 280	370 648	5 453	702 485
MAY	814 495	–	64 086	878 582	508 501	508 501	120	458 240	420 731	–510	878 582
JUNE	803 343	–	14 685	818 028	501 830	501 830	292	317 481	500 568	–314	818 028
JULY	832 888	–	–10 953	821 936	552 439	552 439	147	374 018	447 610	160	821 936
AUGUST	857 895	–	–56 704	801 191	529 084	529 084	232	358 403	443 160	–604	801 191
SEPTEMBER	842 136	–	61 357	903 493	493 508	493 508	155	371 777	529 719	1 842	903 493
OCTOBER	877 694	57 684	–61 597	873 782	506 450	506 450	372	380 577	491 903	929	873 782
NOVEMBER	855 702	–	23 917	879 618	546 667	546 667	195	384 951	496 780	–2 307	879 618
DECEMBER	887 736	55 098	49 581	992 414	497 677	497 677	147	406 188	382 998	3 081	992 414
TOTAL	9 863 861	112 782	53 216	10 029 860	6 257 068	6 257 068	2 036	4 475 143	5 538 560	144 122	10 029 860

APPENDIX VIII

SUMMARY OF CRUDE OIL ASSESSED FOR CROWN ROYALTY WITH PRICES AND ANALYSES -- 1984
(FOR HALF YEARLY ASSESSMENTS PERIODS ENDING 30TH JUNE & 31ST DECEMBER)

COMPANY	NET ROYALTY PRODUCTION	FIELD STORAGE VALUE		ROYALTY PAYABLE	SUB-DIVISION OF ROYALTY CRUDE INTO PRODUCTS AS PER R.L.E 1 ANALYSIS											CRUDE OIL WEIGHTED API GRAVITY
					LIGHT FRACTIONS			GAS OIL						FUEL OIL		
	CU. METRE	TOTAL	PER CUBIC METRE	$	QUANTITY CU METRE	%	TETRA-ETHYL LEAD 70-72 OCT. GAS M/S (MLS).	53-57 DI CU. METRE	48-52 DI CU. METRE	43-47 DI CU METRE	NO 2 FUEL OIL CU. METRE	TOTAL GAS OIL CU. METRE	%	QUANTITY CU. METRE	%	
TRINIDAD TESORO PETROLEUM CO. LTD	418132	160900535	384 81	16090053.52	25179	6 02	1416123	–	–	25084	43453	68537	16.39	324416	77 59	19
TRINIDAD TESORO – GALEOTA	103073	44084607	427.7	5510575.91	17760	17 23	–	–	–	–	48653	48653	47 2	36658	35 57	26
PREMIER CONSOLIDATED OILFIELDS LTD	2013	804954	399 88	804495 46	165	8 3	10281.6	–	–	204	417	621	30 8	1227	60 9	21
ESTATE OF TIMOTHY ROODAL	9	3635	403 86	363.47	0 3	3 5	–	–	–	–	2.7	2 7	30	6	66 6	–
TRINIDAD & TOBAGO OIL CO. LTD	227248	89328491	393.09	8932849.08	28048	12 34	5525522 24	14433		27187	4579	46199	20 33	153001	67.33	22
TRINIDAD NORTHERN AREAS LTD	1108887	429397514	387.23	42939751.35	139596	12 6	25933385 16	–	152891	–	–	152891	13.8	816400	73 6	22
TEXACO TRINIDAD INC.	251319	97339372	387.31	9733937 15	26653	10.6	1997877 55	–	19998	36821	10227	67045	26 7	157620	62 7	23
AMOCO TRINIDAD OIL CO LTD.	2408264	1076769357	447 11	134596169 66	288527	11 64	26721230.97	–	1818490	–	–	1818490	75 51	301247	12 51	33
TOTAL JANUARY - JUNE	4158945	1898628465	420 15	218608195.6	525929	11 64	61604420 52	14433	1991378	89297	107332	2202439	48 74	1790576	39 62	–
TRINIDAD TESORO PETROLEUM CO LTD	426199	160300467.02	376.12	16030046 73	30484	7 15	1336202 82	–	–	9415	63318	72733	17.07	322982	75 78	19
TRINIDAD TESORO – GALEOTA	127992	51784450.45	404.59	6473056 31	23366	18.26	–	–	–	–	61242	61242	47 85	43386	33,9	26
PREMIER CONSOLIDATED OILFIELDS LTD	1819	704975.16	387 56	704975 51	148	8 14	9324	–	166	–	371	537	29.5	1134	62 3	21
ESTATE OF TIMOTHY ROODAL	13	5117 4	393 65	511.74	0 32	2 4	–	–	–		3 68	3 68	30	9	69	–
TRINIDAD & TOBAGO OIL CO LTD	225992	85915538.1	380.17	8591553 83	27786	12 3	5391730 76	–	13661	26399	5155	45215	20 01	152991	67 7	22
TRINIDAD NORTHERN AREAS LTD	1106730	414754374.09	374.76	414543.41	147481	13 3	28540013.04	–	132335	–	–	132335	12	826914	74.7	22
TEXACO TRINIDAD INC.	247093	114307340.93	462 61	11430734 13	26695	10 8	2593598 33	1802	15702	1727	45604	64835	26.2	155563	63	23
AMOCO TRINIDAD OIL CO LTD.	2833322	1193254593.8	421.15	149156824.22	338439	11 94	35694842.82	–	2116982	–	–	2116982	74 72	377901	13.34	33
TOTAL - JULY – DECEMBER	4969160	2021026856.9	406.71	233863139.88	594400	11.96	73565711 77	1802	2278846	37540	175694	2493882	50 19	1880878	37.85	–
TOTAL 1984	9488105	3919655321.9	413.11	452471335 48	1120329	11 81	132170132.29	16235	4270224	126837	283026	4696322	49 5	3671454	38 7	–

APPENDIX IX
ROYALTY ASSESSMENT

THE ROYALTY ASSESSMENT ON THE CRUDE OIL, NATURAL GASOLINE AND NATURAL GAS PRODUCED ON CROWN OIL MINING LEASES FOR EACH HALF YEARLY PERIOD DURING 1982 – 84 IS SHOWN BELOW.

SOURCE OF REVENUE	ASSESSMENT OF HALF YEARLY PERIODS ENDING:					
	31-12-84	30-6-84	31-12-83	30-06-83	31-12-82	30-06-82
ROYALTY ON NATURAL GAS	857192	857193	828007	743815	750715	739908
ROYALTY ON NATURAL GASOLINE	70588	131402	143895	102278	146353	85000
MINIMUM RENT NET OFFSET BY ROYALTY ON CRUDE OIL	3512648	3275313	3288315	3057532	2761180	2055040
ROYALTY ON CRUDE OIL	233863140	218608196	211576346	202276586	253194455	255287256
HALF YEARLY TOTAL	238303568	222854104	215836563	206180211	256852703	258176204
YEARLY TOTAL	461157672		422016774		515019907	

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

SUBSTANCE ASSESSED FOR ROYALTY	UNIT	HALF YEARLY PERIODS ENDING: 31-12-84	30-6-84	31-12-83	30-06-83	31-12-82	30-06-82
NATURAL GAS	M.C.F	57146150	57146224	55200504	49587690	50047648	49327210
NATURAL GASOLINE	I.G.	353467	603103	642902	441041	577817	341367
CRUDE OIL NET	BARRELS	31274221	28440715	27875204	27947641	30519281	31655452
FIELD STORAGE VALUE PER BARREL	$TT	64.62	66.76	66.12	65.1	72.69	70.59
ROYALTY PAYABLE PER BARREL		6.46	6.68	6.61	6.51	7.27	7.06

THE DATA USED TO EVALUATE CRUDE OIL FOR CROWN ROYALTY ASSESSMENTS 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	31-12-84	30-6-84	31-12-83	30-06-83	31-12-82	30-06-82
BUNKER C GRADE FUEL	63.058192	63.760406	61.123137	55.61389	58.667006	56.874645
NO. 2 FUEL	75.56457	80.009839	79.800023	76.768345	90.427838	87.53903
43-47 D.I. GAS OIL	75.974341	80.419609	80.209794	77.178116	90.837608	87.9488
48-52 D.I. GAS OIL	76.100813	80.546082	80.336266	77.304588	90.964408	88.075273
53-57 D.I. GAS OIL	76.353759	80.799027	80.589211	77.557533	91.217026	88.328218
70-72 OCT. M HEADED MOTOR GAS	69.705593	76.128106	78.733255	81.020368	88.430396	87.518878
AVERAGE MIDDLE RATE FOR SIGHT DRAFT 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 TT CENTS PER MILLILITRE	1.6562623	1.5927033	1.610931	1.783142	1.783142	1.97543
ROYALTY IN TT CENTS PER GALLON ON NATURAL GASOLINE (C.H.P.S.)	19.952216	21.772703	22.51411	23.191681	25.290037	24.995778

THE HALF YEARLY VOLUME OF PRODUCTS TO WHICH THE ABOVE PRICES FOR 1984 WERE APPLIED RESPECTIVELY IN CALCULATING ROYALTY ON CRUDE OIL WILL BE FOUND IN APPENDIX VIII

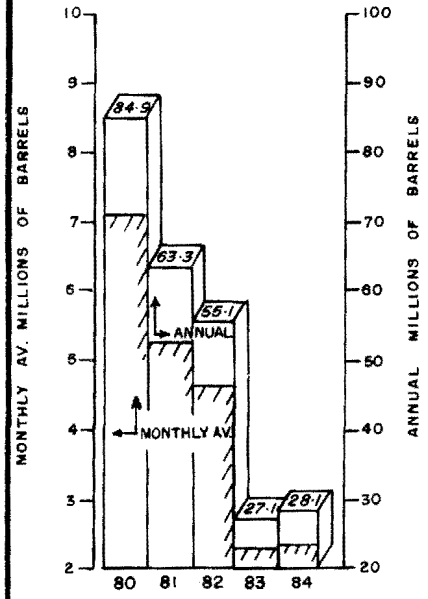
APPENDIX X

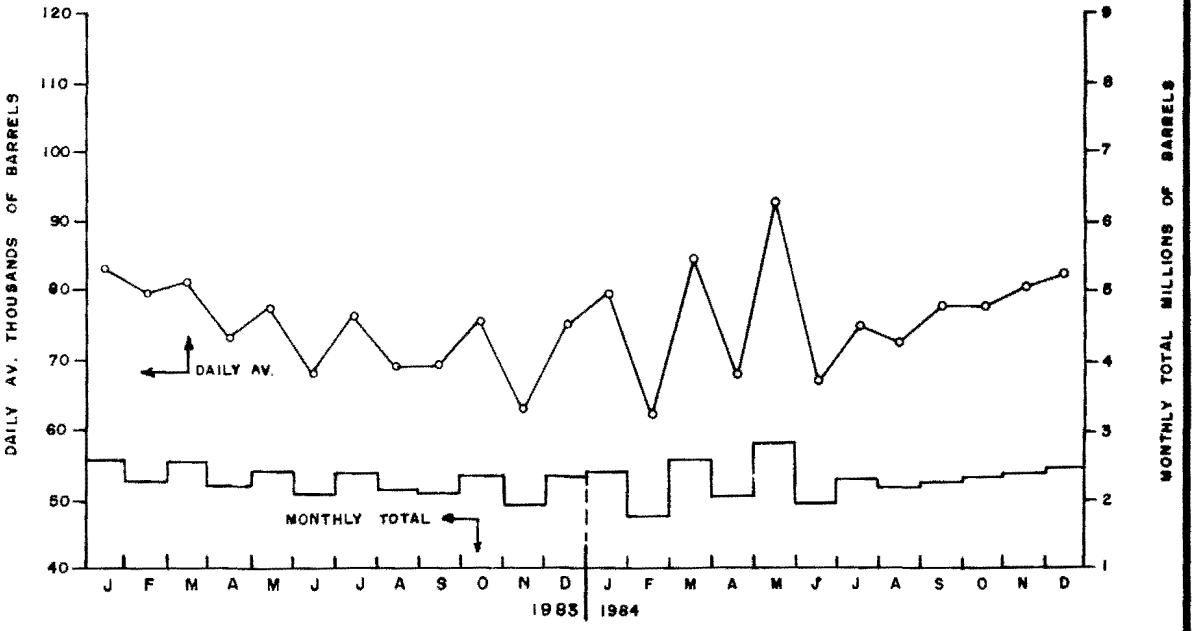
ASPHALT & ASPHALT-DERIVED PRODUCTS -- 1984

PRODUCT	METRIC TONS		
	1982	1983	1984
NATURAL ASPHALT . . .			
. . . EXTRACTED BY MINISTRY OF WORKS FOR LOCAL USE	2400	6218	9332
. . .EXTRACTED BY TRINIDAD LAKE ASPHALT COMPANY	26182	36980	31187
TOTAL	28582	43198	40519
DERIVED PRODUCTS. . .			
. . .CRUDE ASPHALT	–	–	–
. . .DRIED ASPHALT	16986	22424	23573
. . .ASPHALT CEMENT	2427	1649	246
TOTAL	19413	24073	23819
LOCAL SALES. . .			
. . .CRUDE ASPHALT	–	3	1
. . .DRIED ASPHALT	949	955	455
. . .ASPHALT CEMENT	8766	10556	6848
TOTAL	9715	11514	7304

STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

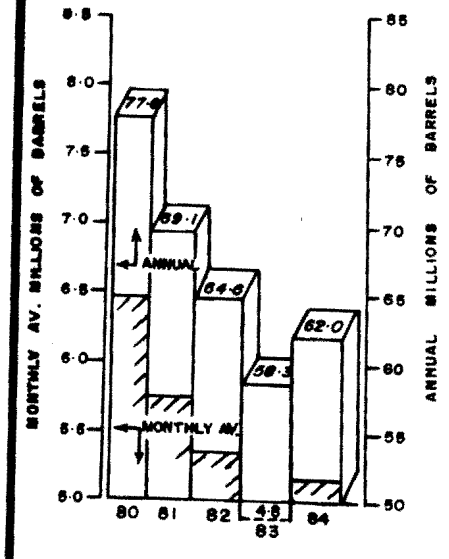
REFINERY THROUGHPUT

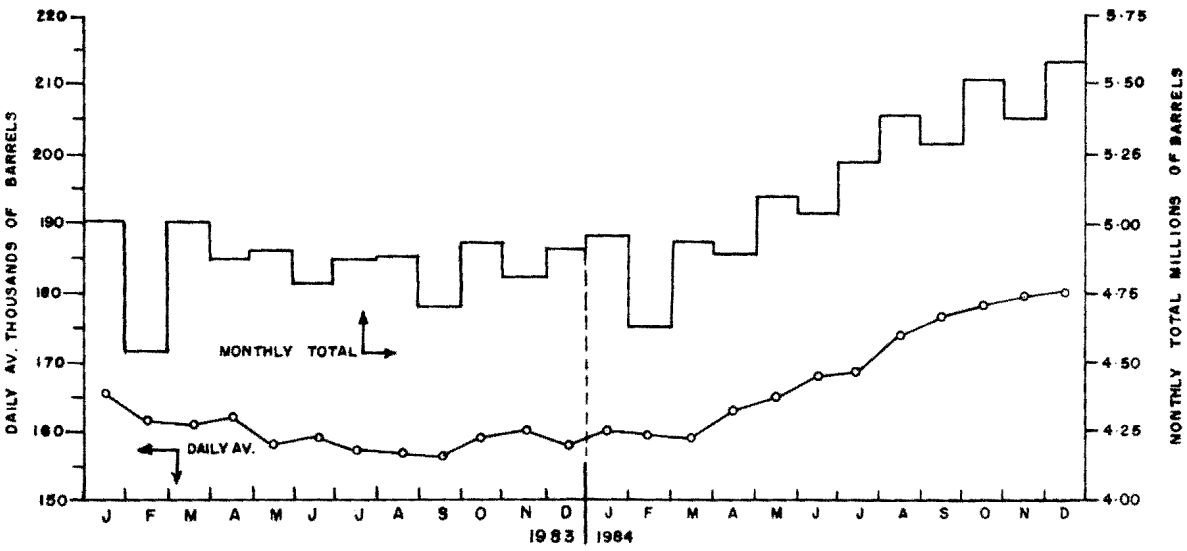




STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

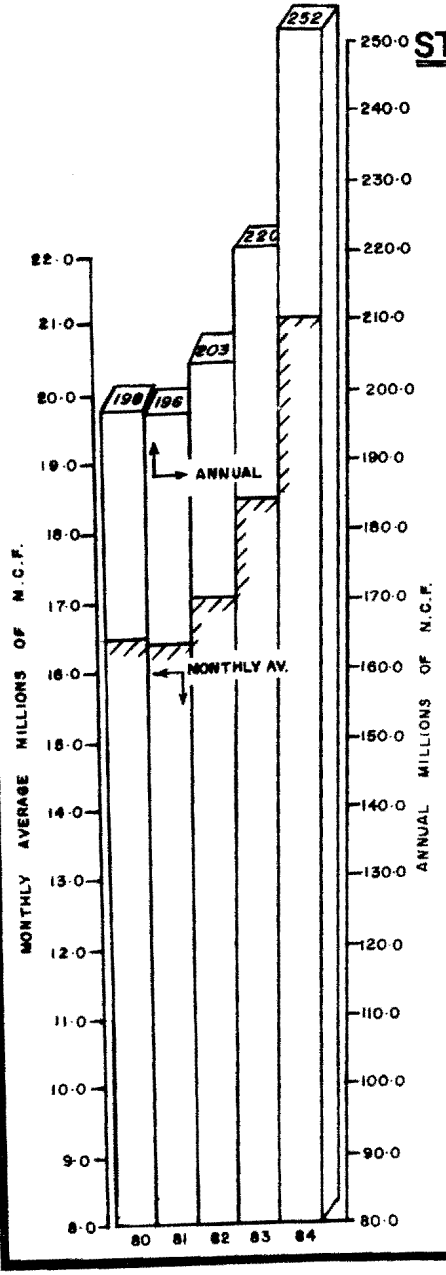
CRUDE OIL PRODUCTION

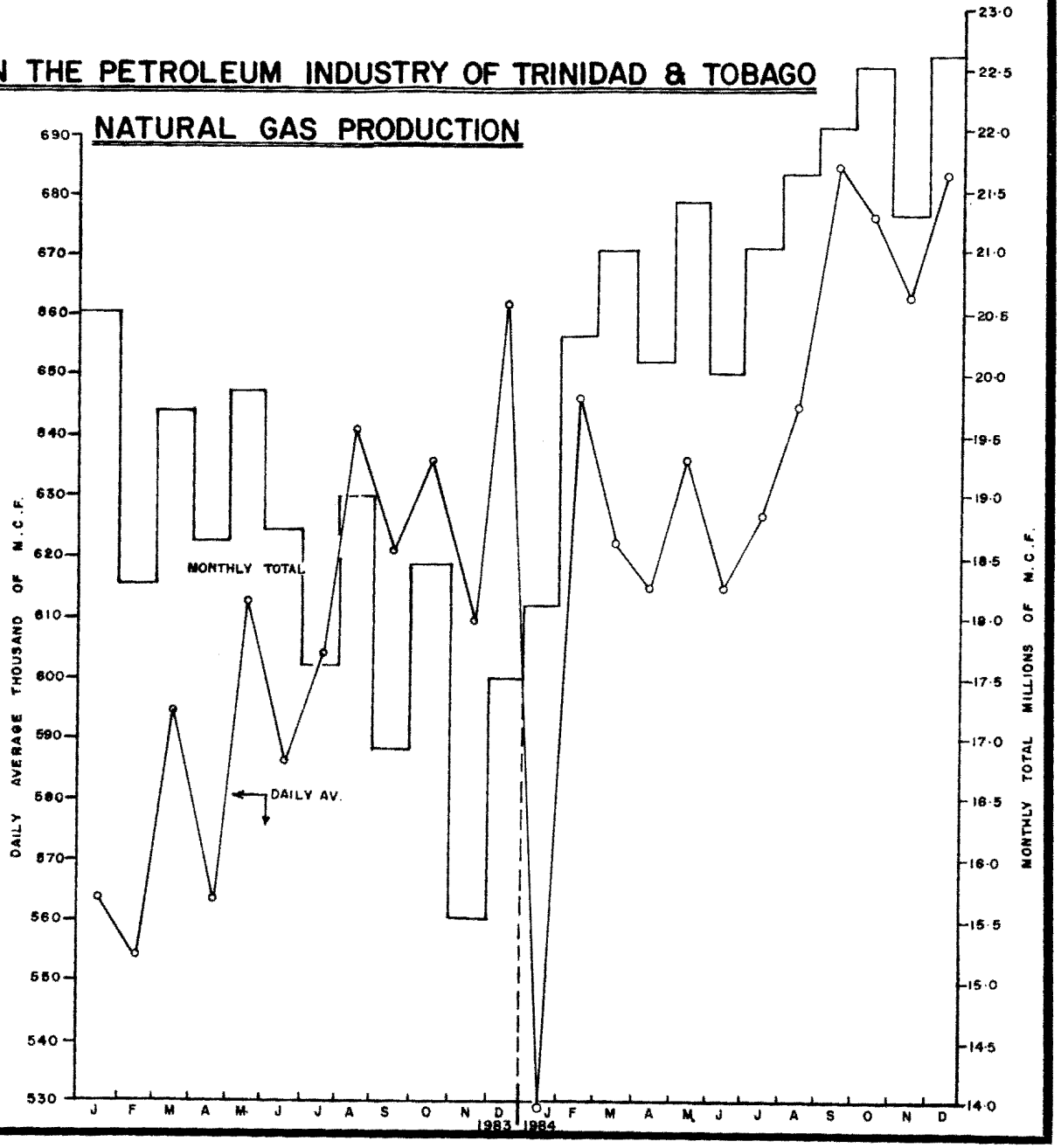




STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

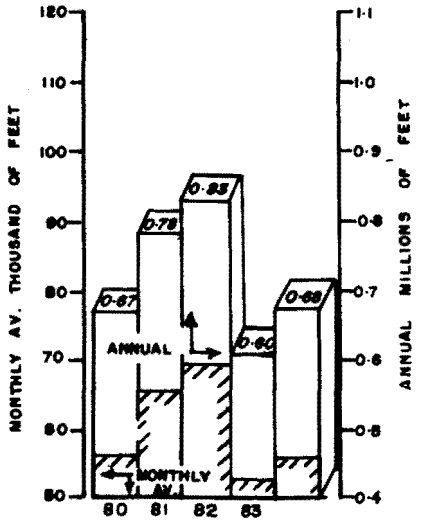
NATURAL GAS PRODUCTION

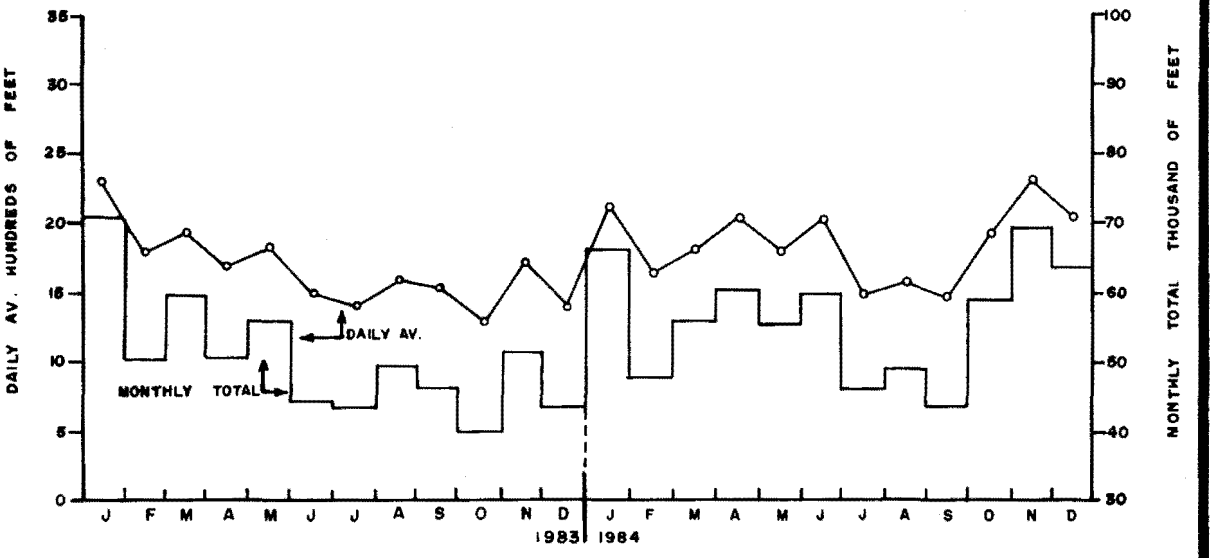




STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

DRILLING





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