

TRINIDAD AND TOBAGO



MINISTRY OF PETROLEUM AND MINES

# ANNUAL REPORT

FOR THE YEAR

1976

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## TABLE OF CONTENTS

	<i>Page</i>
LIST OF TABLES ... ..	iv
LIST OF FIGURES ... ..	iv
LIST OF APPENDICES ... ..	v
FOREWORD ... ..	vi
SUMMARY OF HIGHLIGHTS OF THE OIL INDUSTRY ... ..	1
GEOLOGICAL AND GEOPHYSICAL ACTIVITY ... ..	2
<b>DRILLING</b>	
Exploratory Drilling	
Development Drilling	
PRODUCTION ... ..	6
SURVEY OF FLUID INJECTION OPERATION IN TRINIDAD AND TOBAGO DURING 1976 ... ..	8
Gas Injection	
Water Injection	
Steam Injection	
NATURAL GAS PRODUCTION AND UTILIZATION ... ..	14
REFINING AND PETROCHEMICAL MANUFACTURE ... ..	14
Nitrogenous Fertilizers	
Petrol Filling Stations—Sales—Market Position	
ACCIDENT STATISTICS ... ..	17
ROYALTY ASSESSMENT ... ..	18
LEASES AND LICENCES ... ..	19
LEGAL DEVELOPMENTS, 1976 ... ..	21
REVENUE SUBSIDY AND PRODUCTION LEVY, 1976 ... ..	22
STAFF ... ..	23
CONFERENCES, TRAINING AND OTHER ACTIVITIES ... ..	23

## LIST OF TABLES

<i>Table</i>		<i>Page</i>
I.	Summary of the Data for Trinidad and Tobago Petroleum Industry, 1973-76 ...	1
II.	Party Months of Geological and Geophysical Exploration in 1976 ...	2
III.	Summary of Wildcat Drilling in Trinidad and Tobago, 1976 ...	3
IV.	Summary of Development Drilling in Trinidad and Tobago, 1976 ...	5
IVA.	Key to Area—Numbers used on Map (figure 11), Table V and in Text ...	5
V.	Oil Production—Trinidad and Tobago, 1975-1976 ...	6
VI.	Summary of Fluid Injection Operations in Trinidad and Tobago for the period 1972-76 ...	10
VII.	Summary of Fluid Injection Operations for Trinidad and Tobago, 1976 ...	11
VIII.	Water Injection, Summary by Projects, 1976 ...	12
IX.	Steam Injection, Summary by Projects, 1976 ...	12
X.	Gas Injection, Summary by Areas, 1976—Carbon Dioxide Injection, 1976 ...	13
XI.	Natural Gas Production and Utilisation, 1973-76 ...	13
XII.	Accident Statistics for 1976 ...	14
XIII.	Oil Rights Under Lease at 31st December, 1976 ...	20

## LIST OF FIGURES

<i>Figure</i>	
I.	Geophysical Activities in Trinidad and Tobago, 1976
II.	Oilfields, Licensed Marine Areas and Important Wells Drilled, 1976
III.	Crude Oil Production Rate by Months for Companies operating in Trinidad and Tobago for the period July 1972-December, 1976
IV.	Daily Average oil production by Months derived from Completions, Recompletions and other Wells, 1976
V.	Annual Production and Injection Statistics for Gas and Water Injection Projects
VI.	Monthly Statistics on Natural Gas Produced Utilised and Wasted by Company, 1966-76
VII.	Statistics on the Petroleum Industry—Drilling
VIII.	Statistics on the Petroleum Industry—Crude Oil
IX.	Statistics on the Petroleum Industry—Refinery Throughput
X.	Statistics on the Petroleum Industry—Natural Gas Production and Utilization
XI.	Statistics on the Petroleum Industry—Crude Oil Imports
XII.	Average Value (for Royalty Evaluation) of a Barrel of Crude Oil

## LIST OF APPENDICES

*Appendix*

- I. Annual Statistics of Production, Drilling, Refining—Exports and Imports—  
1966–1976
- II. Monthly Analysis of Drilling and Workover Wells, 1976
- IIA. Monthly Analysis of Footage Drilled, Land and Marine, 1976
- III. Analysis of Monthly Production for the year ended 31st December, 1976
- IIIA. Analysis of Production by Operating Companies, 1976
- IIIB. Daily Average Production by Months for all Companies, 1976
- IIIC. Marine, Offshore and Land Production, 1976
- IV. Production and Disposal of Natural Gas, 1976
- V. Export of Refined Products by Country of Destination, 1976
- VI. Movement of Refined Products, 1976
- VII. Movement of Crude and C.H.P.S.—year ended 31st December, 1976
- VIII. Summary of Crude Oil Assessed for Crown Royalty with Prices and Analyses  
1976 (for half-yearly Assessment Periods ending 30th June and 31st December).
- IX. Royalty Assessment
- X. The Asphalt Industry

**FOREWORD**

A review of the 1976 crude oil production figures in Trinidad and Tobago has indicated a slight decrease from last year's total. This resulted from the disruption of crude oil processing facilities at Point Galeota, Guayaguayare.

Government's timely efforts to stabilise the declining land production were centred around firstly, the institution of the Land Incentive Allowance of 1976, and secondly, the intensification of extensive land seismic surveys through Trinidad-Tesoro Limited. Both positive steps are achieving the desired results in increased land production and employment levels.

Other major achievements recorded were the completion of a pipeline project by the National Gas Company to set the stage for the utilisation of an integrated gas pipeline system to service the current Point Lisas Industrial Development Estates Corporation, and the acquisition of all Texaco's retail outlets. This latter move established Government's full control of the domestic market for petroleum products in Trinidad and Tobago.

I take this opportunity to extend my congratulations and best wishes to all those persons who have in any way contributed to the achievements of the Ministry of Petroleum and Mines during this year.

As always I anticipate the active support of the entire staff of my Ministry in promoting the efficient management and control of the petroleum sector in the economy.

*Minister of Petroleum and Mines*

## SUMMARY OF HIGHLIGHTS OF THE OIL INDUSTRY

### A. Crude Oil Production

The upward trend in daily crude oil production for Trinidad and Tobago reached a new peak level of 36,217 cubic metres (227,799 barrels) in June, 1976. A major fire occurred at the Point Galeota terminal facilities in July and this produced a temporary reduction of the crude oil processing capabilities of Amoco Trinidad Oil Company. As a result the country's annual production declined from 78.6 million barrels in 1975 to 77.7 million barrels in 1976.

The declining production trend from the land fields which began since peak land production occurred in 1968 has been arrested with 16 million barrels produced in 1976 compared to 14.8 million barrels in 1975. Land seismic surveys have been conducted in the search for new oil fields in South Trinidad by Trinidad Tesoro and Trintoc.

### B. Exploration

In exploration activity there was a significant increase in the drilling of exploratory and semi-appraisal wells in the offshore areas of the East, North and West Coasts of Trinidad. There was a record level of 19 drilling rigs operating in Trinidad and Tobago during the year compared to 12 drilling rigs in 1975.

### C. Refining Operations

The refining of crude oil increased from 85.7 million barrels in 1975 to 117.6 million barrels in 1976. This increase was due to resumption of normal processing activity following the industrial unrest in the refining industry in 1975. This level is still below the total refinery capacity of 456,000 barrels per day due to the weak market demand for petroleum products. Plans for the upgrading of the government-owned TRINTOC refinery are being actively pursued.

### D. Gas Transmission

The construction of a 30-mile, 24-inch gas pipeline from Beach Field, Guayaguayare to Pieton was in progress at the end of the year. This pipeline forms part of an integrated gas pipeline system of the National Gas Company to deliver natural gas from the East Coast fields to the industrial gas users at Point Lisas Industrial Estates.

### E. Petroleum Products Retail Marketing

Negotiations with Texaco Trinidad Inc. for the purchase of its local retail marketing operations were completed by year end. This purchase has enabled Government to assume full control through the National Petroleum Marketing Company of the domestic retail marketing operations for petroleum products.

### F. Training in Petroleum Engineering

In the field of training, Government decided to fund the introduction of a one-year Post-Graduate Diploma Course in Petroleum Engineering at the Faculty of Engineering, University of the West Indies, as from October, 1976.

(Table I summarizes and compares overall production and drilling activity for the years 1973, 1974, 1975 and 1976. Figures II and III also vividly illustrate annual drilling and production statistics.)

TABLE I

Summary of Statistics for the Trinidad and Tobago Petroleum Industry 1973-1976

	Unit	1973	1974	1975	1976
Annual Crude Oil Production	... bbls.	60,669,960	68,133,818	78,620,938	77,672,635
Annual Natural Gas Production	... mscf.	119,979,353	128,293,247	126,434,192	137,959,327
Average G.O.R.	... scf/bbl.	1,978	1,883	1,608	1,776
Annual C.H.P.S. (Natural Gasoline) Production	bbls.	79,043	68,965	60,991	50,920
Daily Refinery Capacity	... bbls./day	450,000	456,000	456,000	456,000
Annual Refinery Through put	... bbls.	141,686,784	130,819,840	85,660,318	117,594,982
Total Wells completed during the year	... No.	212	212	189	207
Average depth of completed wells	... Feet	4,506	4,509	4,442	4,443
Total footage drilled during the year	... Feet	955,185	909,980	839,649	919,705
Oil and Gas Wells completed during the year	No.	181	187	150	153
Drilling success-ratio	... Per cent	85.4	88.2	79.4	73.9
Average Rigs Running	... No.	11.4	10.9	14.3	14.7

## GEOLOGICAL AND GEOPHYSICAL ACTIVITY

Most of the operating oil companies in Trinidad and Tobago carried out Exploratory Geophysical Surveys in 1976. These were carried out both on land and in the marine areas surrounding the islands. In addition Texaco carried out 253 miles of shallow seismic and bottom profiles in Blocks 3 and 6 off the East Coast of Trinidad. Amoco also conducted 41.5 miles of similar surveys in its licensed acreage off the East Coast.

In exploratory seismic work on land, Trintoc was responsible for 79.6 miles in the Ortoire and Mahaica areas and Trinidad Tesoro for 199.7 miles in Palo Seco, Coora-Quarry, Erin, Moruga, Cats Hill and Tableland.

Offshore, Texaco as operators for the South-East Coast Consortium carried out 553 line miles of seismic surveys off the South-East Coast and also 296.8 miles in Block 6 (Texaco/Tenneco) off the East Coast of Trinidad for which they are also the operators. In Block 3, Texaco ran 168.8 miles of survey and 481.9 miles in Block 1 (Gulf of Paria). Finally, Trinmar ran 237 miles of survey in the Gulf of Paria.

This made a total of over 2,260 line miles of survey completed in 12.2 party months in Trinidad and Tobago for 1976. (See Table II)

It was not possible to quantify the onshore geological work carried out by the oil companies since details were not available. The Ministry of Petroleum and Mines undertook surveys in several areas of Trinidad and Tobago in search of raw materials for construction e.g. sand and gravel, sandstone and limestone in Trinidad and diorite and andesite in Tobago. Surveys for clays for ceramics were also undertaken in Trinidad.

TABLE II

## Party Months of Geophysical Exploration in Trinidad and Tobago 1976

Company							Total
Amoco	...	...	...	...	...	...	.1
South-East Coast Consortium				...	...	...	1.017
Texaco	...	...	...	...	...	...	1.020
Texaco-Tenneco	...	...	...	...	...	...	.390
Trinidad-Tesoro	...	...	...	...	...	...	4.488
Trintoc	...	...	...	...	...	...	5.000
Trinmar	...	...	...	...	...	...	.230
							12.245

## DRILLING

In 1976, Trinidad and Tobago experienced an increase in drilling activity with a total of 280,326 metres (919,705 ft.), an increase of 9.5 per cent. In terms of rig activity, there was a rise of 21 per cent in activity, for 1975 with a cumulative of 176.68 rig months. During September, 1976, there was a record number of 19 drilling rigs operating in Trinidad and Tobago—11 in the offshore areas and the remaining 8 rigs on land. This figure was, however, surpassed in December.

## Exploration Drilling

During 1976, a total of 80,799 metres (265,089 ft.) was drilled in 40 exploratory wells. This was an increase of 62 per cent over last year's exploratory drilling.

Amerada Hess drilled the wildcat well, Maracas I, in the North Coast Marino area with the *Discoverer* 511 drill ship. Deminex, as operator, drilled a total of three (3) exploratory wells—LL9-1 and KK4-3 for the consortium of Deminex-Agip-Tenneco-Occidental and the well Red Snapper—1 for the group, Deminex-Mobil.

Texaco, as operator, drilled a total of nine exploration wells in the Gulf of Paria and on the East Coast Marine area. Five wells were drilled in the Pelican and Ibis structures for the consortium of Texaco-Trintoc-Trinidad Tesoro. Two deep wells Dolphin I and Barracuda I were drilled in Block 6 in the East Coast for the group Texaco-Tenneco, while two other wells, Couva offshore I and Manicou I, were drilled in Block 1 in the Gulf of Paria for Texaco. In Block 3 leased by Texaco, the well Emerald I was drilled.

On the East Coast in their Galeota offshore lease, Trinidad Tesoro initiated a 19-well appraisal well drilling programme in July. This programme was completed in December 1976. On land, Trinidad Tesoro drilled the deep exploratory well Coora 325 to test the deep Herrera formation.

Amoco and Trinmar drilled four and three appraisal wells in 1976 respectively.

At year's end, three exploratory wells were being drilled offshore KK6-2 by Deminex, Pelican 3 by Texaco and South-West Galeota I by Amoco. Table III summarises exploratory drilling activity for 1976.



TABLE III

## Summary of Wildcat Drilling in 1976

Operator	Well Name	Location	Basis for Location	Lahee Exploratory Classification	Completion Date	Total Depth Feet	Name and/or Age of Deepest Formation	Remarks
Amoco Trinidad Oil Co.	OMEGA 1	—	S & SSG	B3	19.2.76	14,471	Miocene	Abandoned—Gas
	Rincon 1	—	do.	B3	16.8.76	12,854	do.	Abandoned—Oil and Gas
	West Poui 1	—	do.	C3	20.8.76	508	do.	Abandoned—Mechanical
	West Poui 2	—	do.	B3	14.11.76	12,700	do.	Abandoned—Oil and Gas
	S. West Galeota 1	—	do.	A3	—	11,602	do.	Drilling
Trinidad Northern Areas Ltd.	S. 398	F-13 FL—2	do.	B2b	16.4.76	4,861	do.	Oil Producer
	S. 400	F-13 FK—8	do.	B2b	6.8.76	8,542	do.	do.
	S. 402	F-9 1C—3	do.	C2c	11.9.76	5,425	do.	Abandoned—Dry
Amerada Hess Corporation of Trinidad and Tobago	Maracas 1	—	do.	C3	13.8.76	12,308	do.	do.
Deminex/AGIP/Tenneco	LL 9-1	—	do.	B3	20.1.76	7,050	Tertiary	Abandoned—Gas
Deminex/Mobil	RS-1(ST-1)	—	do.	B3	23.10.76	14,224	Miocene	Abandoned after testing—Gas
Deminex/AGIP/Tenneco/Occidental	KK4-3	—	do.	B1	17.12.76	9,110	do.	do.
Deminex/AGIP/Tenneco	KK6-2	—	do.	A1	—	4,023	do.	Drilling
South-East Coast Consortium	Pelican 1	—	do.	C3	2.3.76	17,187	do.	Abandoned—Mechanical
	Ibis-2	—	do.	C3	24.4.76	12,500	do.	Abandoned Dry
	Ibis-2X	—	do.	B3	28.6.76	13,717	do.	Abandoned after testing—Gas
	Pelican 2	—	do.	C3	12.8.76	7,300	do.	Abandoned—Mechanical
	Pelican 3	—	do.	A3	—	17,939	do.	Testing
Texaco/Tenneco	Barracuda 1	—	do.	C3	27.7.76	12,000	do.	Abandoned—Dry
	Dolphin 1	—	do.	B3	21.11.76	15,127	do.	Abandoned after testing—Gas

TABLE III—Continued

## Summary of Wildcat Drilling in 1976—Continued

Operator	Well Name	Location	Basis for Location	Lahee Exploratory Classification	Completion Date	Total Depth Feet	Name and/or Age of Deepest Formation	Remarks
Texaco Trinidad Inc. ...	Couva Offshore I	—	S & SSG	C3	24.2.76	15,130	Lower Cretaceous	Abandoned after testing—Dry
	Emerald I	—	do.	B3	9.6.76	7,941	—	Abandoned after testing—Gas and Oil
	Manicou I	—	do.	A1	—	9,195	—	Drilling
Trinidad Tesoro Petroleum Co. Ltd. ...	Co 325	G17 FB—16	do.	B2B	31.12.76	11,956	Herrera	Oil Producer
	PS 986	G—16 FF—3	do.	A2B	11.7.76	7,072	do.	Testing
	Galeota 6	P—11 BA—12	do.	B1	11.7.76	3,470	Miocene	Abandoned without testing—Oil
	Galeota 7	P—11 BE—15	do.	B1	25.8.76	3,800	do.	do.
	Galeota 8	P—11 GM—1	do.	B1	1.8.76	1,600	do.	do.
	Galeota 9	P—11 GN—4	do.	B1	13.8.76	1,800	do.	do.
	Galeota 10	P—11 BB—15	do.	B1	16.8.76	1,172	do.	do.
	Galeota 11	P—11 FK—10	do.	B1	25.8.76	2,150	do.	do.
	Galeota 12	P—11 CC—4	do.	B1	29.8.76	1,725	do.	do.
	Galeota 13	P—11 FJ—1	do.	C1	7.9.76	2,800	do.	Abandoned—Dry
	Galeota 14	P—11 CC—12	do.	C1	14.9.76	3,500	do.	do.
	Galeota 15	P—11 FK—13	do.	B1	18.9.76	2,510	do.	Abandoned without testing—Oil
	Galeota 16	P—11 BF—11	do.	B1	23.9.76	3,000	do.	do.
	Galeota 17	P—11 FL—6	do.	C1	28.9.76	2,800	do.	Abandoned—Dry
	Galeota 18	P—11 FF—17	do.	C1	4.10.76	2,600	do.	do.
	Galeota 19	P—11 FF—11	do.	C1	9.10.76	2,600	do.	do.
	Galeota 20	P—11 CD—1	do.	B1	13.10.76	2,700	do.	Abandoned without testing—Oil
	Galeota 21	P—11 EC—5	do.	B2a	27.10.76	4,205	do.	do.
	Galeota 22	P—11 BH—16	do.	C1	2.11.76	2,500	do.	Abandoned—Dry
	Galeota 23	P—11 CL—1	do.	C1	11.11.76	2,500	do.	do.
	Galeota 24	P—11 IL—8	do.	C1	8.12.76	1,146	do.	Abandoned—Mechanical

### Development Drilling

There was an increase in development well activity with 167 completions in 1976 and 199,527 metres (654,616 ft.) drilled. This represents an increase of 11 per cent and 3 per cent respectively when compared with figures for 1975.

An average of 11 rigs was used in development drilling activity—two more than the previous year. Of the 167 development wells completed 137 were oil producers, 3 gas producers, 12 service wells and 15 were abandoned. The success ratio of the development drilling in 1976 was 90 per cent.

Table IV summarises by areas the development drilling activity in Trinidad and Tobago during 1976.

TABLE IV

#### Summary of Development Drilling in 1976 by Areas

(Note this table covers development drilling in contrast with wildcat or exploratory drilling which is covered in Table III)

Area	Producers Completed	Dry Holes Completed	Total Completions	Total Footage Drilled	Number of Rigs Active at 31st December, 1976
1 ... ..	8	2	10	63,710	2
2 ... ..	31(a)	—	31	124,445	3
3 ... ..	—	—	—	5,650	—
4 ... ..	24(b)	2	26	68,128	1
5 ... ..	40(c)	2	42	50,638	1
6 ... ..	8	1	9	28,854	—
7 ... ..	4	3	7	25,682	—
8 ... ..	10	2	12	64,323	1
9 ... ..	9	2	11	44,780	—
10 ... ..	2	1	3	16,304	—
11 ... ..	16	—	16	148,724	1
12 ... ..	—	—	—	—	—
13 ... ..	—	—	—	—	—
14 ... ..	—	—	—	—	—
TOTAL ... (d)...	152	15	167	641,238	9

For definition of areas See Table IVA following.

(b)—Includes 5 Injection Wells—Footage—11254 feet.

(b)—Includes 6 Injection Wells—Footage 7085 feet.

(c)—Includes 1 Injection Well—Footage—1200 feet.

(d)—Includes 12 Injection Wells—Footage—19539 feet.

TABLE IVA

#### Key to Area—Numbers on Map (Figure II), on Table IV and in Text

Area Number	Description
1	Soldado, North Marine, Couva Marine
2	Pt. Ligoure, F.O.S., Area IV and Guapo, Point Fortin West and Central, Parrylands, Cruse
3	Brighton (Land and Marine), Vessigny, Merrimac
4	Palo Seco, Los Bajos, Erin
5	Forest Reserve, Fyzabad, Point Fortin East, New Dome, San Francique
6	Quarry, Coora, Quinam, Morne Diablo
7	Oropoucho
8	Penal, Barrackpore, Wilson, Siparia
9	Moruga North and West, Rock Dome, Innis, Trinity, Catshill, Balata, Bovallius
10	Guayaguayare, Moruga East
11	Galeota, Teak, Samaan, Poui (East Coast)
12	South Marine (South Coast)
13	Tabaquite, Pointe-a-Pierre
14	Icacos
15	North Coast

## CRUDE OIL PRODUCTION

The upward trend in crude oil production for Trinidad and Tobago shown in 1975 continued into the early half of 1976 with the highest production level attained in June 1976 at 36,217 cubic metres (227,798 barrels) per day. Then, in July a major fire at Amoco's Point Galeota terminal facilities caused the temporary shut down of Amoco's offshore production. Within about three months, Amoco brought back its production to about 90 per cent of the pre-July level. By virtue of Amoco's contribution of 20,460 cubic metres (128,690 barrels) per day or 61 per cent of the Country's production, the overall annual production dropped from 34,242 cubic metres (215,378 barrels) per day by 1.5 per cent to 33,740 cubic metres (212,216 barrels) per day.

T.N.A.'s daily production fell by 21 cubic metres (132 barrels) to 7,599 cubic metres (47,796 barrels). This small decline of less than 0.3 per cent was a result of a slow recovery following the fire on platform 17 and labour unrest in July.

Overall, the marine areas contributed 26,744 cubic metres (168,215 barrels) per day or a little above 79 per cent of the Country's production. This was a slight drop of 3.7 per cent when compared with the 1975 figure.

During 1976, there was a welcomed reversal of the land production trend with the level at 7,012 cubic metres (44,104 barrels) per day showing an increase of 8.3 per cent over the production figure for 1975. This reversal was due mainly to the tremendous efforts by Trintoc, the National Oil Company, to increase drilling and workover activity in its Point Fortin and Penal fields. Trintoc's production increased from 888 cubic metres (5,585 barrels) per day in 1975 by 25 per cent to 1,114 cubic metres (7,007 barrels) per day. Texaco Trinidad Inc. registered a significant increase of 16 per cent with an average daily land production of 3,150 cubic metres (19,813 barrels) per day. Its marine production contributed 197.5 cubic metres (1,242 barrels) per day.

The other producing companies, Trinidad-Tesoro Petroleum Company Limited and Premier Consolidated Oilfields Limited experienced small declines of 0.3 and 8.0 per cent respectively.

Figure IV illustrates graphically the contribution of new and recompleted wells to the Country's total crude oil production.

Table V gives a detailed comparison by fields of production for the years 1975 and 1976.

TABLE V

### Oil Production (in barrels) by Fields, Areas, or Districts

(Note: Use whichever geographic unit is the most useful or meaningful in your case. Delete the inappropriate terms.)

Company, Field, Area or District	Dis-covery Year	Total Wells Drilled	Name and/or Age of Producing Formation	ANNUAL PRODUCTION		Cumulative Production through December, 1976 '000 bbls.
				1975 (bbls.)	1976 (bbls.)	
TRINIDAD AND TOBAGO OIL CO. (TRINTOC)						
Balata East and West ... ..	1952	48	Miocene	20,405	16,798	2,095
Catshill ... ..	1950	124	do.	300,743	315,085	21,020
Inniss ... ..	1956	37	do.	59,515	56,687	5,666
Rock Dome ... ..	1962	3	do.	—	—	61
Penal ... ..	1936	266	do.	454,171	536,781	57,271
New Dome ... ..	1928	31	do.	6,100	11,329	3,061
Point Fortin East ... ..	1929	137	do.	492,872	473,623	22,6391
San Francique ... ..	1929	27	do.	17,139	15,577	5,850
Area IV and Guapo ... ..	1963	156	do.	167,388	184,979	33,191
Parrylands 1-5 ... ..	1913-18	352	do.	301,533	285,148	34,581
Pt. Fortin Central ... ..	1916	127	do.	233,844	433,735	12,756
Point Fortin West ... ..	1907	307	do.	165,800	235,640	18,333
Los Bajos ... ..	1918	29	do.	—	—	546
Erin ... ..	1963	4	do.	—	—	710
TOTAL ... ..		1,648		2,219,510	2,565,382	217,591

TABLE V—Continued  
Oil Production (in barrels) by Fields, Areas, or Districts—Continued

Company, Field, Area or District	Dis- covery Year	Total Wells Drilled	Name and/ or Age of Producing Formation	ANNUAL PRODUCTION		Cumulative Production through December, 1976 000 bbls.
				1975	1976	
<b>TRINIDAD-TESORO PETROLEUM Co., LTD.</b>						
Fyzabad ... ..	1920-38	884	Miocene	1,299,219	1,454,149	154,611
Guapo ... ..	1922	554	do.	715,314	738,890	37,318
Moruga East ... ..	1953	62	do.	41,290	45,134	2,073
Moruga North ... ..	1956	222	do.	13,636	23,004	920
Moruga West ... ..	1957	129	do.	87,876	91,191	8,559
Coora/Quarry ... ..	1936	608	do.	1,005,659	1,052,424	81,558
Palo Seco/Erin ... ..	1926	1,127	do.	2,600,134	2,247,826	83,272
North Marine ... ..	1956	15	do.	938	1,636	1,238
Galeota ... ..	1972	38	do.	211,045	575,255	2,236
Central Los Bajos ... ..	1973	83	do.	512,113	489,315	1,488
Oropouche ... ..	1975	2	do.	12,424	71,589	85
TOTAL ... ..		3,524		6,499,648	6,790,414	373,358
<b>TEXACO TRINIDAD INC.</b>						
Guayaguayare ... ..	1902	696	Miocene	1,432,236	1,625,148	77,080
Trinity ... ..	1956	95	do.	234,264	240,343	13,578
Barrackpore ... ..	1911	317	do.	430,530	601,709	24,622
Oropouche ... ..	1944	117	do.	402,018	357,742	5,027
Morne Diablo/Quinam ... ..	1926	—	do.	42,439	52,051	7,328
Forest Reserve ... ..	1913	1,895	do.	2,193,397	2,402,973	236,831
Palo Seco ... ..	1929	33	do.	1,024,144	1,398,962	81,534
Brighton ... ..	1903	613	do.	684,654	668,245	68,340
Erin ... ..	1963	21	do.	79,126	76,169	1,886
Couva Marine ... ..	1963	6	do.	54,834	25,717	297
Cruse ... ..	1913	150	do.	55,135	72,722	25,446
Wilson ... ..	1936	76	do.	101,564	157,561	19,041
Tabaquite ... ..	1911	225	do.	31,059	28,829	1,569
Balata Central ... ..	1949	6	do.	—	—	371
TOTAL ... ..		4,250		6,765,400	7,702,169	562,950
<b>PREMIER CONSOLIDATED OILFIELDS LTD.</b>						
Siparia ... ..	1957	5	Miocene	7,386	9,486	786
San Francique ... ..	1929	75	do.	39,113	34,485	2,863
Fyzabad ... ..	1918	253	do.	63,232	56,981	12,785
Palo Seco ... ..	1915	83	do.	8,032	5,774	1,601
Barrackpore ... ..	1970	3	do.	10,028	9,630	92
Icacos ... ..	1955	11	do.	7,548	9,141	426
Rock Dome/Bovallius ... ..	1965	6/13	do.	—	—	134/180
TOTAL ... ..		449		135,339	125,497	18,876
<b>TRINIDAD NORTHERN AREAS</b>						
Fos-Ft ... ..	1954	30	Miocene	187,029	190,299	3,353
Soldado ... ..	1955	419	do.	17,307,743	17,301,827	306,856
TOTAL ... ..		449		17,494,772	17,492,126	310,209
<b>AMOCO TRINIDAD OIL Co.</b>						
Teak ... ..	1971	50	Miocene	1,287,043	11,472,459	72,612
Samaan ... ..	1971	44	do.	20,227,674	20,411,572	56,601
Poui ... ..	1974	16	do.	6,991,552	11,113,016	18,668
TOTAL ... ..		110		45,506,269	42,997,047	147,881
GRAND TOTAL ... ..				78,620,938	77,672,635	1,630,863

## FLUID INJECTION OPERATIONS

Oil production from secondary oil recovery operations in Trinidad and Tobago amounted to 3.8 million barrels in 1976, which was equivalent to 5.0 per cent of the Country's total oil production for the year. Except for the expansion of steam injection operations by Trinidad-Tesoro Petroleum Company in North-West Palo Seco, and Guapo, the industry maintained a generally static position with regard to secondary recovery operations. The number of active projects at the end of the year was 34, which was a net increase of two over last year's figure. Fluid injection rates were, however, higher than in the previous year.

A summary of fluid injection operations in Trinidad and Tobago from 1972 to 1976 is presented in Table VI.

### Gas Injection

In spite of an increase in the volume of gas injected (4.9 mmcf/d), the established trend of a diminishing number of gas injection operations continued in 1976; there was an increase of 165 b.o.p.d. or 17 per cent in the volume of oil produced by gas injection projects.

Texaco continued injecting substantial volumes of natural gas into two reservoirs, namely, the "007" Lower Gros Morne reservoir in Guayaguayare, and the Forest Reserve Upper Cruse Western Extension, although the latter is classified as a waterflood project. Gas injection into these two reservoirs increased appreciably over last year's figures, with 2.3 mmcf/d being injected into the "007" reservoir which produced 702 b.o.p.d. or 33 per cent more oil than in 1975.

Trinidad-Tesoro discontinued gas injection in their Quarry/LM/79 reservoir in July. The company now has 6 active gas injection projects producing an average of 430 b.o.p.d., while injection has decreased by 61 per cent from last year's level of 2.7 m.m.c.f.d. Natural gas injection operations in 1976 are summarised by companies in Table VII, and by areas in Table X.

### Carbon Dioxide Injection

It is evident from Table X that Texaco continues to be the only company in the Country carrying out enhanced oil recovery by the injection of carbon dioxide. Injection at an average rate of 3.29 mmcf/d of carbon dioxide into three reservoirs in Forest Reserve has yielded a combined production of 557 b.o.p.d. In July, the Forest Sands Zone 5 Waterflood project was converted to carbon dioxide injection.

### Water Injection

The number of Waterflood projects in operation remained unchanged at 16 throughout the year until December when Texaco abandoned their Brighton Marine Waterflood project. While water injection averaged almost 51,000 b.o.p.d. for all projects, that is, 34 per cent greater than last year's rate, the corresponding oil production at 5,470 b.o.p.d. was only slightly higher than that of the previous year. Water injection statistics for 1976 are summarised in Table VII.

Texaco with 11 active projects producing 4,100 b.o.p.d. continued to be the major waterflood operator in the Country. Increases in water injection rates were achieved in their Guayaguayare Navette "410" reservoir (25 per cent), the Forest Reserve U.C.W.E. reservoir (113 per cent), the Guayaguayare "307" reservoir (96 per cent) and the U.C. "645" reservoir (9 per cent). There were decreases in injection rates in all of the company's other projects, with no injection occurring in the Guayaguayare "307" Extension Waterflood and the Forest Reserve Hot Waterflood. Water injection activities in the Lower Basal Nariva sands of the Brighton Marine field came to a premature end after 4 years of injecting a cumulative total of 10.5 million barrels of water. Response to waterflooding was extremely poor in this highly faulted reservoir.

The overall water-oil ratio in Texaco's waterflood schemes was 68 per cent.

Trinidad-Tesoro continued operating three waterflood projects during the year: 2 cyclic injection projects and 1 polymer flood. The two producing floods accounted for 241 b.o.p.d., an increase of 20 b.o.p.d. over the previous year's production. Injection rates in the Fyzabad polymer flood increased to more than 700 b.o.p.d. despite the loss of 2 injectors during the year. The Coora/UC/317 reservoir ended its second cycle of injection in March and began its second cycle of production in June. One year before, in June, 1975, water injection was initiated in the Coora/UC/314 reservoir and at the end of this year water was still being injected into the reservoir and an increase in pressure was being observed in two wells.

An average of 875 b.w.p.d. was injected in Trintoc's Catshill Waterflood during 1976. The project averaged 246 b.o.p.d. for the year, which is on par with last year's rate of production. Almost 2 million barrels of water have been injected in the four injectors in this reservoir since its inception in April, 1974.

Trinidad Northern Areas' Main Field 8011 reservoir was produced at an average rate of 971 b.o.p.d. during the year under review; 18.6 per cent of this oil is attributed to water injection. After approximately 1.5 years of flooding, a total of 4.3 million barrels of water have been injected into the reservoir and 690,200 barrels of oil have been recovered. The expansion of the scheme is now being considered.

A summary of the waterflood projects is presented in Table VIII.

## Steam Injection

Thermal recovery operations continued apace with Trinidad-Tesoro's steam injection expansion programme in North-West Palo Seco and Guapo fields, but although steam injection rates throughout all the injection areas were increased by 35 per cent to 5,700 barrels of steam per day, thermal oil production fell by 12.6 per cent from last year's level to 3,340 barrels per day.

Trinidad-Tesoro expanded their main steam area in Palo Seco when 4 patterns were initiated. Each pattern consisted of one or two central injectors with 5 or 6 peripheral producers. In July, the Morne l'Enfer "D" sands were closed in, and injection has been continuing in the "E" and "F" sands. This extension area produced 78,536 barrels of oil for the year.

A pilot flood comprising 4 patterns was initiated in Guapo in June; 14,000 barrels of steam have been injected in this pilot flood area with approximately an equal volume of oil being produced.

There was no injection in the Fyzabad "huff and puff" area.

Trinidad-Tesoro's ratio of oil produced per barrel of steam injected went up to 1.10 which was an improvement over the 0.92 figure which was experienced during the previous 2 years.

Texaco maintained steam injection in their two active thermal projects—Forest Reserve Project III, and the Project IV Upper Cruse Sands. Steam injection rates improved considerably during 1976, averaging 3,125 barrels per day in the Zone 5 Project, and 911 barrels per day in the Upper Cruse scheme. Total oil production from these two projects averaged 914 b.o.p.d. however, which was a 4 per cent decrease from the 1975 rate. The company's ratio of oil produced per barrel of steam injected dropped from 0.52 to 0.23.

In Tables VII and IX concise data on steam injection projects are highlighted.

TABLE VI

## Summary of Fluid Injection Operations in Trinidad and Tobago—1972-1976

Year	PROJECTS				INJECTION STATISTICS			CRUDE OIL PRODUCTION STATISTICS					Oil expressed as a percentage of total oil production
	Number of projects in operation at end of year				Natural Gas (mmsef.)	Water and Other Fluids (bbls.)	Steam (bbls.)	Total oil recovered from wells under project influence (in bbls.)					
	Gas	Water	Steam	Others				Gas Injection Projects	Water Injection Projects	Thermal recovery Projects	Other recovery Projects	All Projects	
1972 ... ..	22	13	4	—	8,555	15,548,166	2,432,077	2,372,841	2,447,627	1,540,530	—	6,360,198	12.4
1973 ... ..	13	18	6	1	6,573	19,063,428	2,248,606	811,100	2,088,992	1,593,344	304,003	4,797,439	7.9
1974 ... ..	9	13	6	2	4,986	21,347,585	1,867,416	603,930	1,803,749	1,720,680	184,805	4,313,164	6.3
1975 ... ..	8	16	6	2	1,443	13,758,293	1,530,743	352,920	1,992,222	1,395,432	146,105	3,886,679	4.9
1976 ... ..	7	16	8	3	1,796*	18,536,272	2,076,772	414,364	2,001,986	1,223,092	203,842	3,843,284	5.0

\*1,206 mmsef of Carbon Dioxide injected in Forest Reserve Fields.



TABLE VII

## Fluid Injection Operations—1976

## NATURAL GAS INJECTION

Company	Number of Active Projects	Gas Injected (mscf)	Oil Produced (bbls.)	Water Produced (bbls.)	Gas Produced (mscf)	G.O.R. (mscf)/(bbls.)
T.T.I. ... ..	1	1,409,174*	256,961	137,300	1,385,959	5,393
TRINTOC ... ..	—	—	—	—	—	—
T.T.P.C.L. ... ..	6	385,993	157,403	2,236	1,120,624	7,119
TOTAL ... ..	7	1,795,167	414,364	139,536	2,506,583	6,049

\*This figure includes gas injected in the Forest Reserve Middle Field Project which is a water flood Project.

## WATER INJECTION

Company	Number of Active Projects	Water Injected (bbls.)	Oil Produced (bbls.)	Water Produced (bbls.)	Gas Produced (mscf)	Per cent Water Cut
T.T.I. ... ..	11	14,722,876*	1,459,162	3,192,034	2,264,618	67.8
TRINTOC ... ..	1	320,557	90,103	7,732	22,513	7.9
T.T.P.C.L. ... ..	3	672,670	88,285	53,776	69,134	37.9
T.N.A. ... ..	1	2,820,169	304,756	355,396	503,630	53.8
TOTAL ... ..	16	18,536,272	2,001,986	3,608,938	2,859,895	64.3

\*This figure includes water injected in two CO<sub>2</sub> floods in Forest Reserve and one gas injection project in Guayaguayare.

## STEAM INJECTION

Company	Number of Active Projects	Steam Injected (bbls.)	Oil Produced (bbls.)	Water Produced (bbls.)	Gas Produced (mscf)	Per cent Water Cut
T.T.I. ... ..	2	1,477,087	341,644	565,714	107,296	62.8
T.T.P.C.L. ... ..	6	599,685	888,448	197,351	112,344	18.2
TOTAL ... ..	8	2,076,772	1,223,092	763,065	219,640	38.4

TABLE VIII

## Water Injection Summary by Projects—Year 1976

Company	Field	Project	Water Injection (bbls.)	Oil Production (bbls.)	Water Production (bbls.)	Gas Production (mscf)	Per cent Water
T.T.I.	Forest Reserve	UCRA*	44,577	—	—	—	—
		UC 645	1,251,157	125,880	280,075	299,877	69.0
		Bernstein	—	—	—	—	—
		UM Cruse	692,738	46,907	87,666	62,700	65.1
		UCWE (Middle Field)	2,483,700	108,608	105,749	440,123	49.0
	Guaya-guayare	Zone 4†	—	59,680	26,193	17,472	30.5
		Zone 5*	248,885	—	—	—	—
		Navette 410	2,948,121	372,374	1,044,850	442,518	73.7
		410 Ext	798,959	97,468	249,716	116,025	71.9
		307 WF	2,379,447	257,802	563,612	305,771	68.6
		307 Ext	—	31,483	36,576	36,899	53.7
		Navette 007*1	508,513	—	—	—	—
		Brighton	LB Nariva	1,368,723	24,902	777	52,277
Trinity	Shallow Herrera	1,071,528	240,343	609,776	288,925	71.7	
Palo Seco	LF 234 Sds	926,528	153,395	187,044	202,031	54.9	
T.T.I.	All Fields	All Projects	14,722,876	1,518,842	3,192,034	2,264,618	67.8
T.T.P.C.L.	Coora	Co/UC/314/1	301,505	—	—	—	—
		Co/UC/317/11	93,184	15,735	25,085	14,320	38.5
		Fyzabad	277,981	72,550	28,691	54,814	28.3
		FM/UF/169/1*2	—	—	—	—	—
T.T.P.C.L.	All Fields	All Projects	672,670	88,285	53,776	69,134	37.9
TRINTOC	Catshill	CO 30 Sds	320,557	90,103	7,732	22,513	7.9
T.N.A.	Soldado	Cruse	2,820,169	304,756	355,396	503,630	53.8
All Companies	All Fields	All Projects	18,536,272	2,001,986	3,608,938	2,859,895	64.3

\*CO<sub>2</sub> Flood—Listed under other

† —Hot Water injection

\*1 Gas—Water Injection—Production under Gas injection column

\*2 —Polymer injection

TABLE IX

## Steam Injection Summary by Projects Year 1976

Company	Field	Project	Steam Injection (bbls.)	Oil Production (bbls.)	Water Production (bbls.)	Gas Production (mscf)	Per cent Water
T.T.I.	Forest Reserve	Forest Sands Zones 5 and 6	1,143,660	293,706	481,392	80,136	62.0
		Upper Cruse	333,427	40,938	84,322	27,160	67.0
T.T.I.	All Fields	All Projects	1,477,087	334,644	565,714	107,296	62.8
T.T.P.C.L.	Fyzabad	Pilot	—	230,698	17,199	531	6.9
		Palo Seco	Main Project UF/LMLE	154,383	222,229	87,102	953
	Guapo	Expansion Flood	300,298	78,536	46,040	79	37.0
		Experimental Gen. 3	40,689	309,758	34,376	109,014	10.0
		Other than 3	13,978	13,901	2,551	626	15.5
		Pilot	90,377	33,326	10,083	1,141	23.2
T.T.P.C.L.	All Fields	All Projects	599,685	888,448	197,351	112,344	18.2
All Companies	All Fields	All Projects	2,076,772	1,223,092	763,065	219,640	38.4

TABLE X

## Natural Gas Injection Summary by Areas—1976

Company	Field	Gas Injection (mscf)	Oil Production (bbl)	Gas Production (mscf.)	Gas/Oil Ratio
T.T.I. ... ..	Forest Reserve	568,029	—*	891,311	4,373
	Guayaguayare	841,145	256,961	1,385,959	5,393
T.T.I. ... ..	All Fields	1,409,174	256,961	2,277,270	4,942
T.T.P.C.L. ... ..	Quarry	3,437	71,860	57,908	806
	Fyzabad	288,726	74,321	1,048,140	14,103
	Palo Seco	93,830	11,222	14,576	1,299
T.T.P.C.L. ... ..	All Fields	385,993	157,403	1,120,624	7,119
All Companies ... ..	All Fields	1,795,167	414,364	3,397,894	5,496

\*Oil production from combination floods excluded from this Table.

## Carbon Dioxide Injection, 1976

Company	Field	Projects	FLUID INJECTION		Oil Production (bbl.)	Water Production (bbl.)	Gas Production (mscf)
			Carbon Dioxide (mscf)	Water (bbl.)			
T.T.I. ... ..	Forest Reserve	U.C.R.A.	1,066,571	44,577	157,722	39,276	820,994
		Forest Sands	80,132	—	13,340	541	19,766
		Zone 5	59,102	248,885	32,780	3,207	50,551
T.T.I. ... ..	All Fields	All Projects	1,205,805	293,462	203,842	43,024	891,311

TABLE XI

## Annual Statistics for Natural Gas Production and Utilization, 1972-1976

	1972		1973		1974		1975		1976	
	Million of S.C.F.	%	Million of S.C.F.	%	Million of S.C.F.	%	Million of S.C.F.	%	Million of S.C.F.	%
Production ...	104,338	100.0	119,979	100.0	123,293	100.0	126,434	100.0	137,959	100.0
G.O.R. (S.C.F./bbl.)	2,037	—	1,978	—	1,883	—	1,608	—	1,776	—
A. Used as Fuel:										
In Fields ...	8,415	8.1	8,223	6.9	7,645	6.0	6,000	4.7	7,128	5.2
In Refineries ...	25,776	24.7	22,506	18.7	20,034	15.6	15,763	12.5	18,541	13.4
In other Industries ...	22,940	21.9	23,970	20.0	23,029	17.9	29,855	19.7	27,276	19.8
Sub-Total ...	57,131	54.7	54,699	45.6	50,708	39.5	46,618	36.8	52,945	38.4
B. Other Complete Utilization:										
Used as process Gas ...	9,858	9.5	9,624	8.0	8,071	6.3	6,844	5.4	7,169	5.2
Injected into Formation ...	9,230	8.9	6,381	5.3	5,705	4.4	2,018	1.6	1,699	1.2
Converted into C.H.P.S. ...	95	0.1	61	0.1	49	0.1	60	0.1	50	0.1
Sub-Total ...	19,183	18.4	16,066	13.4	13,825	10.8	8,922	7.1	8,918	6.5
C. Vented:										
After use of Pneumatic Energy ...	6,345	6.1	6,439	5.4	6,635	5.2	6,684	5.4	7,200	5.2
Without Use ...	21,679	20.7	42,775	35.6	57,125	44.5	64,010	50.6	68,896	49.9
Sub-Total ...	28,024	26.8	49,214	41.0	63,760	49.7	70,894	56.1	76,096	55.1

TABLE XII

## Accident Statistics—1976

Company	Field	Total	Fatalities	SERIOUS				MINOR			
				D.	P.	E.	O.	D.	P.	E.	O.
Texaco ... ..	Forest Reserve	134	—	1	2	4	1	35	31	46	14
	Pointe-a-Pierre	317	—	—	—	12	2	—	297	6	—
	Barrackpore	5	—	—	—	—	—	1	3	—	1
	Guayaguayare	24	—	—	—	1	—	1	16	6	—
	Brighton	13	—	1	—	2	—	—	3	6	1
		493	—	2	2	19	3	37	350	64	16
South-East Coast Consortium	—	56	—	6	—	—	—	50	—	—	—
Amoco ... ..	All	202	2	29	10	2	—	153	6	—	—
Deminex	—	3	—	—	—	1	—	—	—	2	—
Trinmar ... ..	All	30	1	4	—	—	—	16	4	3	2
Trinidad-Tesoro	All	57	1	—	6	—	—	12	32	6	—
P.C.O.L.	All	—	—	—	—	—	—	—	—	—	—
Trintoc ... ..	All	11	1	1	1	—	—	—	3	—	5
Baroid ... ..	—	2	1	—	1	—	—	—	—	—	—
		854	6	42	20	22	3	368	395	73	23

D. = Drilling    E. = Engineering    P. = Production    O. = Others

## NATURAL GAS PRODUCTION AND UTILIZATION

The most serious effect of the fire at Point Galeota in June 1976, was the negation of all the efforts being made to improve gas utilization. In spite of the small drop in oil production for 1976 as compared to 1975, gas production rose to 37.7 million cubic feet per day, an 8.8 per cent increase over that of 1975. Amoco's share of this production also rose from 52.4 per cent in 1975 to 56.9 per cent this year, as their average GOR increased to 1825 SCF per barrel. Land gas production continued to fall and the total of 87.7 million cubic feet per day now represents less than one-quarter of total production.

The continuing pressure decline in the land fields resulted in further decreases in gas utilization as more low pressure gas is produced. During 1976 a total of 73.1 per cent of the gas produced was utilized, a 1.1 per cent drop from 1975. In spite of the fire at Point Galeota, marine gas produced showed a small improvement in gas utilization from 1975, as the percentage utilized increased from 40.8 per cent to 43.1 per cent this year.

In all, some 69,063 million cubic feet were utilized for 1976, eleven per cent (11 %) more than the total for 1975.

Of the total of 69,063 million cubic feet, 52,945 million cubic feet was used as fuel, with refineries showing an increase of 16.7 per cent over 1975's usage of 15,763 million cubic feet. Industrial usage fell temporarily as operational problems caused some conversion to temporary fuel oil usage but it is anticipated that the completion of the National Gas Company's onshore and offshore pipeline systems will ensure steady growth in this area from 1977. After several years of declining field usage of natural gas, 1976 saw a turn around, with an increase of 18.8 per cent this year as greater emphasis was laid on steam projects. Further increases are expected in this area or well over the next few years.

The trend of gas production over the past five years is given in Table XI.

## REFINING AND PETROCHEMICAL MANUFACTURE

Refining activity in Trinidad and Tobago is evidently on the decline. This decline could very well be a reflection of new habits adopted by a more energy conscious industrialised world; such habits and an increased attention towards developing possible alternate energy forms and sources are no doubt the result of the 1973 Middle East Oil embargo. The next result has been economic recession and a weakening of the U.S. petroleum market, necessitating curtailment of local refinery throughput. Throughput for 1976 is detailed in Table A.

TABLE A

Year	Average Daily throughput (bbls. per day)	
	Texaco	Shell/Trintoc
1970 ... ..	354,368	69,870
1971 ... ..	331,297	67,427
1972 ... ..	326,777	67,381
1973 ... ..	321,648	66,492
1974 ... ..	301,759	56,613
1975 ... ..	187,866	46,782
1976 ... ..	266,274	54,994

For the year 1976 total crude oil refined in Trinidad was 117,594,982 barrels or a daily average of 321,298 barrels.

This represents an increase of 37.3 per cent over the figure for 1975 and a decrease of 11.24 per cent compared to 1974 figures. One must recall that 1975 was a bad year due to industrial unrest at Texaco's refinery.

In 1976 Trintoc, now entirely in the hands of nationals registered a throughput of 20,127,637 barrels, an average daily throughput of 54,994 barrels. This represents an increase of 15.2 per cent over the previous year.

The Texaco refinery refined a total of 97,456,234 barrels for 1976, a daily average of 266,274 barrels. This represents a 29.6 per cent increase over the previous year and a drop of 13.0 per cent compared to 1974. Texaco was adversely affected in their output of low sulphur fuel oil because of the natural gas shortage which affected the production of hydrogen at Federation Chemicals. The natural gas shortage was due primarily to the "big" fire at Amoco.

Main refinery products were:

TABLE B

Products	MILLION BARRELS			Per cent change between 1974 and 1976
	1976	1975	1974	
Fuel Oils ... ..	67.8	48.4	74.5	-8.9
Gasolines ... ..	20.3	14.1	19.1	+5.9
Gas/Diesel ... ..	12.2	10.8	14.9	-18.1
Aviation Turbine Fuel ... ..	4.3	3.9	8.4	-48.8
Kerosene ... ..	6.8	3.9	6.1	+10.3
Lubes/Greases ... ..	0.8	0.5	1.2	-33.3
Petrochemicals ... ..	1.2	0.6	1.3	-7.7

Crude feedstock to the Texaco and Trintoc refineries originated from the following sources in the amounts indicated in Table C.

TABLE C

Name of Crude	Country	Amount (bbls.)	Per cent Total
<b>TEXACO:</b>			
Trinidad ... ..	—	13,463,662	11.45
Tia Juana Medium ... ..	Venezuela	277,494	0.24
Minas ... ..	Indonesia	20,181,058	17.16
Duri ... ..	Indonesia	1,081,737	0.92
Arabian Light ... ..	Saudi Arabia	36,884,742	31.37
Arabian Heavy ... ..	Saudi Arabia	1,458,466	1.24
Berri ... ..	Saudi Arabia	1,827,821	1.55
Iranian Light ... ..	Iran	11,626,397	9.89
Iranian Heavy ... ..	Iran	6,033,099	5.13
Angolan ... ..	Angola	1,264,617	1.08
Forcados ... ..	West Africa	926,383	0.79
Oriente ... ..	Ecuador	1,479,004	1.26
Murba ... ..	Trucial States	127,010	0.11
Dubain ... ..	Persian Gulf	565,995	0.48
Nigerian Brass River ... ..	Nigeria	5,248	—
Basrah ... ..	Iraq	251,501	0.21
<b>TEXACO SUB-TOTAL</b> ... ..	—	<b>97,456,234</b>	<b>82.88</b>
<b>TRINTOC</b>			
Trinidad ... ..	—	18,924,871	16.10
Reconstituted Crude ... ..	Venezuela	779,107	0.66
Oriente ... ..	Ecuador	423,659	0.36
<b>TRINTOC SUB-TOTAL</b> ... ..	—	<b>20,127,637</b>	<b>17.12</b>
<b>TOTAL</b> ... ..	—	<b>117,583,871</b>	<b>100.00</b>

### Petrochemicals

Production of petrochemical intermediates from the Texaco Refinery amounted to 1,142,203 barrels in 1976 compared to 670,552 barrels in 1975, because 1975 was one of industrial unrest at the Texaco refinery, a comparison of 1976 and 1974 is presented for the major petrochemicals.

#### Per cent of Total Production

	1976	1974	Per cent Change
Normal Paraffins	47.8	44.8	+3.0
Toluene	27.4	27.2	+0.2
Benzene	10.8	7.5	+3.3

#### Production and Exports of Important Petrochemical Intermediates Trinidad and Tobago, 1976 (Quantities in barrels)

	YEAR 1976		YEAR 1974	
	Production	Exports	Production	Exports
Normal Paraffins	550,064	471,785	608,225	604,132
Di-isobutylene	9,963	9,115	25,535	*30,955
Nonene	35,624	*47,721	19,802	*21,887
Tetramer	19,660	*34,761	29,975	26,971
Benzene	127,576	121,305	1,101,756	92,686
Toluene	315,821	282,437	369,718	*421,284
Xylene	55,947	39,030	47,846	45,996
Cyclohexane	26,565	30,845	142,075	132,330
Unrefined Naphthenic Acids	3,035	1,709	11,693	5,124

\*Excess of Exports over production made up from stocks.

#### Crude Oil Balance, 1976

Availability	Million bbls.	Disposal	Million bbls.
Stock at 1st January	5.9	Exports	44.4
Production	77.7	Delivered to Refinery	117.6
Imports	84.8	Loss from Production	5.3
	168.4	Stock at 31st December	1.1
			168.4

#### Refined Products Balance

Availability	Million bbls.	Disposal	Million bbls.
Stock at 1st January	10.6	Shipments	110.5
		Bunkers	3.7
		Local Consumption	5.1
Products Obtained Crude Delivered	114.3	Stock at 31st December	5.6
	124.9		124.9

\*Crude delivered 117.6 million bbls.

Gas and Loss from Crude 3.3 million bbls.

The volume of exciseable product amounted to 2,914,622 barrels. The exciseable sale of gasoline amounted to 1,937,320 barrels an increase of 12.8 per cent compared to 1975. The exciseable duty on all products amounted to \$12,677,324. The exciseable tax on gasoline being 27 cents for premium and 18 cents for regular.

Sales of bottled propane showed an increase of 2.1 per cent over the 1975 figure amounting to 43,043,069 lbs., on which excise duty at 2 cents per lb. is paid.

Details of Petroleum exciseable products are listed hereunder:—

<i>Premium Gas</i>	<i>Regular Gas</i>	<i>Gas/Diesel</i>	<i>Propane</i>
bbls.	bbls.	bbls.	lb.
1,403,891	533,429	977,302	43,043,069

### Nitrogenous Fertilizers

Ammonia production totalled 217,934 short tons, corresponding to an average production of 597 short tons/day. This represented a 6.3 per cent decrease in production. Production of Ammonium Sulphate and Urea increased by 3.5 per cent and 4.4 per cent to 80,452 and 74,254 short tons respectively.

A total of 15,396 mmcf of natural gas was utilized, an increase of 5.7 per cent over last year's figure. Of this amount 7,181 mmcf were used for feedstock for ammonia, nitrogenous fertilizer and hydrogen with 8,215 mmcf being consumed as fuel.

### Marketing

*Petrol Filling Stations—Sales and Marketing Position, 1976.* There were 213 filling stations in operation in Trinidad and Tobago during 1976, and of these 9 were located in Tobago. The stations were all serviced by the Trinidad and Tobago National Petroleum Marketing Company Limited in accordance with Government's decision to acquire all the service stations operating in the country.

The distribution and sales of these petrol filling stations were as follows:—

	<i>Trinidad</i>	<i>Tobago</i>	<i>Total</i>
Number of Stations	204	9	213
Volume Mogas (I.G.)	62,317,456	1,962,216	64,279,672
Average per station (I.G.)	305,478	218,024	—
Per cent of total sales	96.95	3.05	100

Throughput increased by 9.0 per cent from 58.98 million imperial gallons in 1975 to 64.28 million imperial gallons in 1976. The average growth rate of increase in throughput for the period 1972–1976 was 3.4 per cent.

The following table shows the total consumption of gasoline over the period 1972 to 1976:

<i>Year</i>	<i>Total consumption of Mogas I.G.</i>
1972	50,490,514
1973	52,546,106
1974	56,017,495
1975	58,981,220
1976	64,279,672

### ACCIDENTS OCCURRING IN THE PETROLEUM INDUSTRY

In the Petroleum Industry the number of accidents reported for the year 1976 numbered 854. This figure represents an increase of 175 per cent compared with the 1975 figure of 310. This increase is mainly due to the inclusion of refinery accidents which fall under the jurisdiction of the Factories Inspectorate Division, and were omitted in previous years. The number of fatal accidents rose from two (2) in 1975 to six (6) in 1976 representing an increase of 200 per cent. These fatalities occurred in the producing fields.

Accidents were divided into two categories, that of serious and non-serious depending on the extent of the injury. Serious accidents comprised 10.5 per cent showing a decrease of 1.8 per cent over last year's 12.3 per cent. Accidents in the serious category consisted principally of crushed injuries and amputation of fingers caused in machinery operations, compound fractures, injury to ribs, back injury affecting the spine in some instances, severe blows to the head and facial injuries caused either by equipment during mechanical operations or falls from great heights while work was in progress. Also, classified as serious were first degree burns, internal injuries, severe eye injuries and wounds which may have become septic.

Minor or non-serious accidents included typical injuries such as sprains, superficial burns, abrasions, bruises, contusions to limbs, dislocation of shoulders, strained muscles resulting from strenuous jobs and small cuts.

Of the six (6) fatal accidents in 1976 three persons died as a result of being struck by objects, one died as a result of drowning, one was burnt to death and one was electrocuted.

On 19th January, 1976, an employee of Baroid Trinidad Services died when he was struck on the head, chest, back and stomach, by bags of barite which fell from a stacked pile.

An employee of Well Services Limited was electrocuted when he rested his arm on the terminals of a 440 volt transformer which was located near the dog-house. At the time of the incident, Well Services was carrying out a gravel pack operation in Trintoc's Point Fortin field. On 19th July, 1976 tragedy struck in Trinidad-Tesoro's Palo Seco field when the mast of a workover winch, owned by Well Services Ltd. fell on the cab of a truck killing the driver instantly. At the time the mast was being lowered after completion of a workover job.

A major fire occurred on 18th July, 1976 when the hemispherical separator vessel at Amoco's Point Galeota facilities exploded, resulting in the death of one (1) person, injury to eleven (11) persons and extensive damage to equipment.

On 20th September, 1976, a crane operator employed by Petroleum Offshore Services Ltd. was operating a crane on the Teak "A" Platform. In the process of lifting a load of tubing from a work boat to the platform the load fell onto the deck of the workboat and the crane with the operator toppled into the sea resulting in the drowning of the operator.

On 20th November, 1976, a casual labourer, employed by Trinmar Ltd., was struck fatally on the body and head by joints of casing while loading same on a Trinmar barge.

There were several fires occurring in the oilfields during 1976, some minor, resulting in very little damage, and some major, which though not resulting in death caused much damage to equipment. The causes of the fires were varied, some unknown and some were due to defective equipment.

There was a fire at No. 4 Re run Unit at the Pointe-a-Pierre Refinery when an explosion occurred during the igniting of the gas heater, after a power failure. Two men were seriously burnt.

Two major fires occurred at the Poui B Platform during 1976. One was caused by a well blowout. The other was electrical in nature and started in the engine room resulting in extensive damage to the living quarters and the suspension of drilling operations on the platform from about one (1) month.

A summary of Accident Statistics is given in Table XII.

## ROYALTY ASSESSMENTS

Appendix VIII presents a summary of Crude Oil Assessed for Crown Royalty by company, showing averaged price per barrel and analyses for the half-yearly periods ending 30th June, and 31st December, 1976.

Net Royalty production increased from 36,882,973 barrels and 39,101,504 barrels in the first and second half of 1975 to 45,373,799 barrels and 40,911,338 barrels respectively in 1976. The reason for this is the Amoco Trinidad Oil Company's production which continued its upward trend throughout 1975.

Prices of Petroleum Products continued rising. Total Royalty on Crude for the year was therefore \$223,563,233 as compared with \$182,693,761 for 1975 and \$160,834,354 for 1974 (See Appendix IX—Average Price in T.T. currency per barrel).

Appendix IX presents a summary of Royalty assessed for Crude Oil, Natural Gasolene and Natural Gas produced, and Minimum Rents on Crown Oil Mining Leases/Licences for the half-yearly periods 1974, 1975 and 1976.

Total Royalty in 1976 of \$226,363,710 is higher than 1975 and 1974 respectively at \$184,278,587 and \$163,052,222. Greater production in 1976 is therefore mainly responsible for this increase as well as the higher rate of Royalty at 12½ per cent applicable to Amoco Trinidad Oil Company and Trinidad Tesoro Petroleum Company Ltd's. Galeota Field.



## LEASES AND LICENCES

Total acreage under Licence decreased from 5,387,896 acres at the end of 1975 to 4,489,714 acres at the end of 1976.

During the year Amoco surrendered 476,600 acres of their Licence on the East Coast. South-East Coast Consortium surrendered 5,738 acres of their Licence.

The following is an outline of the situation as at 31st December, 1976.

State Petroleum Oil Rights	Acres	Roods	Perches
Public Petroleum Rights ... ..	222,142	3	33
Private Petroleum Rights (Encroachments) ... ..	50,247	1	17
Exploration and Production Licences (Public Petroleum Rights) ...	3,604,997	0	00
Marine Licences ... ..	506,375	0	00
Total Crown Oil Rights ... ..	4,383,762	1	10
Private Oil Rights/Private Leases ... ..	105,951	2	34
Total acreage of all Lands under Licence ... ..	4,489,714	0	04

A detailed survey of State and Private Petroleum Rights is set out on a Company basis in Table XIII.

TABLE XIII

## Oil Rights under Lease and Licence as at 31st December, 1976

Company	STATE																					Private Oil Rights			Total State and Private		
	Land Leases									Submarine Licences																	
	Public Petroleum Rights			Private Petroleum Rights			Total			High Seas			Territorial Waters			Exploration Licences			Total			Land					
	A	R	P	A	R	P	A	R	P	A	R	P	A	R	P	A	R	P	A	R	P	A	R	P			
Trinidad Northern Areas Limited (T.H.A.)	32	3	33	—	—	—	32	3	33	83,434	0	00	100,213	0	00	—	—	—	183,647	0	00	—	—	—	183,679	3	33
Texaco Trinidad Inc. (T.T.I.)	127,482	3	35	33,495	3	32	160,978	3	27	372,241	0	00	15,344	0	00	365,079	0	00	752,664	0	00	84,788	1	36	998,431	1	23
Trinidad and Tobago Oil Company (Trintoc)	60,734	3	18	5,239	2	24	65,974	2	02	—	—	—	—	—	—	—	—	—	—	—	—	938	0	08	66,912	2	10
Premier Consolidated Oilfields Limited (P.C.O.L.)	10,718	2	09	2,640	1	13	13,358	3	22	—	—	—	—	—	—	—	—	—	—	—	—	5,599	0	14	18,957	3	36
Trinidad Canadian Oils (T.C.O.)	6,996	2	31	—	—	—	6,996	2	31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6,996	2	31
State of Timothy Roodal	—	—	—	9	2	12	9	2	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	2	12
Trinidad Tesoro Petroleum Co. Ltd. (T.T.P.C.L.)	16,176	3	27	8,861	3	18	25,038	3	03	50,700	0	00	42,831	0	00	78,929	0	00	172,460	0	00	14,626	0	16	212,124	3	19
Amoco Trinidad Oil Co.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	892,385	0	00	892,395	0	00	—	—	—	892,395	0	00
Texaco/Tennaco	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	259,891	0	00	259,891	0	00	—	—	—	259,891	0	00
Texaco/G.O.T.T.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	373,142	0	00	373,142	0	00	—	—	—	373,142	0	00
Consortium/T.T.I./Trintoc/T.T.P.C.L.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	181,662	0	00	181,662	0	00	—	—	—	181,662	0	00
Deminex—Agip	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	517,767	0	00	517,767	0	00	—	—	—	517,767	0	00
Deminex/Mobil	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	303,424	0	00	303,424	0	00	—	—	—	303,424	0	00
Occidental	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	313,680	0	00	313,680	0	00	—	—	—	313,680	0	00
Oceanic—Santa Fe Terra	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	160,640	0	00	160,640	0	00	—	—	—	160,640	0	00
TOTAL	222,142	3	33	50,247	1	17	272,390	1	10	506,375	0	00	158,388	0	00	3,466,609	0	00	4,111,372	0	00	105,951	2	34	4,489,714	0	04

## LEGAL DEVELOPMENTS

Apart from the performance of the routine duties which included the revision of contracts and giving of advice on miscellaneous legal matters relevant to petroleum operations, drafting of licences and documents of a legal nature, attendance of meetings and serving on committees, the Legal Section was involved in the following specific matters:—

### A. LEGISLATION

The following legislation relevant to the petroleum industry was passed in 1976:—

- (a) The Petroleum (Amendment) Act, 1976 (Act No. 27 of 1976).
- (b) The Price of Petroleum Products Order, 1976 (Government Notice 109 of 1976) revoking and replacing the Price of Petroleum Products Order, 1975 (Government Notice No. 124 of 1975) under section 30A of the Petroleum Act, 1969.
- (c) The Price of Petroleum Products Order, 1976 (Government Notice 153 of 1976) under section 30A of the Petroleum Act fixing the *ex* refinery, wholesale and retail prices of liquefied petroleum gas.
- (d) The Petroleum Production Levy and Subsidy (Products) Order, 1976 (Government Notice 154 of 1976) under section 20 of the Petroleum Production Levy and Subsidy Act, 1974 amending the Schedule to the Petroleum Production Levy and Subsidy Act, 1974 to include liquefied petroleum gas.
- (e) The Petroleum Production Levy and Subsidy (Gross Margin) Order, 1976 (Government Notice 155 of 1976) under section 8(3) of the Petroleum Production Levy and Subsidy Act, 1974 to provide for the gross margin in respect of liquified petroleum gas.
- (f) The Petroleum Impost Rating Order, 1976 (Government Notice 202 of 1976) under Regulation 72-74 of the Petroleum Regulations to provide for the Petroleum Impost payable in respect of crude oil and Natural gas won and saved during the period ending 31st December, 1975.
- (g) The Income Tax (In Aid of Industry) (Amendment) Act, 1976 to provide for an "investment allowance," for a period of six (6) years, to a company incurring capital expenditure on or after the 1st January, 1975 in respect of its "production business" (as defined in the Petroleum Taxes Act, 1974) on land.

### B. ASSIGNMENTS

- (a) By Deed dated 26th day of April, 1976, and registered as No. 12773 of 1976, effective on 22nd August, 1975, Ashland Caribbean Inc. assigned its 50 per cent interest in Licence 10149 of 1971 over Blocks HH5, LL6 and LL7 to Amerada Hess Corporation of Trinidad and Tobago making Amerada Hess Corporation the sole Licensee under the Licence.
- (b) By Deed dated 30th day of July, 1976, and registered as No. 14359 of 1976 made effective on 1st January, 1975, Deminex and Agip Trinidad and Tobago Limited, assigned to Tenneco Oil Company of Trinidad, 16 $\frac{2}{3}$  per cent of their respective 50 per cent interests in Licences No. 6691, 6692, 6693 of 1970 (dated 29th June, 1970) and Licence No. 671 of 1974 (dated 31st October, 1973) over Blocks HH6, KK5, KK7, KK8, KK9 and LL9 respectively. Deminex, Tenneco, and Agip now each holds an undivided 33 $\frac{1}{3}$  per cent interest in said Licences.

### C. SURRENDER OF ACREAGE

- (a) By Deed of partial Surrender dated 3rd May, 1976 and registered as No. 12829 of 1976 and made effective on December 23, 1975, Amerada Hess Corporation of Trinidad and Tobago surrendered Block HH5 comprising approximately 82,920 acres being one of the three Blocks under a Licence registered as No. 10149 of 1971. Blocks LL6 and LL7 under the said Licence were retained by the Company.

### D. APPLICATION FOR EXPLORATION AND PRODUCTION (PUBLIC PETROLEUM RIGHTS) LICENCES

- (a) Applications were received from Texaco Trinidad Inc. and Trinidad-Tesoro Petroleum Company Limited for approximately three (3) acres situate in the Ward of Siparia (Avocat Island);
- (b) Applications were received from Trinidad-Tesoro Petroleum Company Limited for the following areas:
  - (i) approximately 4,785 acres in La Brea;
  - (ii) several parcels of State Lands in the Ward of Ortoire comprising approximately 5,562 acres; and
  - (iii) two parcels of land in the Ward of Savana Grande comprising approximately 24 acres.
- (c) Societe Nationale Elf Acquintane applied on behalf of a consortium of six companies for the open acreage in the East Coast marine area identified as Block 5.

### E. RENEWAL OF LICENCES

The following notices of renewal of Licences were received;

- (a) from Deminex in respect of Licences 6691/1970, 6692/1970 (as supplemented by 671 of 1974) and 6693 of 1970.
- (b) from Occidental of Trinidad Inc. in respect of Licences 9684 and 9685 of 1970.

The renewals were in respect of the remaining acreages after the fifty (50) per cent compulsory surrender required by the Licences. The effective date of the renewals of the Licences mentioned in (a) and (b) above were June 30, 1976 and July 17, 1976 respectively.

## REVENUE, SUBSIDY AND PRODUCTION LEVY

### Revenue

Revenue was received by the Ministry under the following:—

	1975	1976
	\$	\$
Petroleum Operating Licences ... ..	40,187	39,287
Exploration and Production Licences ... ..	13,404	9,882
Pipeline Licences ... ..	—	1,200
Transfer Fee ... ..	300	100
Oil Impost ... ..	2,660,560	2,524,564
Seismographic Surveys ... ..	233,750	5,000
Sale of Reports and Maps ... ..	691	560
Royalty on Crude Oil and Natural Gas ... ..	185,659,896	225,427,145
Concessions—Premia on Oil ... ..	30,266,983	—
	\$217,875,771	\$288,007,738

Although damage by fire to Amoco Trinidad Oil Company's facilities on 18th July, 1976 curtailed that company's production and reduced the overall production of crude oil, revenue from Royalty increased from \$184.7 million in 1975 to \$225.4 million in 1976. Higher prices and exchange rates during 1976 were mainly responsible for the increase of \$40.7 million.

### Production Levy and Subsidy

The Production Levy and Subsidy increased from \$43.4 million in 1975 to \$68.3 million in 1976. The rate of exchange with the United States dollar was primarily responsible for this increase of \$24.9 million, although subsidy to the National Fisheries Company Ltd. increased by \$2.89 million because of the additional allowance of 30 cents per gallon on gas oil with effect from 1st January, 1976. Liquid Petroleum Gas was subsidised from October 16, 1976 to the tune of approximately \$1.0 million. The greater number of vehicles on the road in 1976 compared with 1975 also caused higher consumption of fuels.

### Petroleum Development Fund Special Projects

#### 24" NATURAL GAS TRANSMISSION PIPELINE

#### BEACHFIELD TO PICTON

#### Construction Progress

- (1) Right of Way Clearing was completed for 28.5 miles, but considerable work remained on grading—80 per cent complete for these items.
- (2) After completion of 9 miles of Concrete Storm Drains Installation, work was temporarily discontinued as many repairs had to be made.
- (3) Approximately 14.1 miles or 49.5 per cent of pipe had been hauled to stockpile points. Pipe Stringing and Ditching were about 40 per cent complete, while welding and back-filling progressed to 36.6 per cent.
- (4) At this stage the job was about 46.1 per cent complete.

All phases of work were staged into operation with the commencement of stringer head welding during December. Work progress was slow because of bad weather, and an excessive number of weld repairs. While the Right of Way had been cleared the entire length, considerable grading work remained to be done before all ditches could be excavated into virgin ground. Expenditure to 31st December, 1976 stood at \$22,447,842.33 of which \$6,778,391.80 related to the year 1976.

## STAFF

The year 1976 was one of considerable activity and participation in international conferences for the Ministry's technical and legal staff.

**Staff Changes**

Two new posts were created during 1976, Director of Energy Planning Division and Administrative Officer V with the abolishment of the posts of Chemical Engineering Specialist and AO IV from the Ministry's establishment. Messrs. Basharat Ali and Carlton Brathwaite were appointed to these respective posts.

Mr. Charles Elliot resigned to go to Trintoc with effect from 4th October, 1976.

The Ministry recruited a number of staff during 1976 as part of its general expansion programme. They were as follows:

Mr. OSWALD ADAMS	...	...M.Sc. Degree in Hydrocarbon and Petroleum Chemistry. He has been assigned to CARIRI from 2nd February, 1976 as a Petroleum Chemist.
Mr. TREVOR SWIFT	... ..	...Acting Administrative Officer II with effect from 15th December, 1976.
Mrs. T. CASSIMIRE	... ..	...Accountant II with effect from 15th March, 1976.

Mr. Frank Look Kin, Petroleum Engineer II returned from sixteen months study leave at Pennsylvania State University State College, Pennsylvania. He completed a Master of Engineering Degree in Mineral Engineering Management. On his return, he has been appointed to act as Development Engineer in the San Fernando Office.

In addition three (3) Petroleum Engineering Assistants were recruited to the Development Section during 1976.

*Training*

The Ministry maintained its internal and external training programme in an effort to upgrade the skills of technical personnel.

Mr. Hugh Hinds, Chief Petroleum Engineer and Mr. Frank Look Kin, Acting Development Engineer attended a one week course on *Introduction to Management Principles* from 8th to 12th March, 1976 at the Government Training Centre, Chaguaramas.

Mrs. Kamla Bhoolai, Acting Senior State Counsel attended a six-week Course on *Legal Aspects of International Business Transactions* offered by Organization of American States (OAS) which was held at the University of Illinois at Urbana-Campaign, Illinois and Washington D.C. from 30th March, 1976.

Mr. George Lum Hee, Chemical Engineer II was granted eighteen (18) months study leave from June, 1976 to pursue studies towards the Master of Science Degree in Chemical Engineering at Carnegre Mellon University, Pittsburg, Pennsylvania.

In addition, there were several short courses run, where the Ministry personnel attended.

Attendance at *Corrosion Control Seminar* from November 2nd to 4th, 1976 by one (1) Petroleum Engineer and six (6) Petroleum Inspectors from Development Section of the Ministry held at the Holiday Inn.

Attendance at a three (3) days seminar in *Logging Interpretation* by three Geologists I and six Petroleum Engineering Assistants held at the Hilton Hotel from September 7-9 1976.

Mr. Horace Williams attended an Amoco/University West Indies *Drilling Technology Seminar* from June 21 to August 27, 1976 at the University of the West Indies, St. Augustine.

**Overseas Visits and Conference**

Dr. Young Hoon, Chemical Engineer II, represented Trinidad and Tobago in Chicago at the comparative site study for the proposed Joint Venture Fertilizer Project between the Government of Trinidad and Tobago and Amoco from 26th May, 1976 for three (3) weeks. He also attended similar discussions held during the period 29th November to 7th December, 1976.

Mr. Basharat Ali, Director, Energy Planning Division of this Ministry and a Director of the National Gas Company of Trinidad and Tobago attended LNG 5, a Natural Gas Conference sponsored by Gas-Tec. This Conference was held in New York during the period 5th to 8th October, 1976.

Mr. J.P. Scott, Geologist III, attended a meeting of the *Advisory Council of the Directors of Latin American Geological Services* in Caracas 27th to 29th April, 1976. The meeting was preparatory to the *Third Latin American Geological Congress*, scheduled to be held in Mexico. Mr. Scott also attended the *Third Latin American Geological Congress* in Acapulco, Mexico, June 10-16, 1976.

Trinidad and Tobago participated in the *Inaugural Meeting of IOCARIB—Environmental Geology of the Caribbean Coastal Area* which was held in Caracas from July 19–24, 1976. Trinidad and Tobago Ambassador to Caracas was leader of the Delegation. Mr. J. P. Scott, Geologist III of the Ministry of Petroleum and Mines participated in the Conference.

#### **OLADE**

The Latin American Energy Organization, OLADE, held its Seventh Meeting of Ministers during the period July 12 to 15, 1976 in San Jose, Costa Rica. This Minister's Meeting was preceded by the *Fifth Council of Experts Meeting* held in Montevideo, Uruguay during June 7 to 11, 1976.

Trinidad and Tobago's Delegation to the Seventh Meeting of Minister, consisted of Mr. Wilfred Naimool, Trinidad and Tobago's Ambassador in Caracas (Leader of the Delegation) and Mr. Ovid Fernandes, Special Adviser to the Minister of Petroleum and Mines. The Activities of the OLADE Organization since October, 1975 were presented and the summary of the recommendations made by the Fifth Council of Experts.

#### **Offshore Technology Conference**

Trinidad and Tobago was represented at the 8th Annual Offshore Technology Conference which was held in Houston, Texas from May 2 to 5, 1976 by Mr. Rupert Mends, Petroleum Engineer III and Mr. Stephen Davis, Petroleum Engineer II of the Ministry of Petroleum and Mines.

## Annual Statistics of Production, Drilling, Refining - Exports and Imports 1966-1976

ITEM	Unit	Percentage Difference 1976-1975	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966
1. Crude Oil	'000 bbls	- 1.2	77,673	78,621	68,136	60,670	51,211	47,148	51,847	57,418	66,984	64,995	55,603
2. Gassing Head Gasoline (C.H.P.S.)	'000 bbls	- 13.1	53	61	69	79	137	141	168	150	164	192	188
3. Total Crude Oil and Natural Gasoline (1+2)	'000 bbls	- 1.2	77,726	78,682	68,205	60,749	51,348	47,289	51,215	57,668	67,068	65,187	55,791
4. Crude Oil Production - Crown Oil Rights	'000 bbls	- 1.7	74,784	76,018	65,078	57,736	48,246	43,929	47,594	54,814	63,345	60,961	51,648
5. Crude Oil Production Private Oil Rights	'000 bbls	+ 14.1	2,969	2,683	3,058	2,934	2,965	3,219	3,452	3,405	3,559	4,034	3,955
6. Total Imports	'000 bbls	+ 48.3	87,459	58,796	95,636	103,977	107,662	107,567	115,445	105,418	93,380	84,146	93,508
7. Imports of Refined Products	'000 bbls			260	46	21	76	75	69	43	49	43	-
8. Imports of Crude Oil for Refining	'000 bbls	+ 45.8	84,784	58,144	95,472	103,624	107,150	106,867	113,275	103,762	91,447	80,437	93,228
9. Imports of Other Oils for Refining and Blending	'000 bbls	- 0.6	172	392	118	332	436	625	2,101	1,613	1,884	3,666	280
10. Total Exports	'000 bbls	+ 5.8	147,896	139,714	153,297	155,998	149,992	146,663	154,974	147,878	142,876	141,779	135,678
11. Exports of Crude Oil	'000 bbls	- 8.1	44,408	48,307	31,870	23,614	14,005	6,998	8,669	6,139	6,983	5,881	4,705
12. Exports of Refined Products	'000 bbls	+ 13.2	103,488	91,407	121,427	132,384	135,972	139,665	146,305	141,648	135,893	135,978	130,973
13. Runs to Still	'000 bbls	+ 37.3	117,585	85,660	138,819	141,687	144,274	145,547	154,860	154,877	151,282	138,925	144,193
14. Number of Wells Started	As stated	+ 23.1	224	182	219	205	191	248	148	127	176	213	273
15. Total Number of Wells Completed	As stated	+ 9.5	207	189	212	212	195	228	135	130	176	221	275
16. Number of Drilling Wells Completed as Oil Wells	As stated	+ 2.0	153	150	176	181	166	175	187	99	151	197	244
17. Number of Drilling Wells Abandoned, & c	As stated	+ 125.0	54	24	21	31	38	45	28	31	25	24	31
18. Total Footage Drilled (All Wells)	Feet	+ 9.5	919,705	839,648	909,988	955,185	841,742	939,259	662,977	698,671	942,686	928,218	1,187,202
19. Footage Drilled on Crown Oil Rights	Feet	+ 13.8	879,132	772,279	766,787	874,867	768,769	743,784	566,878	677,974	928,915	888,839	1,078,133
20. Footage Drilled on Private Oil Rights	Feet	- 39.8	48,573	67,370	143,193	88,318	88,973	195,475	96,899	12,697	13,771	47,371	109,069
21. Average Depth of Completed Drilling Wells (15)	Feet	+ 0.82	4,443	4,442	4,589	4,586	4,294	4,269*	4,911	5,313	5,356	4,328	4,318
22. Total Number of Wells Producing (Average during year)	As stated	+ 7.9	2,997	2,777	2,981	2,894	2,932	3,035	3,123	3,257	3,381	3,427	3,377
23. Number of Wells Produced by Flowing (Average during year)	As stated	0	438	438	498	506	525	559	626	708	795	819	934
24. Number of Wells Produced Artificial Lift (Average during year)	As stated	+ 9.4	2,559	2,339	2,483	2,388	2,407	2,476	2,497	2,549	2,586	2,536	2,443
25. Average Daily Production per Producing Well	Barrel	- 8.5	71.8	77.6	62.6	57.4	47.7	42.6	44.8	48.3	54.1	52.8	45.1
26. Average Daily Production Flowing Well	Barrel	- 8.4	328.5	358.7	248.0	204.4	146.8	114.4	119.8	125.2	137.3	117.6	96.3
27. Average Daily Production per Artificial Lift Well	Barrel	+ 2.4	25.5	24.9	25.4	26.3	26.1	26.4	26.0	26.9	28.5	28.9	25.6
28. Total Value of Domestic Exports	\$'000	+ 38.8	5,331,557	3,839,970	3,934,151	1,052,476	1,050,023	1,000,940	944,131	934,658	918,636	755,188	717,170
29. Total Value of Petroleum Products (Item 28)	\$'000	+ 157.6	4,960,604	1,925,785	2,532,081	831,486	830,993	884,831	668,439	644,676	725,438	593,653	580,947
30. Total Value of Lake Asphalt Products	\$'000	+ 4.4	4,426	4,248	4,657	3,876	3,289	3,561	3,991	2,764	3,289	3,368	3,578
31. Total Natural Gas Produced	MBCF	+ 9.1	137,959	126,434	128,293	119,979	104,338	109,814	121,860	137,500	151,445	148,338	118,927
32. Used as Fuel	MBCF	+ 73.5	52,931	46,618	58,599	54,780	57,131	55,866	56,488	58,348	56,418	53,846	48,692
33. Replaced in Formation	MBCF	- 15.8	1,699	2,817	5,786	6,381	9,238	12,112	19,818	24,728	21,324	22,625	19,841
34. Leases, Net Collected	MBCF	+ 7.3	76,895	78,890	63,768	48,213	28,816	32,793	35,356	43,464	62,916	54,355	50,394

\* revised data.

APPENDIX II

- MONTHLY ANALYSIS OF DRILLING AND WORKOVER WELLS, 1976

COMPANY TRINIDAD AND TOBAGO

MONTH	RIG/ MONTH	NEW WELLS STARTED	DRILLING WELLS COMPLETED											CLOSED IN		MONTHLY FOOTAGE DRILLED			AVERAGE FOOTAGE DRILLED		OLD WELLS			
			OIL & GAS PRODUCERS		INJECTION & OBSERVATION WELLS		A B A N D O N E D						TOTAL	AGGREGATE DEPTH	AVERAGE DEPTH	NO	AGGREGATE DEPTH	CROWN	PRIVATE	TOTAL	/DAY	/RIG DAY	RECOMPLETED	ABANDONED
			NO	AGGREGATE DEPTH	NO	AGGREGATE DEPTH	AFTER TESTING		DRY HOLES		TECHNICAL CAUSES													
							NO	AGGREGATE DEPTH	NO	AGGREGATE DEPTH	NO	AGGREGATE DEPTH												
JANUARY	12.90	16	10	46678	1	2257	-	-	1	7050	-	-	12	55985	4665	-	-	70465	-	70465	2273	176	13	-
FEBRUARY	11.81	12	7	31129	-	-	1	15,130	1	14471	1	2347	10	63077	6308	-	-	51652	3300	54952	1895	160	12	1
MARCH	12.21	11	10	60724	4	5115	-	-	1	4700	1	17187	16	87726	5483	-	-	76277	-	76277	2461	202	19	-
APRIL	11.32	15	10	46182	-	-	-	-	1	12500	-	-	11	58682	5335	-	-	53413	3613	57026	1809	167	16	1
MAY	13.03	15	9	52114	-	-	-	-	2	8375	-	-	11	60489	5499	-	-	71072	5317	76389	2464	189	27	1
JUNE	15.56	22	8	24482	-	-	2	21,658	3	11500	-	-	13	57640	4434	-	-	72812	6285	78297	2610	168	21	-
JULY	17.19	20	18	64872	1	2265	1	12,000	2	7275	-	-	22	86412	3928	-	-	92123	6676	98699	3184	185	13	1
AUGUST	15.89	31	12	36084	2	2295	-	-	8	34117	1	7300	23	79796	3469	-	-	80156	4742	84898	2739	172	29	1
SEPTEMBER	16.46	22	17	45105	-	-	-	-	7	23035	-	-	24	68185	2841	-	-	84406	5633	80039	3001	182	15	-
OCTOBER	17.99	30	18	52497	-	-	1	14,224	6	18185	1	3792	26	88618	3408	-	-	100196	3042	103238	3330	185	12	-
NOVEMBER	16.84	18	15	41629	3	4142	1	15,128	3	17700	3	15316	25	93915	3757	-	-	62246	2200	64446	2148	128	19	-
DECEMBER	15.42	11	10	54021	1	1200	1	9,110	1	1150	1	1146	14	66627	4758	-	-	62979	2000	64979	2096	136	20	1
TOTAL 1976	176.68	224	144	555562	12	17274	7	87,250	36	159978	8	47088	207	867152	4189	-	-	876997	42708	919705	2513	171	206	6
TOTAL 1975	145.56	182	158	660835	7	12516	6	69,890	17	111841	1	225	189	855307	4525	-	-	772279	67370	839649	2300	190	116	13
INCREASE 1976-1975	31.12	62	-14	-5273	5	4758	1	17,360	19	48137	7	46863	8	11845	-336	-	-	104718	-24662	80056	213	-19	90	-7
AVERAGES 1976	14.72		12	3858	1	1440	0.6	12,464	3	4444	0.7	5886	17	4189	349	-	-	73083	3559	76642	-	-	17.2	-
AVERAGES 1975	12.13		13	4183	0.6	1788	0.5	11,648	1.4	6579	0.1	225	16	4525	377	-	-	8727	5614	69971	-	-	9.6	-



Appendix II A

LAND AND MARINE FOOTAGE DRILLED - 1976

	January	February	March	April	May	June	July	August	September	October	November	December	Total
LAND	24,648	29,685	33,491	27,107	40,217	47,154	44,294	39,273	44,441	46,231	30,728	32,638	439,807
MARINE	45,817	25,267	42,786	29,919	36,172	31,143	54,405	45,625	45,598	57,007	33,718	32,341	479,798
TOTAL	70,465	54,952	76,277	57,026	76,389	78,297	98,699	84,898	90,039	103,238	64,446	64,979	919,705
Daily Av. Footage	2273.1	1894.9	2460.5	1900.9	2464.2	2609.9	3183.8	2738.6	3001.4	3330.3	2148.2	2096.1	2512.9
Daily Av. Ft./Rig	176.2	160.4	201.5	160.0	189.1	167.7	185.2	172.3	182.3	185.1	127.6	135.9	-
Marine % of Total	65.0	46.0	56.1	52.5	47.4	39.8	55.1	53.7	50.6	55.2	52.3	49.8	52.2



APPENDIX III A

Analysis of Production by operation commencing 1975

COMPANY	FLOWING				GAS LIFTING				PUMPS				SAG WATER				Av. No of wells Producing	Bully Av. per Producing Well	Total oil Production	Cage Production as a % of Total Production	Gross Production		Prime Production	
	Av. no of Wells	Quantity (Barrels)	% of Total	Bully Av. Per Well	Av. No Wells	Quantity (Barrels)	% of Total	Bully Av. Per Well	Av. No of Wells	Quantity (Barrels)	% of Total	Bully Av. Per Well	Av. No Per Well	Quantity Barrels	% of Total Liquids	Bully Av. Per well					Production bbl	% of Total	Production bbl	% of Total
T'ad Teoro Pet. Co. Ltd.	89	744,958	11.8	22.9	195	1,182,888	17.4	16.5	848	4,862,648	71.5	15.7	587	1,488,138	18.8	8.8	1,133	16.4	6,788,414	8.7	5,157,638	76.0	1,632,776	24.8
Teoro T'ad Inc.	85	951,227	12.5	38.8	382	2,977,888	38.7	28.8	573	3,763,838	48.9	17.9	518	6,248,832	44.8	33.5	1,888	28.8	7,788,188	9.9	6,771,738	87.9	938,438	12.1
Premier Consolidated Oilfields Ltd.	5	9,545	7.6	5.2	1	1,888	8.8	3.8	88	114,852	91.5	3.6	38	66,888	34.7	4.7	84	3.6	125,487	0.2	28,815	23.8	96,882	77.8
Tricontrol Ltd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T'ad Northern Areas Ltd	114	9,884,687	54.9	238.8	95	4,938,788	28.2	142.1	44	2,957,888	16.8	183.7	212	4,888,288	21.8	68.8	288	188.8	17,488,125	22.5	17,488,125	100.8	-	-
Amoco T'ad Oil Co.	66	48,671,483	94.6	1883.7	7	2,325,884	5.4	387.7	-	-	-	-	35	4,825,888	18.1	376.7	73	1888.3	42,887,847	95.4	42,887,847	100.8	-	-
Shell T'ad Ltd	75	884,572	25.9	24.2	17	122,648	4.8	18.7	382	1,778,162	68.3	16.1	175	913,884	26.3	14.3	384	17.8	2,888,382	3.3	2,248,888	87.7	316,313	12.3
TOTAL	434	52,846,413	67.8	331.4	788	11,548,838	14.9	44.6	1885	13,476,387	17.4	19.8	1478	18,427,188	18.2	34.1	2,887	78.8	77,678,638	100.8	74,886,434	95.2	2,976,281	3.8
TOTAL 1975	438	57,363,177	72.9	358.7	801	9,886,177	12.6	38.1	1648	11,372,584	14.5	18.9	1478	16,277,888	17.2	38.2	* 2,777	77.6	78,638,888	100.8	85,878,148	95.5	3,887,678	4.5

NATURAL GASOLINE COPS PRODUCTION

COMPANY	Crude Oil Liquids	Prime Oil Liquids	Total
	bbl	bbl	
T'ad Teoro Pet. Co. Ltd.	48860	1324	50184
Total 1975	48860	1324	50184

## APPENDIX IIIB

## DAILY AVERAGE PRODUCTION BY MONTHS FOR ALL COMPANIES - 1976

(ALL QUANTITIES IN BARRELS)

COMPANY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL CRUDE	TOTAL B.O.P.D.
T.T.P.C.L.	542,835	520,643	574,367	552,183	580,174	574,970	611,624	614,193	570,536	561,356	530,762	556,771	6,790,414	
B.O.P.D.	17,511	17,953	18,528	18,406	18,715	19,166	19,730	19,812	19,018	18,188	17,692	17,960		18,553
TRINTOC	192,244	176,177	194,059	194,738	212,787	205,839	217,371	231,404	214,679	234,248	234,651	257,185	2,565,382	
B.O.P.D.	6,202	6,895	6,268	6,491	6,864	6,861	7,012	7,464	7,155	7,556	7,822	8,296		7,009
T.T.I.	650,870	604,568	654,032	631,678	665,734	642,944	675,411	678,410	615,988	624,831	619,618	638,085	7,792,169	
B.O.P.D.	20,996	20,847	21,098	21,056	21,475	21,431	21,787	21,884	20,533	20,156	20,654	20,583		21,044
P.C.O.L.	11,388	10,837	10,956	10,742	10,512	9,866	10,350	10,569	9,661	9,897	9,991	10,728	125,497	
B.O.F.D.	367	374	353	358	339	329	334	341	322	319	333	346		343
T.N.A.	1,450,114	1,392,363	1,506,761	1,437,366	1,493,618	1,490,397	1,423,668	1,476,932	1,403,070	1,478,759	1,440,293	1,498,785	17,492,126	
B.O.P.D.	46,778	48,013	48,605	47,912	48,181	49,680	45,925	47,643	46,769	47,702	48,009	48,348		47,793
AMOCO	3,914,595	3,667,718	4,066,821	3,785,505	4,082,200	3,910,406	2,215,774	2,663,700	3,426,961	3,555,963	3,693,995	4,013,409	42,997,047	
B.O.P.D.	126,277	126,473	131,188	126,183	131,683	130,347	71,476	85,925	114,132	114,788	128,133	129,465		117,478
TOTAL 1976	6,762,046	6,372,306	7,006,996	6,612,212	7,045,025	6,834,422	5,154,198	5,675,208	6,240,895	6,465,054	6,529,310	6,974,963	77,672,635	
B.O.P.D.	218,131	219,735	226,032	220,407	227,259	227,814	166,264	183,067	208,230	208,550	217,644	224,999		212,220
TOTAL 1975	6,322,208	5,954,615	6,298,426	6,046,458	6,778,859	6,704,679	6,888,782	6,872,924	6,550,929	6,854,970	6,564,035	6,784,063	78,628,938	
B.O.P.D.	203,942	212,665	203,175	201,549	218,673	223,489	222,219	221,787	218,364	221,128	218,801	218,841		215,400

**APPENDIX III**  
**Marine Offshore & Land Production - 1976**  
 (All Quantities in Barrels)

Type of Well	January		February		March		April		May		June		Sub-Totals		July		August		September		October		November		December		Sub-Totals		Grand Total				
	Wells	Production	Wells	Production	Wells	Production	Wells	Production	Wells	Production	Wells	Production	Ar.No. of Wells	Production	Wells	Production	Wells	Production	Wells	Production	Wells	Production	Wells	Production	Wells	Production	Ar.No. of Wells		Production				
																											Ar.No. of Wells	Production		Ar.No. of Wells	Production		
<b>Marine</b>	246	1,434,842	239	1,375,838	240	1,488,261	237	1,421,928	242	1,488,216	243	1,478,193	241	8,688,480	241	1,487,879	238	1,461,381	237	1,385,257	243	1,463,484	241	1,424,267	243	1,478,778	241	8,651,337	241	17,321,827			
T.N.A. - Salado	61	38,138	68	38,453	56	33,732	55	31,923	48	35,533	53	38,682	56	288,582	57	48,885	55	38,883	56	33,254	68	34,373	55	34,881	57	36,829	57	217,516	56	438,787			
A.L.N.	1	3,887	1	3,556	-	-	-	-	-	-	-	-	-	7,363	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,363			
TEXACO-Cobra Marine	2	5,838	-	-	2	3,338	2	3,888	2	3,313	2	3,888	-	17,673	2	3,388	22	1,734	-	-	-	-	-	-	-	-	-	-	-	-	4,834	1	22,584
TESORO North Marine	1	529	1	558	1	538	-	-	-	-	-	-	-	1,536	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,536		
TESORO Galvesta	12	37,866	11	34,581	18	43,884	18	43,618	18	46,278	12	44,831	11	258,878	14	58,231	14	56,388	15	53,816	16	54,618	16	48,825	16	53,884	15	325,186	13	576,882			
INOCO	72	3,814,585	73	3,667,718	72	4,888,821	75	3,788,388	75	4,882,388	76	3,818,486	74	23,427,246	75	2,215,774	62	2,663,788	78	3,428,861	71	3,688,863	75	3,683,895	79	4,813,488	72	19,556,882	73	42,884,847			
<b>SUB TOTAL</b>	395	8,434,828	385	5,112,635	381	5,638,886	379	5,285,388	378	5,646,648	386	5,467,122	384	32,888,868	389	3,787,829	371	4,228,288	378	4,888,388	388	8,188,638	387	5,282,248	395	5,582,871	385	28,735,674	384	61,328,743			
<b>Deviated from shore</b>	14	16,872	14	16,525	13	16,488	12	15,446	12	13,482	11	12,284	13	88,128	13	15,688	13	15,361	11	17,883	18	15,275	18	16,846	13	28,886	12	188,178	12	188,288			
T.N.A. F.O.S.	22	8,441	25	8,741	25	12,886	23	11,415	19	12,865	21	11,785	23	67,483	28	11,821	23	9,888	24	18,882	23	8,439	27	12,729	28	12,882	24	65,171	24	132,874			
TEXACO A.S.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	448	1	379	1	346	1	238	1	1,484	1	1,484				
TEXACO A.L.S.	7	688	4	888	5	421	6	818	5	822	4	652	5	3,873	3	277	5	388	4	381	5	344	6	782	6	758	5	2,753	5	6,725			
TESORO BAMPQ-N,Wells-1151/53	48	25,193	43	25,846	48	28,887	41	27,679	36	26,388	36	24,611	48	161,886	36	25,887	41	24,778	48	28,388	38	25,437	44	28,383	48	33,888	41	168,488	41	331,883			
<b>Marine &amp; Deviated</b>	438	8,458,721	428	5,138,481	428	5,668,573	428	5,313,637	414	5,672,829	422	5,481,733	424	32,746,574	425	3,784,816	412	4,248,876	418	4,928,888	428	5,134,867	431	5,231,151	443	5,615,358	425	28,985,172	425	61,651,886			
<b>Land</b>	2491	1,381,825	2543	1,232,825	2582	1,338,423	2526	1,288,575	2574	1,372,886	2563	1,342,688	2544	7,888,433	2533	1,488,182	2586	1,438,132	2588	1,315,892	2624	1,338,387	2634	1,288,188	2636	1,358,884	2599	8,134,456	2572	16,828,888			
<b>Total Production</b>	2929	6,762,846	2971	6,372,386	2886	7,006,996	2946	6,612,212	2888	7,045,825	2885	6,824,422	2968	48,635,887	2888	5,154,788	2988	5,675,388	2988	6,248,888	3088	6,464,864	3088	6,529,378	3079	6,974,963	3025	37,838,628	2987	77,672,635			

APPENDIX IV

PRODUCTION AND DISPOSAL OF NATURAL GAS 1976

( All figures of Gas Production in mcf)

M - 1,000 standard Cubic feet

Half-Year Totals	Crude Oil Production (barrels)	Average G.C.R. Cu.ft/bbls	Natural Gas Production	Replaced into formation	Converted to C.H.P.S.	NATURAL		GAS			DISPOSAL		NATURAL GAS RECOVERY			Used for the manufacture of Petrochemicals	
						USED In fields	AS FUEL In Refineries	Vented To Atmosphere			Pipeline losses and unaccounted for	Net Collected	Natural Gas treated	Average Plant Recovery 16/MCF	Natural GASOLINE Produced Barrels		Inter Oil Company Sales
								After Use	Without Use	Total							
January	6,762,046	1,748	11,822,701	195,761	3,292	600,383	1,596,090	668,261	4,735,741	5,404,002	228,570	768,618	406,587	281	3,275	2,656,896	683,788
February	6,372,306	1,679	10,701,526	211,243	2,894	546,242	1,612,542	619,642	4,139,585	4,759,227	200,688	638,475	353,549	280	2,838	2,120,905	606,774
March	7,006,996	1,719	12,046,258	193,186	2,947	627,542	1,683,580	619,405	4,865,273	5,484,678	171,504	711,144	341,432	299	2,919	2,188,507	744,484
April	6,612,212	1,728	11,425,568	185,990	3,501	605,590	1,645,676	549,500	4,415,176	4,964,676	226,888	828,603	374,586	322	3,456	1,674,207	523,980
May	7,045,025	1,646	11,593,713	179,692	6,258	620,176	1,607,981	553,826	4,596,900	5,150,726	205,572	729,510	425,081	509	6,197	1,949,955	400,046
June	6,834,422	1,727	11,802,389	158,669	6,115	604,806	1,592,219	537,701	5,010,887	5,548,588	195,980	779,738	473,111	450	6,107	1,936,657	511
Half-Year Total	40,633,007	1,708	69,392,155	1,124,541	25,007	3,604,739	9,738,088	3,548,335	27,763,562	31,311,897	1,229,202	4,456,088	2,374,346	365	24,785	17,419,127	3,740,307
July	5,154,198	1,700	8,763,744	110,359	5,620	602,055	1,270,243	552,654	3,035,861	3,588,515	141,407	765,296	450,219	430	5,639	1,585,000	477,548
August	5,675,208	2,007	11,388,227	78,060	4,093	563,588	1,542,589	512,818	4,631,253	5,144,071	136,700	847,243	328,106	437	4,106	1,960,500	557,406
September	6,240,895	1,887	11,776,357	137,434	2,993	536,223	1,558,002	550,781	5,294,270	5,845,051	155,298	773,290	215,189	472	2,909	1,840,844	540,513
October	6,465,054	1,874	12,114,717	84,686	3,438	620,394	1,457,949	576,266	5,522,240	6,098,506	117,510	777,288	250,755	451	3,359	2,694,626	567,523
November	6,529,310	1,817	11,866,415	96,800	4,601	576,871	1,578,483	685,997	5,452,527	6,138,524	168,636	759,351	341,017	457	4,461	2,610,204	480,614
December,	6,974,963	1,815	12,657,712	66,546	5,168	625,226	1,395,985	773,497	6,001,572	6,775,069	152,460	716,024	412,401	417	4,926	2,414,022	600,235
Half-Year Total	37,039,628	1,851	68,567,172	574,585	25,913	3,523,357	8,803,251	3,652,013	29,937,723	33,589,736	872,011	4,638,492	2,013,777	441	25,399	13,105,270	3,329,239
Year Total	77,672,635	1,776	137,959,327	1,699,126	50,920	7,128,096	18,541,339	7,200,348	57,701,285	64,901,633	2,101,213	9,094,580	4,388,123	399	50,184	25,524,397	7,169,546
Percentage Disposal for year				1.2	0.4	5.2	13.4	5.2	41.8	47.0	1.5	6.6	3.2	-	0.4	18.5	5.2

APPENDIX V

Destination of Exports of Crude and Refined Products from Trinidad and Tobago - 1975

(all quantities in MTs)

Country	Totals	% of Total Exports	Crude Petroleum Exports	L.P.G.	Aviation Turbine Fuel	Aviation Gasoline	Motor Gasoline	Kerosene	Gas and Diesel Oils	Fuel Oils	Lubes and Greases	Asphaltic Products	Other Refined Products	Petro-chemicals
<b>North America</b>														
Canada	423,452	0.305	388,287							188,383	235,058			
U.S.A.	65,834,588	61.467	49,788,921				6,523,158	4,628,888	2,364,888	51,921,446	229,388			288,714
<b>Total N.A.</b>	<b>66,258,040</b>	<b>61.862</b>	<b>49,177,208</b>				<b>6,523,158</b>	<b>4,628,888</b>	<b>2,364,888</b>	<b>52,108,838</b>	<b>464,446</b>			<b>288,714</b>
<b>Central America</b>														
Costa Rica	713,134	0.666				11,667			183,488	597,968				
Guatemala	382,838	0.367				54,446	145,986	32,691	58,963	93,742				
Honduras	2,684,185	2.488				19,481	912,878	211,239	918,868	524,298			17,577	
Mexico	366,486	0.341					244,916		121,488					
Rep. of Panama	986,653	0.928		12,924			223,474	37,484	186,488	519,782			6,500	
Other C.A. (1)	192,334	0.179				68,387	5,841	65,446	15,463		22,324		22,964	
<b>Total C.A.</b>	<b>5,245,580</b>	<b>4.898</b>		<b>12,924</b>		<b>145,821</b>	<b>1,533,045</b>	<b>346,859</b>	<b>1,481,754</b>	<b>1,735,782</b>	<b>22,324</b>		<b>47,041</b>	
<b>South America</b>														
Argentina	147,372	0.137							147,372					
Brazil	162,884	0.152							162,884		9,613			
French Guiana	441,680	0.412		12,906	3,548	2,824	188,884	7,871	316,886					
Guyana	2,783,756	2.588		22,157	77,427	23,884	485,117	288,782	1,286,173	688,126				
Peru	181,536	0.185			181,536									
Suriname	3,878,282	3.688			77,728	7,888	378,827	48,846	1,378,122	1,991,713		2,875	1,378	
Other S.A. (2)	29,685	0.028				3,886					9,864		17,865	
<b>Total S.A.</b>	<b>7,487,125</b>	<b>6.952</b>		<b>35,863</b>	<b>268,223</b>	<b>36,143</b>	<b>866,138</b>	<b>287,819</b>	<b>3,278,813</b>	<b>2,581,838</b>	<b>18,677</b>	<b>2,875</b>	<b>18,835</b>	
<b>West Indian Islands</b>														
British (3)	3,463,883	3.228		65,882	328,388	38,188	688,471	723,288	787,886	853,478	1,221	6,748	55,661	
French (4)	628,212	0.584		5,818	78,988		221,428	92,828	176,218	41,941		2,644	7,483	
Netherlands (5)	1,725,126	1.688					1,625,186	648	48,282					
Puerto Rico	4,154,885	3.874					3,912,718	642,167						
Virgin Islands (6)	888,874	0.888	233,886	1,416		16,978	288,847	2,424	86,728	542,381				
Other W.I. Islands	488,633	0.453								488,633				
<b>Total W.I. Is.</b>	<b>11,218,823</b>	<b>10.488</b>	<b>233,886</b>	<b>72,236</b>	<b>488,386</b>	<b>47,146</b>	<b>6,288,888</b>	<b>1,468,888</b>	<b>1,828,816</b>	<b>1,838,425</b>	<b>1,221</b>	<b>9,382</b>	<b>63,144</b>	
<b>Europe</b>														
Belgium	344,156	0.321			344,156									
Denmark	261,378	0.244			128,488				148,888					
France	758,762	0.788			618,248		148,522							
Italy	348,687	0.325			98,488									
Netherlands	2,788,733	2.586			178,688		381,977		888,182	466,644				258,287
Norway	72,661	0.068			72,661									484,418
Sweden	211,734	0.197					188,863		111,671					
Switzerland	267,882	0.248					267,882							
Spain	214,388	0.288			214,388									
United Kingdom	4,324,888	4.832			888,328		2,288,881		1,138,128					12,488
West Germany	728,428	0.678			64,326		98,688		568,388					4,873
<b>Total Europe</b>	<b>18,263,348</b>	<b>17.148</b>			<b>2,888,888</b>		<b>3,287,716</b>		<b>2,848,173</b>	<b>466,644</b>				<b>788,288</b>
<b>Others</b>														
Ascension Island	42,171	0.039			42,171									
Africa (7)	2,888,883	1.947					571,166	13,758	738,113	688,419	188,838		7,826	
Canary Islands	728,886	0.678							728,886					
Greece	29,778	0.028			15,868				13,910					
Greenland	188,888	0.141			188,888									
Japan	28,888	0.028												28,888
Philippines	8,717	0.008											8,717	
<b>Total Others</b>	<b>3,888,886</b>	<b>2.862</b>			<b>288,847</b>		<b>571,166</b>	<b>13,758</b>	<b>1,488,821</b>	<b>688,419</b>	<b>188,838</b>		<b>15,712</b>	<b>28,888</b>
<b>Total Caracas</b>	<b>183,583,722</b>	<b>96.574</b>		<b>188,223</b>	<b>3,788,886</b>	<b>228,118</b>	<b>18,188,886</b>	<b>6,688,284</b>	<b>12,388,746</b>	<b>58,388,848</b>	<b>681,678</b>	<b>12,267</b>	<b>148,363</b>	<b>1,888,862</b>
<b>Foreign Bankers</b>	<b>3,624,583</b>	<b>3.426</b>			<b>218,878</b>	<b>6,888</b>	<b>18,123</b>	<b>2</b>	<b>388,643</b>	<b>3,825,638</b>	<b>38,221</b>			
<b>Total Exports</b>	<b>187,208,305</b>	<b>100.000</b>	<b>49,411,094</b>	<b>128,223</b>	<b>3,974,863</b>	<b>235,006</b>	<b>18,288,009</b>	<b>6,688,286</b>	<b>12,764,389</b>	<b>52,416,886</b>	<b>648,891</b>	<b>12,267</b>	<b>148,363</b>	<b>1,888,862</b>

(1) Other Central America - Costa Rica (138,928) Nicaragua (38,886) El Salvador (22,324)

(2) Other South America - Colombia (28,886)

(3) British - Antigua, Anguilla, Bahamas, Barbados, Bermuda, Bonaire, Grand Cayman, Grenada, Jamaica, Montserrat, Nevis, St. Lucia, St. Kitts and St. Vincent

(4) French - Guadeloupe, Martinique, St. Barthelemy and St. Martin

(5) Netherlands - Aruba, Curacao, Saba

(6) Other West Indian Islands - Dominican Republic (488,633)

(7) Africa - Gambia, Ivory Coast, Republic of Guinea, Nigeria, Republic of Senegal, Sierra Leone, West Africa, South Africa.

APPENDIX VI

Movement of Refinery Products - 1975

(Quantities in Barrels)

Inventory Name	Opening Inventory	Production	Imports	Other Receipts	Total	Purchases etc. from other Petroleum Markets	Sales etc. to other Petroleum Markets	Local Consumption				Cargoes	Foreign Tankers	Sales and Losses	Closing Inventory	Total
								Own Use	Retails etc.	Local BANKERS	Total					
Liquefied Gases	19,865	404,448	25,885	1,480	486,853	266,972	278,622	783	293,198	-	293,933	135,889	-	6,381	19,198	446,883
Aviation Gasolines	15,484	318,961	59,319	877	394,641	31,621	32,823	-	788	22,888	23,587	346,235	8,289	2,718	13,328	394,888
Motor Gasolines	1,522,679	18,881,531	278,295	13,812	21,688,317	1,914,378	1,914,563	11,727	1,915,367	86	1,927,188	18,242,883	18,123	9,888	1,488,777	21,688,872
Aviation Turbine Fuels	611,827	4,248,979	3,888	2,677	4,866,576	967,614	688,378	-	18,183	327,629	346,812	3,914,387	286,787	4,888	225,738	4,777,812
Kerosine	374,888	6,878,376	-	1,837	7,246,222	274,272	183,577	1,238	283,788	8	283,829	6,483,879	-	21,843	576,866	7,336,917
White Spirit	2,824	21,744	-	288	24,933	15,688	15,483	2,879	15,741	-	17,828	2,867	2	(282)	4,741	25,228
Gas Oil	1,878,478	11,562,251	1,515	6,961	12,581,237	1,887,883	1,261,253	231,388	675,246	121,443	1,888,978	18,535,888	174,587	3,252	885,978	12,327,787
Marine Diesel	68,377	581,685	1,128	11,866	644,856	337,446	525,933	1	18,933	179	28,113	184,378	233,882	18,471	48,852	475,568
Fuel Oils	3,378,482	67,678,568	2,188,866	98,368	73,346,188	3,211,538	2,538,978	1,626,578	385,894	-	1,932,572	68,534,381	2,885,225	51,686	2,513,885	73,817,888
Lubricants	118,417	824,481	62,838	15,286	1,828,942	48,833	46,358	11,519	68,983	1,882	73,884	812,838	43,637	2,878	98,438	1,822,577
Asphalt Products	13,432	132,468	-	763	146,668	112,478	112,978	119	116,451	-	116,578	12,267	-	161	17,168	146,158
Unfinished Oils	3,271,141	(288,624)	646	-	2,981,163	-	-	2,665	-	-	2,665	18,388	-	-	2,888,238	2,981,163
Petrochemicals	188,965	1,158,987	18,478	-	1,278,362	6,461	28,383	75	6,973	-	7,848	1,888,178	-	27	211,275	1,256,528
Other finished Products	1,791	288	1,884	-	3,885	388	388	952	721	-	1,673	(87)	82	128	1,288	3,885
Total	18,517,843	113,378,848	2,644,868	154,192	126,683,353	7,794,575	8,588,679	1,889,167	3,674,234	473,323	6,836,724	187,238,818	3,688,838	112,541	8,868,838	125,898,248



## Appendix VII

Movement of Crude and C.H.P.S. Year Ended 31st December, 1976

(all quantities in barrels)

Month	Production	Imports	Decrease in Inventories	Totals	Purchases and Exchanges from Other Companies	Sales and Exchanges to Other Companies		Own Use	To Refinery	Exports	Gains and Losses	Total
January	6,770,128	6,124,941	2,032,347	14,927,416	2,303,612	2,303,612		1,377	10,068,934	4,824,874	32,231	14,927,416
February	6,381,425	7,562,842	( 30,716)	13,913,551	2,357,154	2,357,154		562	9,731,278	4,118,304	63,407	13,913,551
March	7,012,678	7,451,776	( 285,592)	14,178,857	2,540,387	2,540,387		796	10,432,380	3,732,913	12,768	14,178,857
April	6,616,521	7,914,256	( 781,656)	13,749,121	2,323,037	2,323,037		744	9,475,936	4,219,903	52,538	13,749,121
May	7,053,067	7,530,233	( 776,974)	13,806,326	2,546,253	2,546,253		2,427	10,341,225	3,337,451	125,223	13,806,326
June	6,841,575	7,544,654	401,552	14,787,781	2,528,783	2,528,783		1,100	10,082,294	4,718,487	(14,100)	14,787,781
July	5,159,814	6,076,900	440,815	11,677,529	2,402,552	2,402,552		2,110	8,896,304	2,655,140	123,975	11,677,529
August	5,688,928	7,393,520	(475,538)	12,606,910	2,550,157	2,550,157		3,001	10,281,303	2,254,794	67,812	12,606,910
September	6,235,932	6,174,563	1,094,523	13,505,018	2,427,138	2,427,138		1,728	10,048,714	3,399,723	54,853	13,505,018
October	6,468,468	8,242,853	(1,518,026)	13,193,295	2,557,991	2,557,991		1,035	9,625,928	3,554,215	12,117	13,193,295
November	6,533,988	5,803,100	1,137,066	13,474,154	2,432,614	2,432,614		2,374	9,409,880	3,932,968	128,932	13,474,154
December	6,379,846	7,375,699	( 701,054)	13,654,491	2,409,469	2,409,469		939	9,200,676	4,468,030	(15,154)	13,654,491
Total	77,742,365	85,195,337	536,747	163,474,448	29,379,147	29,379,147		18,193	117,594,852	45,216,802	644,602	163,474,449

Appendix VIII

Summary of Crude Oil Assessed for Crown Royalty with Prices and Analyses - 1976

(for half yearly assessment periods ending 30th June and 31st December)

1 barrel = 34,9726 l.b.

Company	Net Royalty Production barrels	Royalty		Sub-Division of (Royalty) Crude into Products as per R.L.E. I. Analysis												Crude Oil Weighted Av. Gravity A.P.I.
		10% Assessed bbls	Value \$	Average Price \$/BBL	Light Fractions			GAS - O.I.L.					FUEL OIL			
					Quantity barrels	%	Tetra Ethyl Lead to blend to 70/72 Oct Gas M.S.	53-57 B.I. bbls	48-52 B.I. bbls	43-47 B.I. bbls	No 2 Fuel bbls	Total gas Oils bbls	%	Quantity bbls	%	
Trinidad Tereoro Petroleum Co. Ltd	2,290,501	229,000	5,100,330	22.28	19,413	8.46	321,379.95	-	53	1,748	54,837	56,638	24.64	153,799	66.91	22.0
Tereoro Galvesta	230,070	31,250	812,480	25.90	4,353	13.92	-	-	-	-	15,360	15,360	40.14	11,546	36.94	-
Premier Consolidated Oilfields Ltd	14,664	1,466	36,712	24.96	310	21.15	58,781.52	-	146	-	276	422	28.78	734	58.07	26.0
Estate of Timothy Roadal	264	26	586	22.54	-	-	-	-	-	-	8	8	30.77	18	69.23	19.8
TRINTOC	1,839,500	183,900	2,373,111	22.83	14,635	14.88	3,432,869.52	9,714	-	7,635	2,215	19,564	18.82	69,751	67.10	25.0
Trinidad Northern Areas	8,772,255	877,225	19,888,925	22.39	124,832	14.14	38,541,323.10	-	-	-	-	115,966	13.22	637,228	72.64	24.7
Tereoro Trinidad Inc.	3,346,012	334,601	8,334,244	24.91	46,867	13.77	6,791,784.61	32,688	13,185	1,756	59,777	107,288	32.86	181,246	54.17	24.0
Amoco Trinidad Oil Co.	23,672,012	2,988,882	61,106,351	27.14	348,561	11.51	13,888,218.74	-	-	-	-	2,223,825	75.15	394,615	13.34	29.0
<b>Total and Average January-June</b>	<b>39,393,278</b>	<b>4,537,380</b>	<b>117,522,725</b>	<b>25.90</b>	<b>548,371</b>	<b>12.11</b>	<b>62,283,468.44</b>	<b>42,364</b>	<b>2,353,896</b>	<b>11,139</b>	<b>132,473</b>	<b>2,539,072</b>	<b>55.96</b>	<b>1,448,937</b>	<b>31.93</b>	<b>-</b>
Trinidad Tereoro Petroleum Co Ltd.	2,277,017	227,702	5,222,277	22.93	19,922	8.75	535,714.28	-	32	1,461	53,681	55,164	24.23	152,616	67.82	22.0
Tereoro Galvesta	325,186	48,648	1,067,522	26.82	5,210	12.82	-	-	-	-	19,969	19,969	40.13	15,468	38.85	-
Premier Consolidated Oilfields Ltd	13,465	1,346	32,717	24.31	280	28.88	53,936.17	-	132	-	256	388	28.83	678	58.37	26.0
Estate of Timothy Roadal	4	1	18	25.88	-	-	-	-	-	-	1	1	100.00	-	-	19.8
Trinidad & Tobago Oil Co	1,287,281	128,728	2,815,818	23.32	17,718	14.67	3,548,488.35	11,416	-	9,884	2,733	23,733	19.66	79,285	65.67	25.0
Trinidad Northern Areas	8,721,987	872,151	19,888,384	22.71	116,578	13.37	38,316,874.78	-	-	-	-	123,839	14.28	631,742	72.43	24.7
Tereoro Trinidad Inc	3,418,383	341,838	8,242,494	24.17	47,115	13.81	7,378,186.12	35,265	14,175	-	59,412	108,852	31.92	185,863	54.27	24.0
Amoco Trinidad Oil Co.	19,988,231	2,487,529	68,866,383	27.88	311,582	12.53	17,418,888.64	-	-	-	-	1,984,937	76.58	271,888	18.89	29.0
<b>Totals &amp; Average July - December</b>	<b>35,854,984</b>	<b>4,801,135</b>	<b>106,848,987</b>	<b>25.92</b>	<b>518,389</b>	<b>12.67</b>	<b>59,244,668.18</b>	<b>46,681</b>	<b>2,843,115</b>	<b>11,835</b>	<b>136,852</b>	<b>2,236,883</b>	<b>54.68</b>	<b>1,336,853</b>	<b>32.65</b>	<b>-</b>
<b>Years Totals &amp; Average</b>	<b>75,248,262</b>	<b>8,638,515</b>	<b>223,863,233</b>	<b>25.91</b>	<b>1,067,770</b>	<b>12.38</b>	<b>121,448,128.62</b>	<b>89,045</b>	<b>4,396,211</b>	<b>22,174</b>	<b>268,525</b>	<b>4,775,955</b>	<b>55.35</b>	<b>2,784,790</b>	<b>32.27</b>	<b>-</b>

\* Tereoro Galvesta and Amoco - Royalty at 12 1/2%

The Royalty assessed on the Crude Oil, Natural Gas and Natural Gasoline produced on Crown Oil Mining Leases for each half yearly period during 1974, 1975 and 1976 is shown in the following Table:-

Source of Revenue	Assessment for half yearly Periods ending					
	31 . 12 . 76	30 . 6 . 76	31 . 12 . 75	30 . 6 . 75	31 . 12 . 74	30 . 6 . 74
	\$	\$	\$	\$	\$	
Royalty on Natural Gas	357,303	392,653	377,575	308,456	344,319	340,562
Royalty on Natural Gasoline	80,271	81,913	98,783	65,196	61,298	77,507
Minimum Rent net offset by Royalty on Crude Oil	1,193,199	695,138	729,609	691,238	700,000	694,182
Royalty on Crude Oil	106,040,507	117,522,726	104,509,214	78,184,547	77,908,663	82,925,681
Half yearly Total	107,671,280	118,682,430	105,337,606	78,940,981	79,014,280	84,037,942
Yearly Total	226,363,710		184,278,578		163,052,222	

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

Substance assessed for Royalty	Unit	Half - Yearly Periods ending					
		31 . 12 . 76	30 . 6 . 76	31 . 12 . 75	30 . 6 . 75	31 . 12 . 74	30 . 6 . 74
Natural Gas	M.C.F.	23,226,220	26,176,845	25,167,649	20,563,760	22,954,570	22,704,111
Natural Gasoline	l.G.	816,716	795,662	1,062,258	936,357	888,687	736,768
Crude Oil Bot	bbbl	40,911,338	45,323,799	39,101,504	36,882,973	37,952,758	34,547,680
Crude Oil Average Royalty Value	\$T.T.	25.92	25.90	23.21	18.44	24.00	20.53

The data used to evaluate crude oil for Crown Royalty Assessment for each of the last six half-yearly periods together with the Royalty rates on Casing Head Petroleum Spirit for each of these periods are shown in the following table:

Product	Average Price in T & T Currency per barrel of 34.9726 l.G. for 1 year ended					
	31 . 12 . 76	30 . 6 . 76	31 . 12 . 75	30 . 6 . 75	31 . 12 . 74	30 . 6 . 74
Bunker C. Grade Fuel	21.332350	21.511342	20.761120	19.028500	18.492983	21.004570
No. 2 Fuel	31.063948	30.253191	29.697390	21.988631	24.429001	27.372946
43-47 D.I Gas Oil	30.347851	30.842410	29.841642	22.144760	24.728796	28.057668
48-52 D.I Gas Oil	31.472499	30.685351	29.994418	22.324758	24.910518	28.512642
53-57 D.I Gas Oil	31.732529	32.235351	30.166127	22.365852	25.092224	28.945430
70-72 Oct W Loaded Motor Gas	36.129859	34.742632	32.325305	23.868382	23.602606	35.192461
Average Middle Rate for sight Draft on NY T.T. currency for U.S. \$1.00	2.40900	2.476983	2.309624	2.043065	2.058335	2.060895
Value of Tetra Ethyl Lead in T.T. cents per millilitre	.01005626	.01021103	.00922148	.00833021	.00717342	.00539675
Royalty in T.T. cents per gallon on Natural Gasoline (C.R.P.S)	9.829645	9.951929	9.283501	6.897037	6.889893	10.565791

APPENDIX X

The following table shows for the years 1974, 1975 and 1976 the quantity of Asphalt extracted from the Pitch Lake and the quantities of derived products which were exported and consumed locally.

Natural Asphalt		T O N S		
		1974	1975	1976
Extracted by the Ministry of Works for Local Use		23,723	31,631	25,451
Extracted by the Trinidad Lake Asphalt Co.		57,851	47,812	39,146
TOTAL		81,574	79,443	64,597
Derived Products Manufactured by the Company:-				
Exported	Crude Asphalt	-	-	-
	Dried Asphalt	42,893	36,251	27,457
	Cement Asphalt	566	832	688
TOTAL		43,459	37,083	28,137
Local Sales	Crude Asphalt	146	80	104
	Dried Asphalt	255	218	204
	Cement Asphalt	899	33	488
TOTAL		1,300	331	716

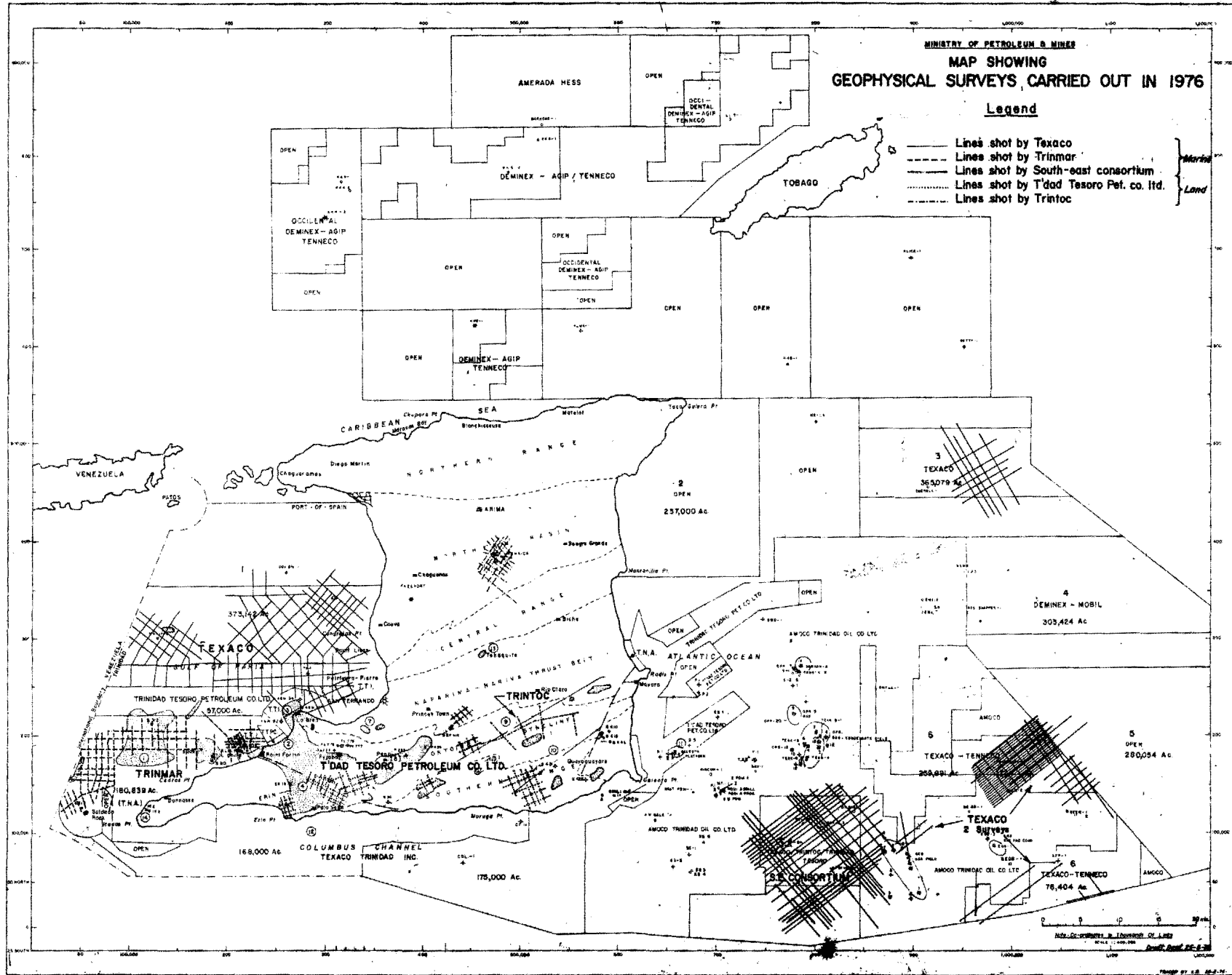
NOTE: The above tabulation 1 Long Ton = 2,240 lbs.

MINISTRY OF PETROLEUM & MINES  
MAP SHOWING  
GEOPHYSICAL SURVEYS CARRIED OUT IN 1976

Legend

- Lines shot by Texaco
- - - Lines shot by Trinmar
- · · Lines shot by South-east consortium
- · · Lines shot by T'ad Tesoro Pet. Co. Ltd.
- · · Lines shot by Trintoc

Marine  
Land



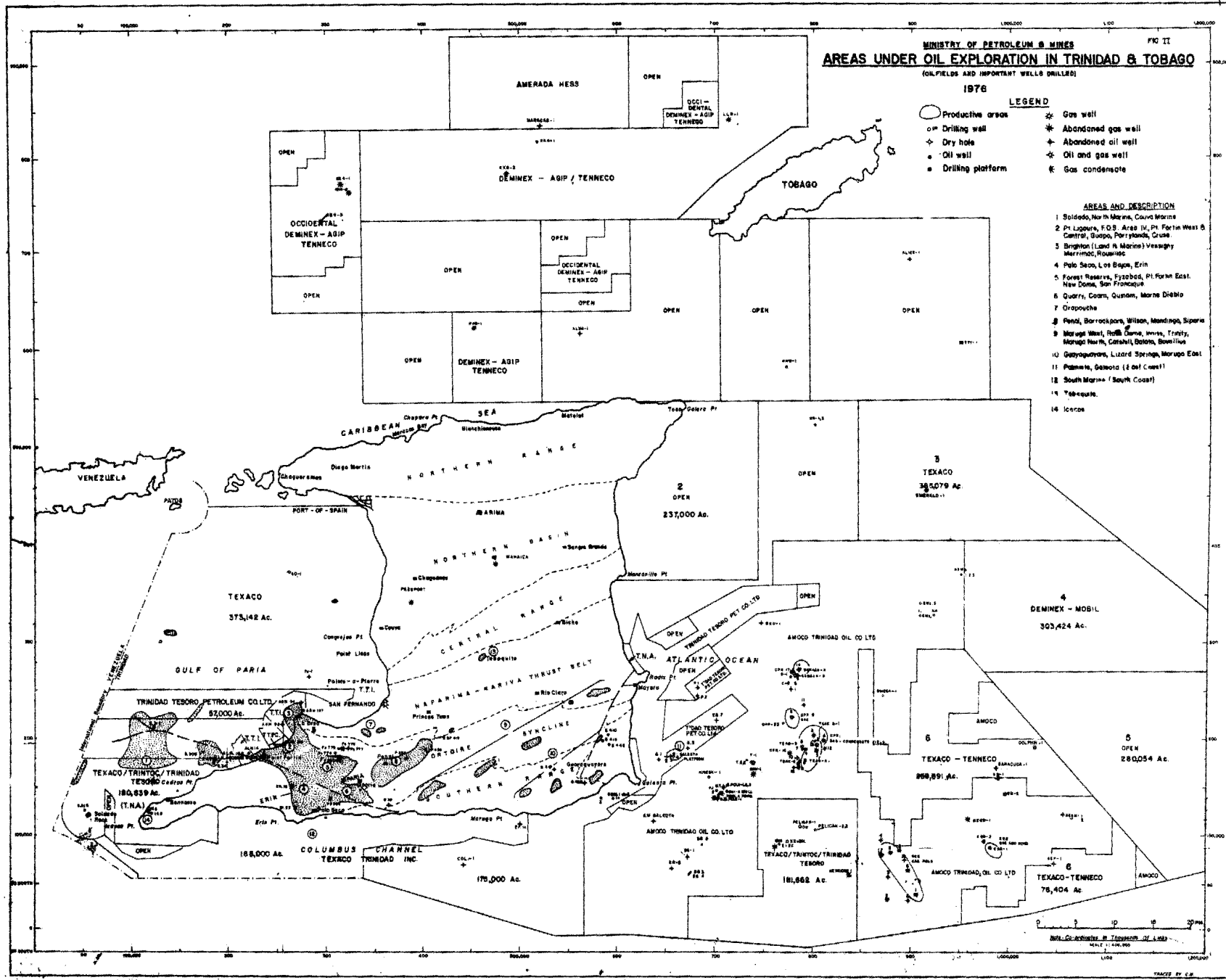
MINISTRY OF PETROLEUM & MINES  
**AREAS UNDER OIL EXPLORATION IN TRINIDAD & TOBAGO**  
 (OILFIELDS AND IMPORTANT WELLS DRILLED)

1978

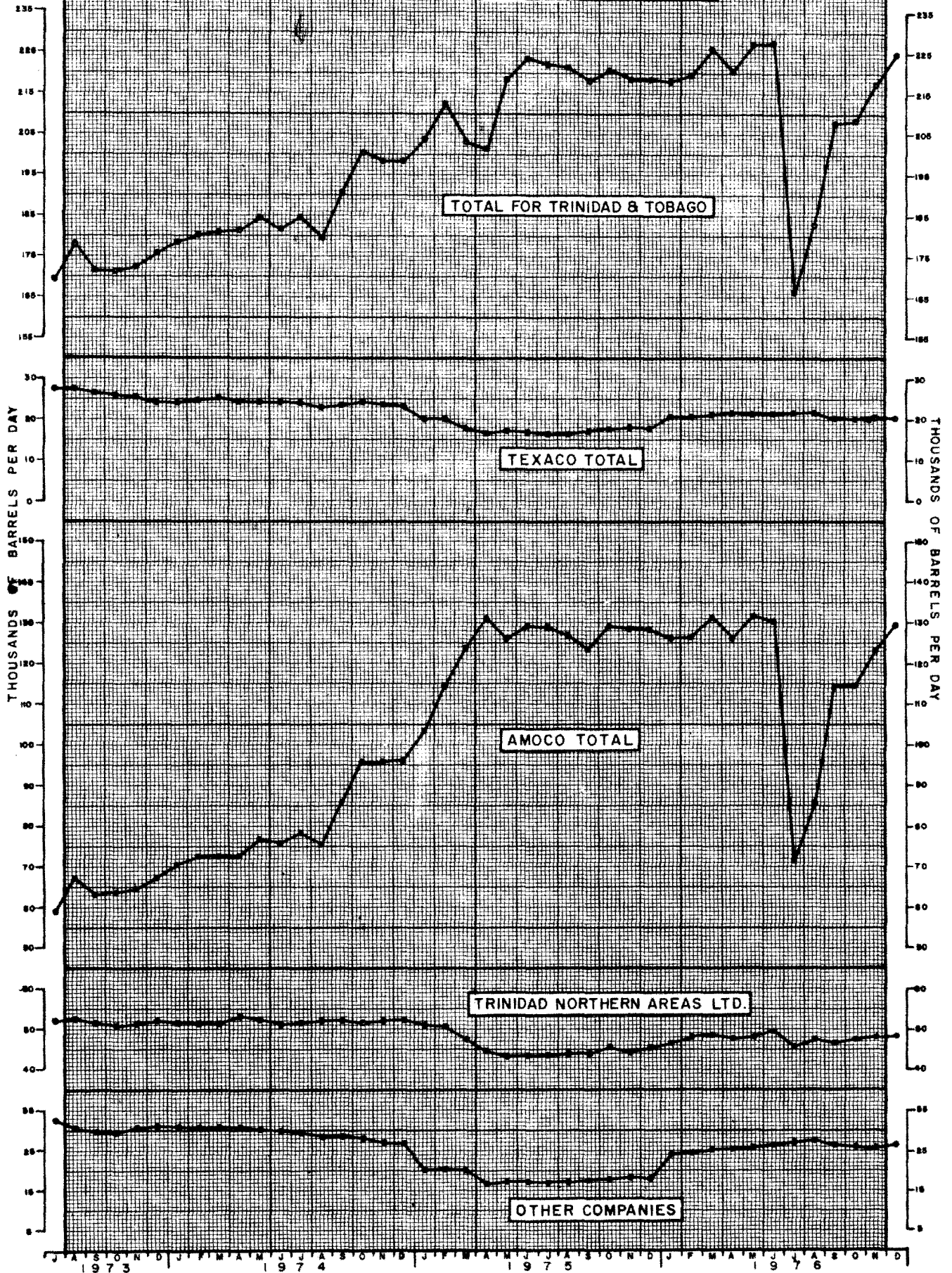
- LEGEND**
- Productive areas
  - Drilling well
  - ◇ Dry hole
  - Oil well
  - Drilling platform
  - ★ Gas well
  - ★ Abandoned gas well
  - ✦ Abandoned oil well
  - ✦ Oil and gas well
  - ✦ Gas condensate

**AREAS AND DESCRIPTION**

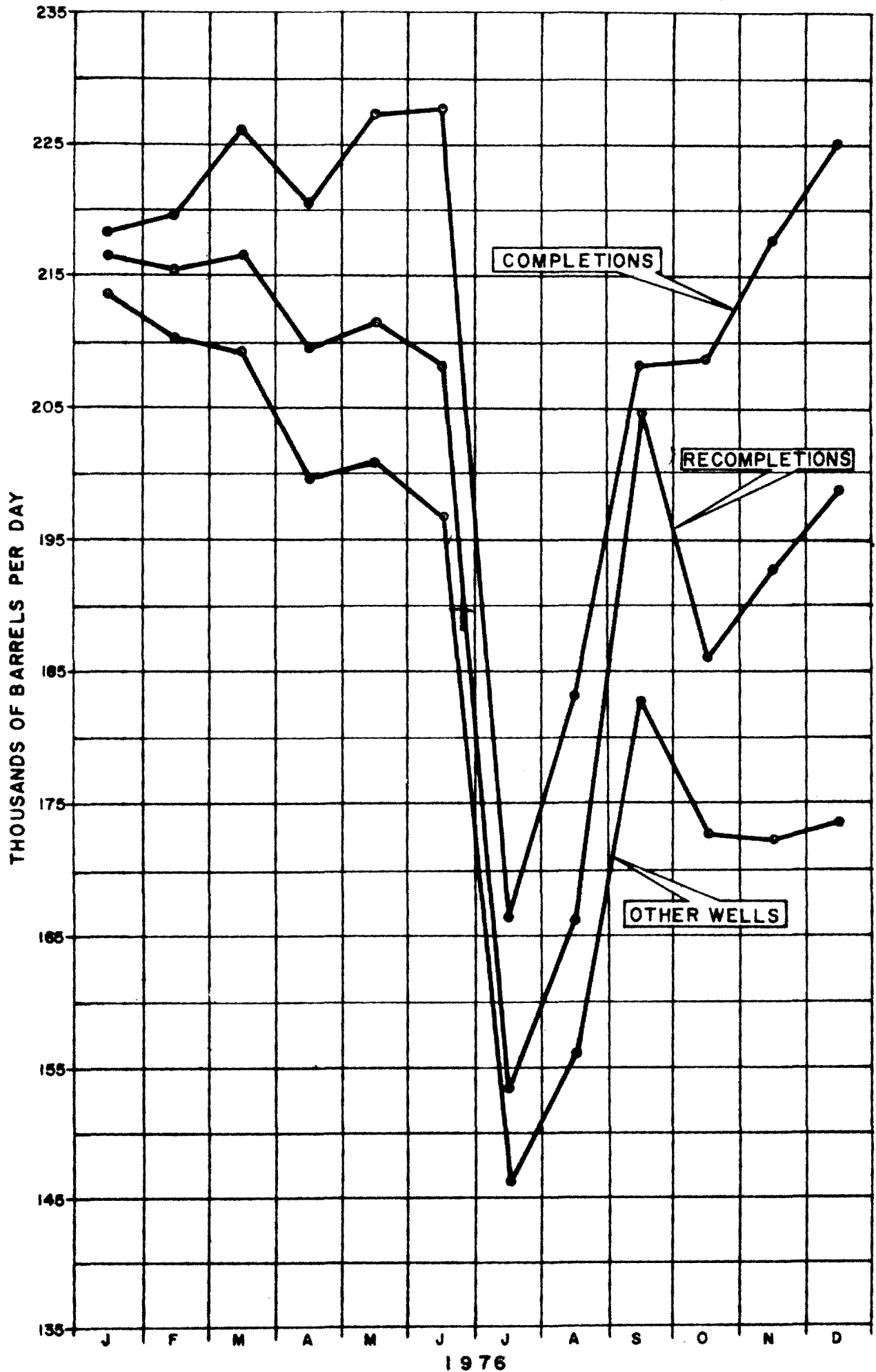
- 1 Solitude, North Marine, Grand Marine
- 2 Pt. Lagaris, F.O.S. Area in Pt. Fortin West & Central, Guapo, Parrylands, Guasa
- 3 Brighton (Land & Marine) Vesugny, Merrimac, Roumainec
- 4 Palo Seco, Los Bago, Erin
- 5 Forest Reserve, Fyzabad, Pt. Fortin East, New Dome, San Franque
- 6 Quarry, Coam, Quanda, Marie Dieblo
- 7 Ortopoche
- 8 Pendi, Barrockpan, Wilson, Mandinga, Sparna
- 9 Marage Well, North Marine, Trinity, Marage North, Central, Bato, Bontine
- 10 Guayaguayare, Lizard Springs, Marage East
- 11 Palmira, Gabela (2 oil wells)
- 12 South Marine (South Coast)
- 13 Yaboua
- 14 Icaros



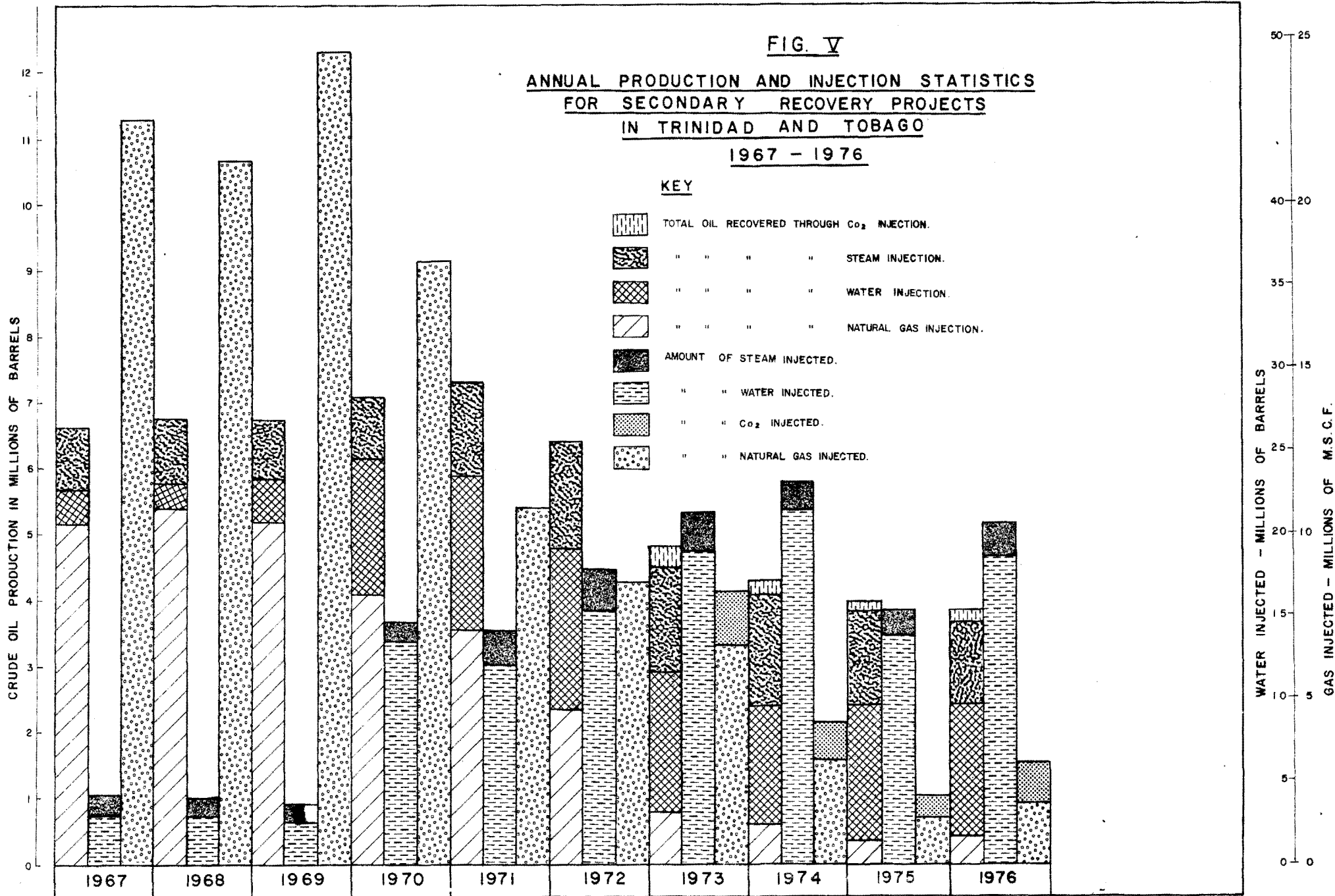
MINISTRY OF PETROLEUM AND MINES  
**CRUDE OIL PRODUCTION RATE BY MONTHS**  
 JULY 1973-DECEMBER 1976  
 (BARRELS PER DAY)



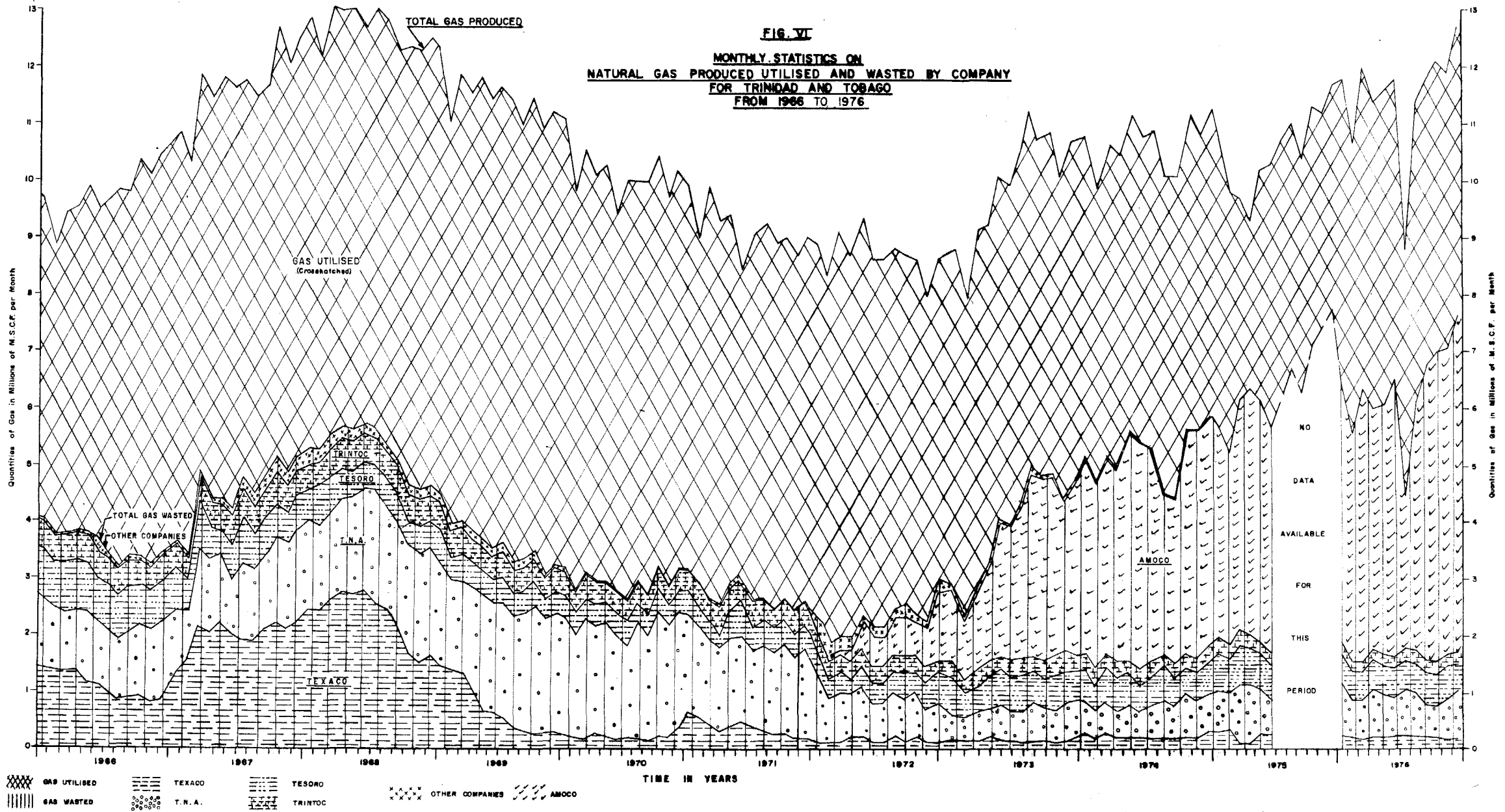
MINISTRY OF PETROLEUM AND MINES  
 TRINIDAD AND TOBAGO CRUDE OIL PRODUCTION, 1976  
 DAILY AVERAGE BY MONTHS  
 COMPLETIONS, RECOMPLETIONS AND OTHER WELLS







**FIG. VI**  
**MONTHLY STATISTICS ON**  
**NATURAL GAS PRODUCED UTILISED AND WASTED BY COMPANY**  
**FOR TRINIDAD AND TOBAGO**  
**FROM 1966 TO 1976**



# STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD & TOBAGO

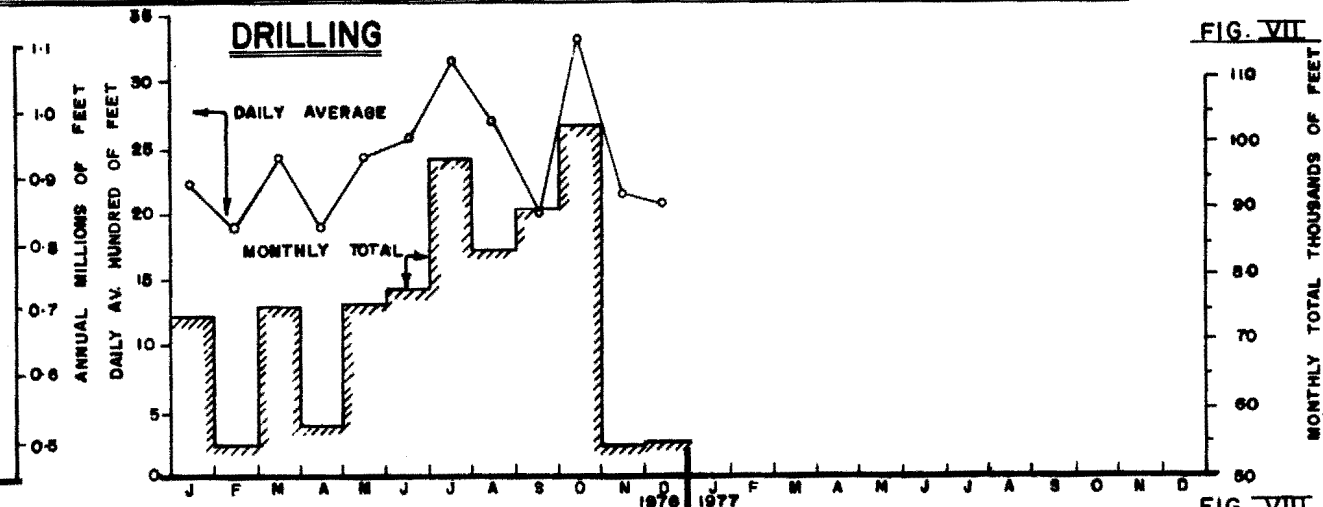
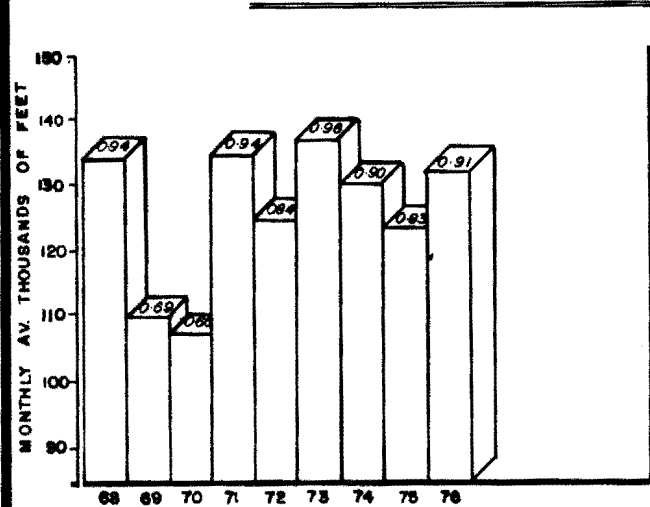


FIG. VII

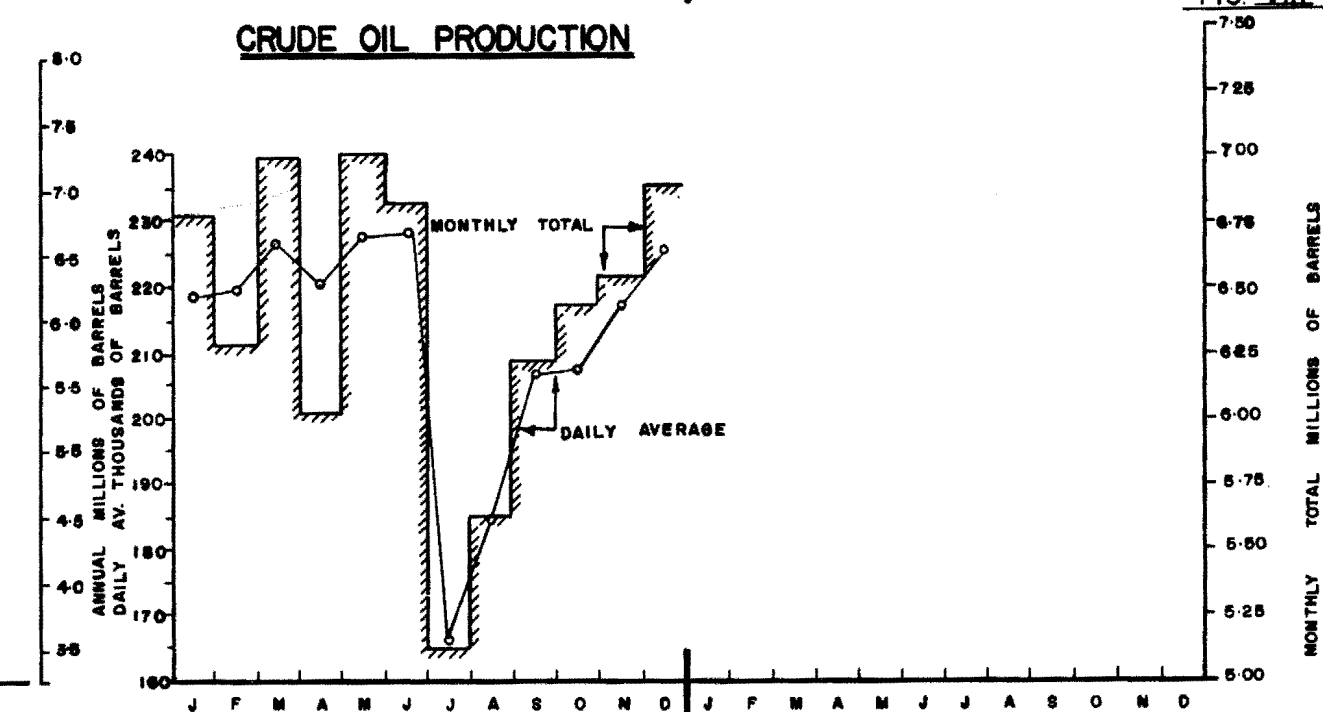
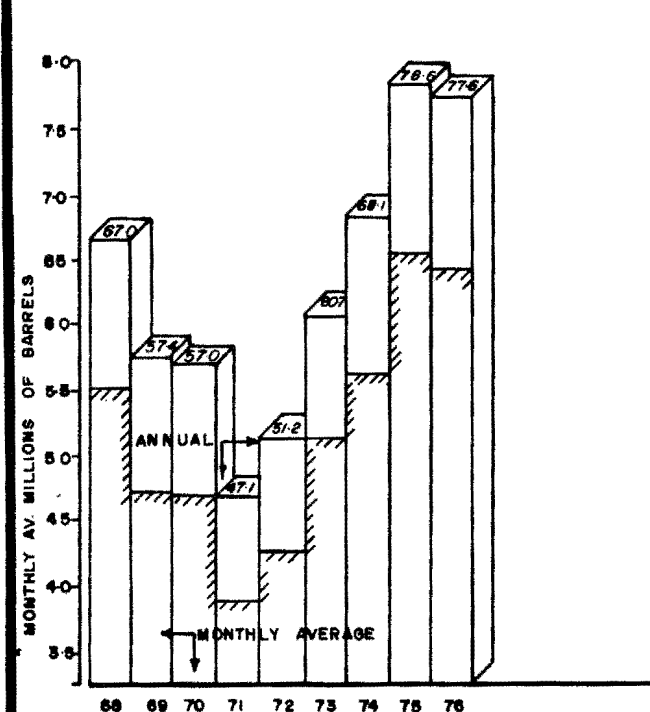
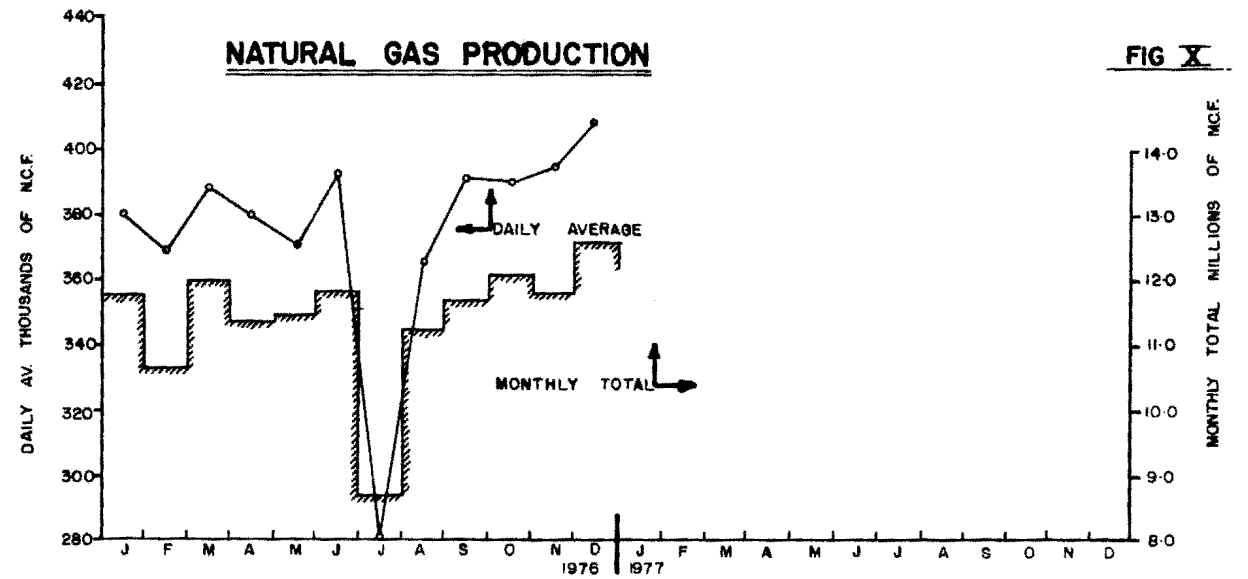
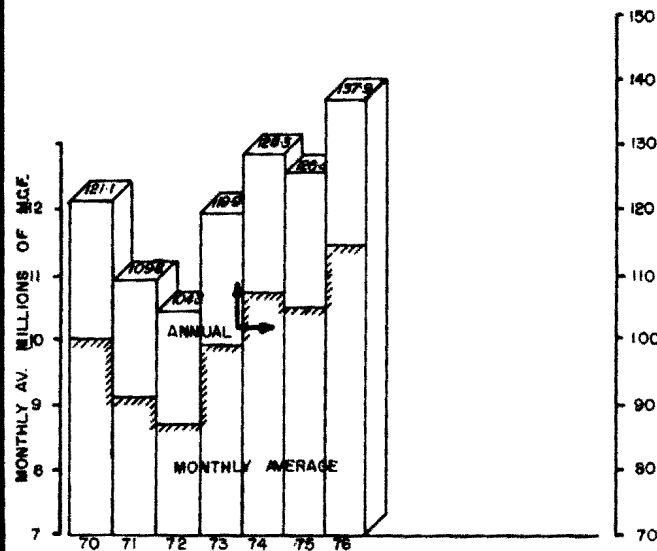
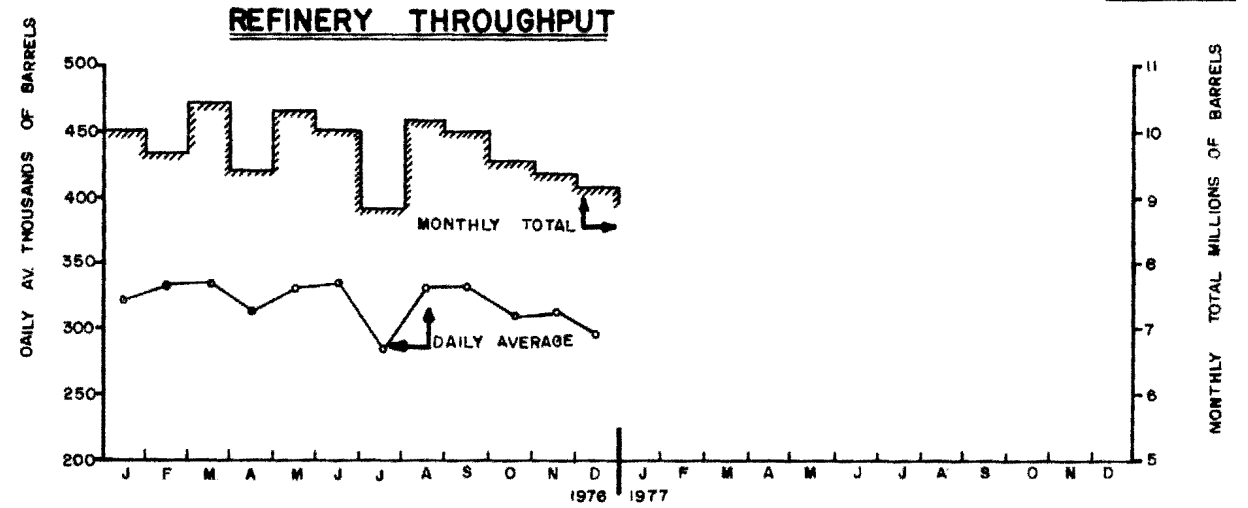
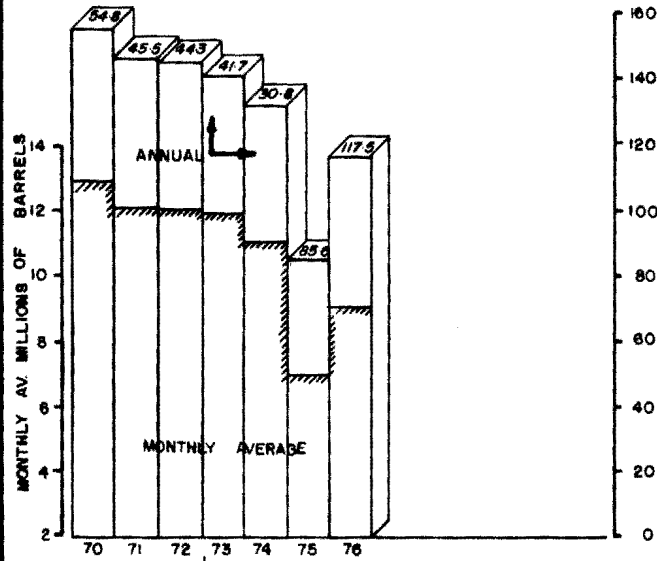
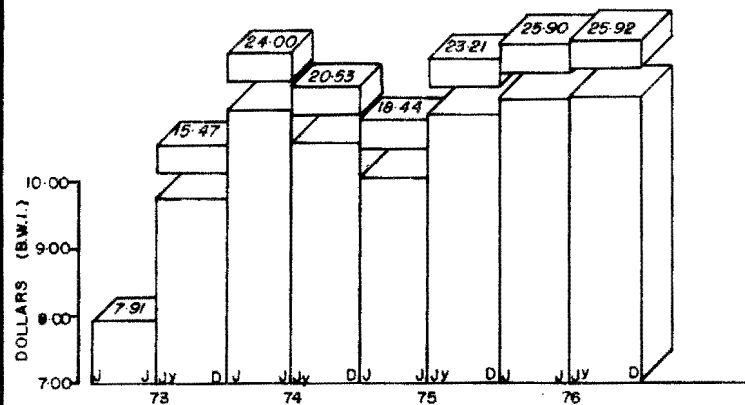
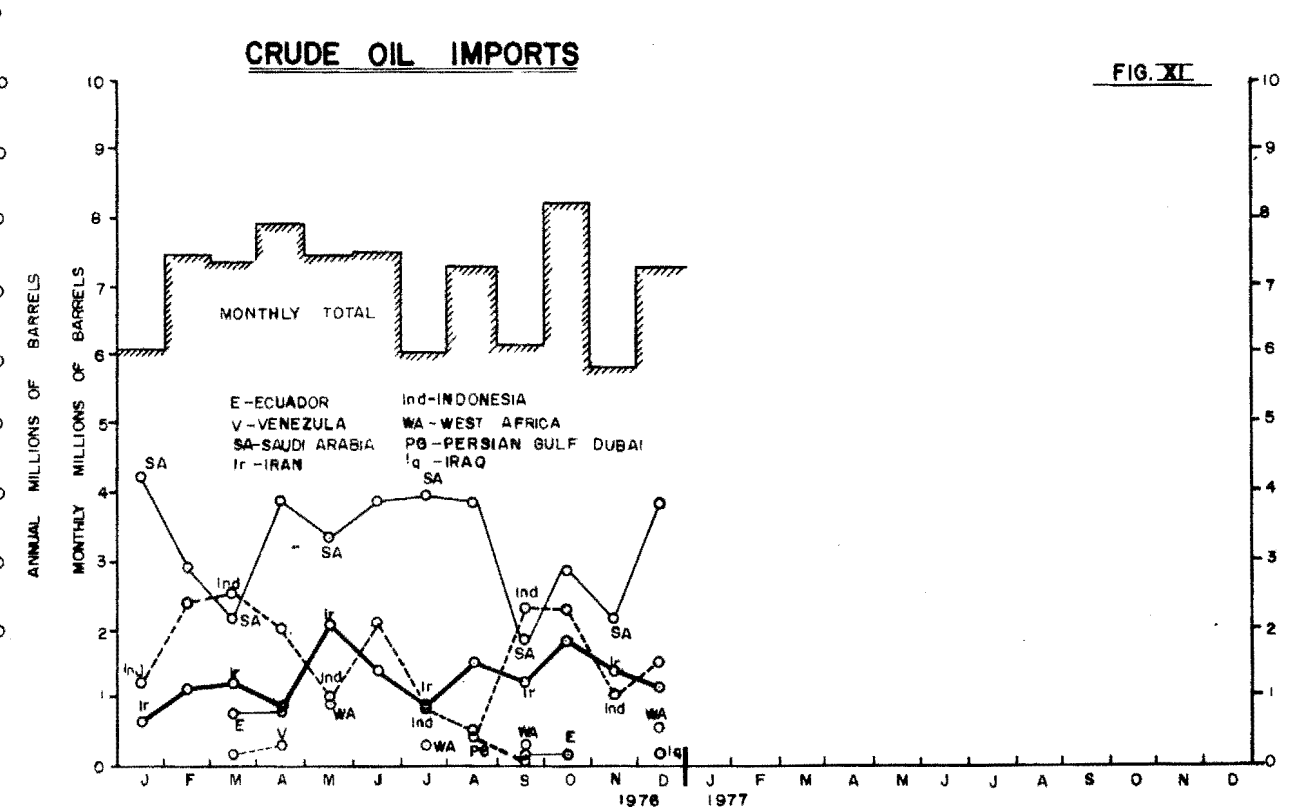
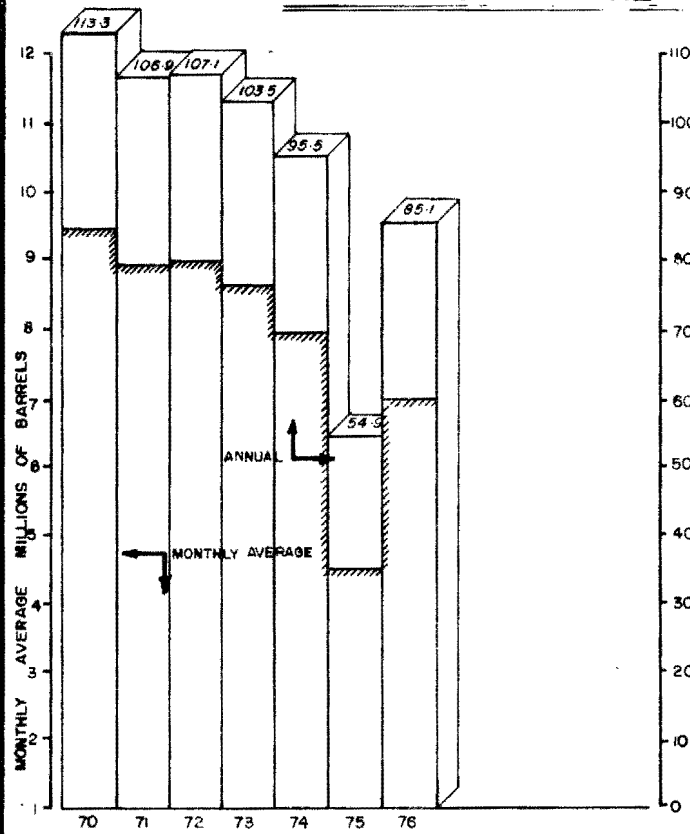


FIG. VIII

# STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD AND TOBAGO



# STATISTICS ON THE PETROLEUM INDUSTRY OF TRINIDAD AND TOBAGO



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

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