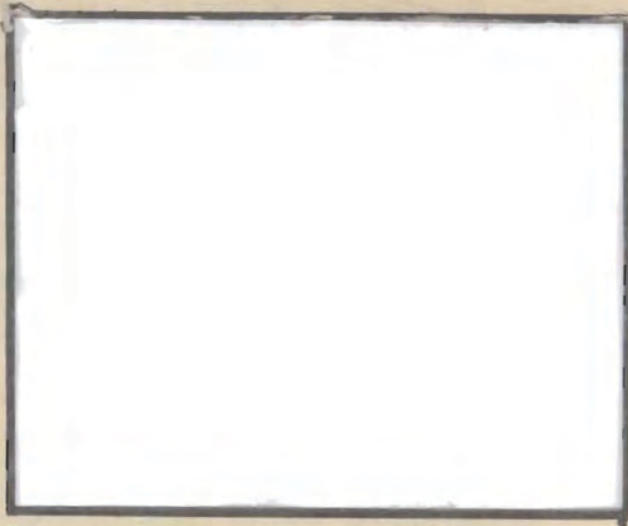


C.P.E. : *Handwritten note*
for 4/1/78

D. ALLEYNE
PETROLEUM MINES

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DRAFT
ANNUAL REVIEW
of
PETROLEUM DEVELOPMENTS IN 1964
in
TRINIDAD & TOBAGO

PART I
DRAFT ONLY
Prepared by Development Section
Ministry of Petroleum and Mines

(Submitted to the Chief Technical Officer on 16th March, 1965).

354:6655 (729.87)

Development Engineer,

Chief Technical Officer,

16th March, 65.

Request for Information - A.A.P.G.

I submit herewith, for your consideration, the contribution of the Development section towards the paper requested of the Ministry of Petroleum and Mines by Mr. Louis Sass of the A.A.P.G. The special statistics required are also appended.

If you approve of the enclosed paper referred to as Part I, please arrange to have the contribution of the Reservoir Section incorporated, perhaps as Part II, and the combined paper forwarded urgently. It was originally promised for March 15th.

.....
E. L. DEWITT

.....
Development Engineer.

ED/emh

c.c. Reservoir Engineer.

ANNUAL REVIEW OF PETROLEUM DEVELOPMENTS
IN TRINIDAD AND TOBAGO

Compiled by Ministry of Petroleum and Mines
for the A.A.P.G.

PART I

INTRODUCTION:

1. For the Petroleum Industry of Trinidad and Tobago, the year 1964 might be best characterised as one of transition and hence of experimentation.
2. On the producing sector efforts to augment producible reserves have of necessity been diverted from the heavy programme of new well drilling. The recent emphasis is on programmes designed to raise the level of ultimate commercial recovery beyond the current estimate of 13 - 14 %.
3. New Thermal methods of secondary recovery are being given field trials; increasing use is being made of stimulation by hydraulic fracturing. Some of the new technology as applied to artificial lift is being studied in the field, specifically directed towards reactivating the large number of wells that have become uneconomic because of sand entry problem.
4. On a broader plane, too, a state of transition has become obvious in that while exploration and drilling activities have been falling off markedly, there have been very important advances made in refining and petrochemical manufacture.

PRODUCTION:

5. Although annual production for the year was the highest ever - 49,730,998 barrels, representing an increase of 2.16 % over the previous year's figure - yet there was in fact a fall in productivity. In comparing 1964 with 1963, those months of the latter that were affected by the labour strike, should be ignored and only May - December period should be considered. For these months daily production rate declined from an average of 139,589 barrels in 1963 to 135,023 in 1964.
6. Gas produced during 1964 was 110,732 mscf. The average G.O.R. was 2,227 scf/ubl., the highest since 1961.
7. Production from marine based wells has continued to increase though at markedly reduced rates following the curtailment in drilling. It amounted to 18,981,062 barrels in 1964 compared to 17,328,298 in the previous year, an increase of 9.54 %. The 1962/1963 rate of increase was 19.08 %. Production from land based wells continued its steady decline.

EXPLORATION AND DEVELOPMENT DRILLING:

8. While no Geophysical work was carried out in Trinidad and Tobago during 1964 surface geophysical effort amounted to 13½ party months and a further 1½ party months were devoted to geological map checking and stratigraphic familiarisation.

/ 9. Appraisal drilling

9. Appraisal drilling effort resulted in 15 wells having been completed compared with 18 for 1963. Again this year the marine areas experienced most intensive activity in this sphere. Two additional wells were drilled off the East Coast of Trinidad at locations based on seismic structures. Both of these as well as the new well off the South Coast were dry holes and have been abandoned. Operations were however, more successful in the Gulf of Paria where all of the five new appraisal wells drilled found commercial pay zones.

10. On land, seven wells were drilled in the search for new fields or new pools. Of the four in the Ortoire basin located in that section of South Central Trinidad between the developed Wilson/Barrackpore/Penal field and the Catshill field only one was successful. Three of four such wells drilled in the Guayaquayare area had to be abandoned as dry holes.

11. Perhaps the most important well being drilled at year-end was S-189, a deep cretaceous test located in the Soldado area of the Gulf of Paria.

12. Semi appraisal drilling appears to have been increased. Of the 38 Outstep wells drilled, 34 resulted in small but important extensions to known fields.

Results of the overall exploratory drilling effort in Trinidad for 1964 are summarised in the following table:-

	<u>Oil/Gas Prod.</u>	<u>Abandoned/Suspended</u>	<u>Total</u>	<u>% Success</u>
Appraisal Wells	7	8	15	46.7
Semi Appraisal Wells	32	6	38	84.2
Total Exploratory	39	14	53	73.6

The following table compares general drilling and production results for the 1962 - 1964 period:-

	1962	1963	1964
(1) Crude Oil Production (Bbl.)	48,876,144	48,678,270	49,730,998
(2) Natural Gas Production (Mcf.)	99,948,968	99,385,888	110,731,592
(3) Average G.O.R. Scf/Bbl.	2,045	2,042	2,227
(4) CHPS (Natural Gasoline Prod'n Bbl.)	193,807	170,399	199,725
(5) No. of wells completed	280	232	190*
(6) Av. Depth of completed wells ft.	5,274	5,601	5,513
(7) Total footage drilled ft.	1,506,187	1,246,251	1,056,337
(8) No. of producers (oil & gas)	255	199	168
(9) Success Ratio %	91.1	85.8	89.4
(10) Av. No. of Rigs running/Mth.	23	19	15

* Excludes 4 service wells (injection & observation)

More detailed discussions on individual company exploratory drilling activity follow:-

TEXACO TRINIDAD INC.

13. Texaco in its exploratory operations, devoted a total of 13 party months to surface geological work: - 4 in the Pointe-a-Pierre/Charuma area, 5 in the Moruga area and 4 in the Guayaguayare/Trinity area completing work that was begun in 1963.

14. The Company concentrated its appraisal drilling effort on three areas that had been recently reappraised on the basis of geophysical and subsurface geological data obtained from wells. This effort was best regarded in its Marine holdings in the Gulf of Paria off the Brighton/Pt. Ligoure area. Here, appraisal well ABM - 73 (I/11)*, located in the Northern portion, hitherto untested by the drill, was designed to evaluate the Nariva succession that provided the "pay" section in the developed Brighton Marine field some 4700 feet to the South. This well which picked up the usual sand succession was completed as a satisfactory producer in the Basal Nariva Sands at a depth of 9934 feet.

15. At the year end, ABM -75 (H/11)*, was being drilled. It was programmed to investigate the overthrust limb of the Nariva Formation for oil accumulation sufficient to justify the setting up of another platform.

16. Three semi-appraisal wells were drilled in the Brighton area, all of which were successful, one of them proving the area for wells to the north of Platform III. ALM -10 (G/9)*, a semi-appraisal well drilled in the Pt. Ligoure area was abandoned after failing to find its objective. The deviated well from ALM -10X (G/9)* was completed as an oil producer in the Cruse Sands.

17. ALM -11 (G-9), another semi-appraisal well in the area, 3200 feet to the Northwest of ALM-10 suffered a blow out while the well was being completed.

18. The second area to receive some attention was Texaco's East Trinity lease, south of the developed Catshill field. This area had hitherto found no commercial oil sands despite the drilling of 7 wells.

19. AT -75, (G/21)* was drilled to test the Lower Cruse Sands at an equivalent stratigraphic level to those in some wells in Catshill, about $1\frac{1}{2}$ miles to the north. This well was abandoned without testing.

20. AT -76, (G/21)* the second appraisal well drilled on this lease, was located about one mile W.N.W. of AT -75 and its objective was the same. AT-76 was completed as an oil producer in the Lower Cruse Sands. No follow up well has yet been drilled.

* Index map reference

21. Finally in the Guayaguayare area, three appraisal wells were drilled:- Guayaguayare 370 (G/24)*, located 2,000 feet north east of the main producing Navette field; Guayaguayare 371 (E/23)*, located on the south flank of the Guayaguayare anticline, 1½ mile west of the productive Marcelle Valley area; and Guayaguayare 374 (F/24)* located in the Eastward pitching nose of the Guayaguayare anticline approximately 2 miles east of the Beach field producing area. These three wells were drilled to investigate the Gros Morne Sands in fault blocks off the already producing fields in their respective areas. Only Guayaguayare 370 was completed as a commercial producer. The other wells were abandoned.

22. Guayaguayare 369 (F/23), a semi-appraisal well which was drilling mainly in 1963 was abandoned early in 1964.

23. The one semi-appraisal well drilled in the Palo Seco area PS-234 (E/11)* was the deepest well drilled by the company in 1964. The total depth was 10,776 feet and it was a good oil producer from the Cruse and Lower Forest Sands.

TRINMAR LIMITED

24. Trinmar Limited, as operators for the licensee, completed two appraisal wells on the T.N.A. Soldado lease. A third appraisal well was actively drilling at year end.

25. S-177(G/7)* located 22,000 feet east of the main block, where the south flank of the Soldado Anticline is cut by the Los Bajos Fault, investigated the Forest and Cruse Sands in this hitherto undrilled area, while S-181 (F/4)* appraised the same formations in an area 7,000 feet west and south of the Main Block. Both wells were completed as oil producers.

26. The most important well in Trinidad during 1964 was S-189 (G/6)*, programmed as a deep cretaceous test on the basis of oil shows obtained in the upper cretaceous penetrated by S-108 three years ago. This well, located north east of the main Soldado field, was spudded on the 20th July, 1964 and at year end was drilling within the cretaceous at a depth of 14,138 feet.

27. In addition there were eleven semi-appraisal wells drilled in the Soldado Field. Four of these wells were near the western extremity of the lease, bordering the Trinidad - Venezuela boundary and the Peda wells area. All of these wells were completed as oil producers. Three other semi-appraisal wells were completed as producers throughout the field. Three other wells were abandoned.

28. In the B.P.'s North Marine licence in the Gulf of Paria, Trinmar drilled 2 appraisal and 2 semi-appraisal wells. NM-9 (I/9)*, an appraisal well situated in a northward dipping fault block, and separated from the Brighton Area by a fault, was designed to appraise the Nariva Formation. This well was completed as an oil producer. Two semi-appraisal wells in the NM-1 Area, NM-10 and NM-11 were both abandoned. The second appraisal well NM-12(I/7)* designed to appraise the basal Manzanilla sands which were not reached in NM-7, was drilling at year end.

* Index map reference

29. An additional appraisal well, SM -3 (D/13)*, in BP's South Marine license was drilled off the Palo Seco Bay on the south coast of the island. It found no pay in the objectives - the Forest and Cruse formations on the south dipping flank of the Southern Range Anticline. This well was abandoned at a depth of 11,156 feet.

30. There was no geological field work or geophysical surveys undertaken during the year.

31. PREMIER CONSOLIDATED OILFIELDS LTD.

This Company in Joint-Venture operations with Texaco, drilled two appraisal wells in the Rock Dome area. The first, Rock Dome 10, was drilled on the north-west dipping flank of the Rock Dome anticline to test for oil accumulation in a thrust defined previously by seismic work. Since the sands encountered were wet, Rock Dome 10X was deviated from Rock Dome 10 and drilled to test the same fault trap up dip of the latter well. At the end of the year the well was being tested.

32. No geological field work or seismic surveys were undertaken during the year.

DOMINION OIL LIMITED:

33. Following fairly extensive drilling off the East Coast in 1963, the Company, early in 1964, drilled two more wells in this area. Both East Galeota 1 and Palmiste 2, located respectively, ⁵⁷⁰⁰⁻⁰ 4,800 feet and ³⁶⁰⁰⁻⁰ 4,200 feet east south-east of Point Radix, sought to appraise the Gros Morne and Herrera Sandstones on seismic structures off the East Coast. However, they were both unsuccessful, and having found only watered sands, were abandoned at depths of 10,204 feet and 9,867 feet, respectively.

BP (TRINIDAD) LIMITED

34. BP (Trinidad) Limited was one of the companies that did no appraisal drilling in 1964. However, this company devoted one and a half months to geological field work, and drilled 16 semi-appraisal wells on its shore leases.

35. Of these wells, 14, in the Palo Seco/Quarry/Coora area, were completed in the Cruse formation and appraised the void spaces between the developed fields of this area. All of these wells were completed as oil producers.

36. Erin 18, a semi-appraisal well in the South Erin field, was drilled to and perforated in the lower Forest formation. It is now an oil producer.

37. Following good production in the western part of Texaco's Grand Ravine Field, BP successfully drilled Er-15 to investigate the downdip extension of these Forest and Cruse oil sands.

* Index map reference

SHELL TRINIDAD LIMITED

38. Of the four semi-appraisal wells completed by Shell during the year, three were designed to test the Forest and Cruse sands, in the same area as BP's Er-15 above. All three of these wells, completed in the Shell Erin block, were oil producers.

39. The last semi-appraisal well, BE-20, (J/24)** produced oil from the Karamat sands and the Boulderbeds of the Balata area.

40. No geological field work or geophysical survey was undertaken during the year.

DEVELOPMENT DRILLING

41. The following two tables summarise respectively (a) the 1964 total drilling activity by companies and (b) the results of their development drilling activity for that year.

SUMMARY OF TOTAL DRILLING BY COMPANIES 1964.

<u>Company</u>	<u>Total Wells Completed</u>	<u>Total Footage Drilled</u>	<u>Average Rigs in Operation</u>
BP Group	70	386,288	4.2
Domeil	2	16,232	0.2
P.C.O.L.	3	15,662	0.2
Shell	7	28,683	0.9
T.C.O.	-	-	-
T.N.A.	27	181,216	2.5
T.T.I.	85 *	428,256	7.0
	<u>194</u>	<u>1,056,337</u>	<u>15.0</u>

* Includes four service wells.

SUMMARY OF EXTENT AND RESULTS OF DEVELOPMENT WELL COMPLETIONS IN TRINIDAD DURING 1964.

<u>Company</u>	<u>Oil or Gas</u>	<u>Abandoned or Awaiting Abandonment</u>	<u>Total</u>
BP Group	52	1	53
Domeil	-	-	-
P.C.O.L.	1	-	1
Shell	3	-	3
T.C.O.	-	-	-
T.N.A.	14	-	14
T.T.I.	61	5	66
TOTALS	<u>131</u>	<u>6</u>	<u>137 *</u>

* Excludes four service wells

** Index map Reference

42. TEXACO'S main effort continued to be expended in the Western district fields of Forest Reserve, Palo Seco, and Brighton, where a total footage of 332,574 feet was drilled.
43. In the Brighton/Pt. Ligoure area where the Company operated one barge and one Platform rig, the completion of 17 development wells was accomplished. Platform III, with 18 wells, was completely drilled up and at the year end the first well from Platform IV was being drilled.
44. In the Eastern District the Company made its greatest effort in the Guayaguayare area where 15 development wells were drilled. The majority of these were shallow infill wells that were hydraulically fractured as part of their completion procedure.
45. Ten wells were drilled on the West Trinity lease with rather disappointing results. However, at the year end, the lease was considered to be fully drilled up.
46. The only development well drilled by PREMIER CONSOLIDATED was on the Siparia lease and this accounted for 9,400 feet in their drilling effort.
47. In BP's Palo Seco Field, four wells were completed with a dual casing strings cemented side by side in the same hole and shot at the different pay horizons. This is a new completion technique for Trinidad and it replaces the older conventional type of "pup" well system which necessitated the drilling of two holes instead of one.
48. TRINMAR dropped one of its drilling strings during the year, and at year end was operating three strings, two barges, mainly on appraisal and semi-appraisal work, and one platform rig on development drilling.

PRODUCTION

49. The following table compares the production by Companies for the years 1963 and 1964:-

<u>Company</u>	<u>1963</u>	<u>1964</u>
BP Group	8,389,788	9,539,026
Domeil	34,526	59,189
P.C.O.L.	372,446	363,004
Shell	5,126,799	4,921,715
T.C.O.	1,024,624	883,470
T.N.A.	15,312,144	16,560,475
T.T.I.	18,417,943	17,404,119
TOTALS	48,678,270	49,730,998

50. With a decline in production being imminent and with the possible development well locations being all drilled up, the industry has diverted its efforts towards higher recoveries from developed fields.

51. During the past year for example hydraulic fracturing in both new and old wells has been intensified, with very satisfactory results, especially in Texaco's Eastern District fields.

52. One of Trinidad's big production problems arises from sand entry into the well bore coupled with the need to lift heavy viscous oil. The number of wells shut in because of this problem runs into three figures. Various sand control techniques have been tried with approximately 50/50 chance of success. During 1964 however, the Sonic pump was introduced into Trinidad in an attempt to solve this problem. Results have been more than encouraging and more of these pumps have been placed on order for more exhaustive trials. At present there are only 30-odd of these pumps in operation in the world.

53. Of course the greatest effort towards increasing production has taken place in the field of secondary recovery discussed more fully in a separate section of this paper.

REFINING AND PETROCHEMICAL MANUFACTURE

54. Crude oil run to the refineries - Shell Trinidad's at Point Fortin and Texaco Trinidad's at Pointe-a-Pierre and Brighton during 1964, amounted to 127.55 million barrels, i.e., an average of 348,491 barrels/day. Both major refineries have been modernised and enlarged and have had additional plants constructed. In June, Texaco brought on stream its lubricating oil plant with a design capacity of 2,700 barrels of lube oil per day.

55. Trinidad can now proudly boast of the ability to manufacture all the conventional products of the refining industry and in addition, a number of Basic Petrochemical intermediates are being produced at Pointe-a-Pierre. These include benzene, toluene, xylenes, cyclohexane, nonenes, propylene, tetramer, diisobutylene and elemental sulphur, to mention the more important ones.

56. At year end, a plant for the manufacture of n-paraffins was under construction, as also was a hydrotreater/hydrogenator complex for the manufacture both of high octane gasoline components and of aviation turbine fuels.

57. Federation Chemicals Limited, a locally registered subsidiary of W.R. Grace & Co., increased its anhydrous ammonia production capacity seven fold to 715 tons per day. This company which also manufactures urea and ammonium sulphate, consumed 7,516 mcf. of natural gas during 1964. An additional ammonia plant is to be constructed and it is expected that natural gas consumption will then be almost doubled.

STATISTICAL DATA FOR
AAPG REPORT ON
SOUTH AMERICA AND THE CARIBBEAN AREA.

COUNTRY: TRINIDAD AND TOBAGO

SUBMITTED BY

MINISTRY OF PETROLEUM AND MINES

1964

NOTE: If convenient, in filling out these sheets, use the units indicated, as these data are used to assemble summary information for the whole of South America and the Caribbean area. If you use units other than those indicated on the form sheets, be sure to clearly indicate the units you have used. Please return one completed copy of these form sheets to us along with your written text. You will, no doubt, wish to retain the duplicate completed copy of the form sheets for your own record.

I.

TOTAL OIL PRODUCTION (IN BARRELS)

<u>COUNTRY</u>	<u>1963</u>	<u>1964</u>	<u>CUMULATIVE THROUGH DECEMBER 1964</u>
Trinidad & Tobago	48,678,270 bbls.	49,730,998 bbls.	903,236,776 bbls.

TOTAL GAS PRODUCTION (IN CUBIC FEET)

<u>COUNTRY</u>	<u>1963</u>	<u>1964</u>	<u>CUMULATIVE THROUGH DECEMBER 1964</u>
Trinidad & Tobago	99,385,888x10 ⁶ ft. ³	110,731,592x10 ⁶ ft. ³	1,550,043,483x10 ⁶ ft. ³

II.

SUMMARY OF WELL COMPLETIONS FOR 1964

	<u>OIL</u>	<u>GAS</u>	<u>ABANDONED</u>	<u>SUSPENDED</u>	<u>TOTAL</u>	<u>PERCENT SUCCESSFUL</u>
EXPLORATORY TESTS	39	-	12	2	53	73.6
DEVELOPMENT WELLS	<u>131</u>	<u>-</u>	<u>4</u>	<u>2</u>	<u>137</u>	<u>95.6</u>
TOTALS	<u>170</u>	<u>NIL</u>	<u>16</u>	<u>4 *</u>	<u>190</u>	<u>89.5</u>

* These four wells were closed in, awaiting abandonment.

NOTE: In addition, there were four service wells completed as observation and injection wells making a total drilled 194.

IV.

SUMMARY OF DEVELOPMENT DRILLING IN 1964
BY AREAS, DISTRICTS, OR FIELDS

(NOTE: This Table covers development drilling (in contrast to wildcat or exploratory drilling which is covered in Table V). In completing this Table use whichever geographic unit is the most useful or meaningful in your case. (Scratch out the inappropriate terms).

<u>Area *</u>	<u>Number of Producers Completed 1964</u>	<u>Number of Dry Holes Completed 1964</u>	<u>Total Completions 1964</u>	<u>Number of Rigs Actively Drilling or Testing Development Wells on December 31, 1964</u>
Area 1	14	-	14	-
Area 2	11	1	12	-
Area 3	14	-	14	1
Area 4	52	-	52	6
Area 5	17	-	17	1
Area 6	6	-	6	-
Area 7	-	-	-	-
Area 8	2	-	2	1
Area 9	4	3	7	1
Area 10	11	-	11	1
TOTALS	<u>131</u>	<u>4</u>	<u>135</u>	<u>10</u>

* For definition of these areas see Index Map and Table IVA.

AREA NUMBERS OF COMPANIES' FIELDS

	<u>AREA NO.</u>
<u>BP (TRINIDAD) LIMITED</u>	
<u>Apex Trinidad Oilfields</u>	
Fyzabad	5
Quarry	6
<u>Kern Trinidad Oilfields</u>	
Guape	2
<u>Trinidad Petroleum Development</u>	
Coora	6
Erin/McKenzie	4
Moruga East	10
Moruga North	9
Moruga West	9
North Marine	1
Palo Seco/Los Bajos	4
Quarry	6
South Marine	12
<u>DOMINION OIL LIMITED</u>	
Couva Marine	1
Palmiste and East Galeota	11
<u>PREMIER CONSOLIDATED OILFIELDS LTD.</u>	
Bovallius	9
Fyzabad	5
Palo Seco	4
Rock Dome	9
Roodal	5
San Francique	5
Siparia	8
<u>SHELL TRINIDAD LIMITED</u>	
Area IV and Guape	2
Balata East and West	9
Catshill	9
Erin	4
Inniss	9
Los Bajos	4
New Dome	5
Parrylands	2
Penal	8

	<u>AREA NO.</u>
<u>SHELL TRINIDAD LIMITED</u>	
Point Fortin Central	2
Point Fortin East	5
Point Fortin West	2
Rock Dome	9
San Francique	5
<u>TRINIDAD CANADIAN OILS</u>	
Balata Central	9
Cruse	2
Wilson	8
<u>TRINIDAD NORTHERN AREAS</u>	
F.O.S./Ft.	2
Soldado	1
<u>TEXACO TRINIDAD, INC.</u>	
Barrackpore	8
Brighton	3
Forest Reserve	3
Guayaguayare	10
Morne Diable/Quinan	6
Orepouche	8
Palo Seco	4
Point Ligoure	2
Trinity	9

VI.

TOTAL FOOTAGE DRILLED IN
1964

(Note: If feasible give development drilling by fields, area, or districts, and then follow with lump sum figure for wildcat drilling).

<u>Field Area</u> <u>or District</u>	<u>Footage Drilled</u>	<u>No. of rigs opera-</u> <u>ting - 12/31/64</u>
Area 1	78,414	-
" 2	33,704	-
" 3	77,782	1
" 4	322,663	6
" 5	85,718	1
" 6	30,617	-
" 7	-	-
" 8	16,500	1
" 9	14,354	-
" 10	29,836	1
" 11	-	-
" 12	-	-
TOTAL DEVELOPMENT	689,588	10
All Wildcats	358,074	3
TOTALS	<u>1,047,662</u>	13
Service Wells	<u>8,675</u>	
GRAND TOTAL	<u>1,056,337</u>	

TABLE III

III. (i)

OIL PRODUCTION (IN BARRELS) BY COMPANY AND FIELD

FIELD	Area No.	Discovery Year	Total Wells Drilled	Name and/or Age of Producing Formation	Annual 1963	Production 1964	Cumulative Production Through December 1964 (X1000)
<u>TEXACO TRINIDAD INC.</u>							
Guayaguayare	10	1902	405	Miocene	2,577,039	2,308,646	28,573
Trinity	9	1956	90	"	1,078,125	1,103,772	7,398
Barrackpore	8	1911	231	"	471,696	517,467	16,769
Cropouche	8	1944	40	"	106,362	75,947	2,145
M/Diablo-Quinam	6	1926		"	101,767	110,780	6,255
Forest Reserve	5	1913	1,487	"	5,829,089	5,190,321	184,754
Palo Seco	4	1929		"	4,748,369	4,354,740	37,156
Brighton	3	1908	511	Miocene & cretaceous	3,505,496	3,742,446	39,922
COMPANY TOTAL			2,764		18,417,943	17,404,119	322,972
<u>PREMIER CONSOLIDATED OIL-FIELDS LTD.</u>							
Bovallius	9	1954	6	Miocene	6,528	7,567	184
Rock Dome	9	1955	11	"	14,736	15,758	114
Siparia	8	1957	8	"	128,642	145,934	409
Fyzabad	5	1918	252	"	138,765	113,756	11,970
San Francique	5	1929	58	"	71,390	69,138	2,097
Palo Seco	4		83	"	12,385	10,851	1,484
COMPANY TOTAL			418		372,446	363,004	16,258
<u>TRINIDAD CANADIAN OILS LTD.</u>							
Balata	9	1949	6	Miocene	22,455	11,105	315
Wilson	8	1936	71	"	716,912	618,234	15,636
Cruse	2	1913	150	"	285,257	254,131	23,823
COMPANY TOTAL			227		1,024,624	883,470	39,774

III. (Cont'd)

III. (ii)

FIELD	Area No.	Discovery Year	Total Wells Drilled	Name and/or Age of Producing Formation	Annual 1963	Production 1964	Cumulative Production Through December 1964 (X1000)
<u>DOMINION OIL LTD.</u> Couva (Magine)	1	1963	2	?	34,526	59,189	94
<u>BP GROUP</u>							
<u>(1) APEX T'AD OILFIELDS LIMITED</u>							
Fyzabad	5	1920		Miocene	2,316,204	2,513,138	116,697
Quarry	6	1938	774	"	222,274	175,552	13,588
A.T.O.L. TOTAL			774		2,538,478	2,688,690	130,285
<u>(2) KERN T'AD OILFIELDS LIMITED</u>							
Guapo	2	1922	414	Miocene	667,861	852,934	28,192
<u>(3) T'AD PETROLEUM DEVELOPMENT CO. LIMITED</u>							
Moruga East	10	1953	59	Miocene	71,507	89,405	1,385
Moruga North	9	1956	17	"	58,038	54,726	591
Moruga West	9	1957	129	"	661,314	563,745	6,342
Coora/Quarry	6	1936	587	"	2,370,241	2,706,450	61,748
Palo Seco/Erin (McK)	4	1926	729	"	1,978,196	2,555,851	45,489
North Marine	1	1959	12	"	44,153	27,225	142
T.P.D. TOTAL			1,533		5,183,449	5,997,402	115,697
<u>TRINIDAD NORTHERN AREAS</u>							
F.O.S. F.T.	2	1954	16	Miocene	102,176	109,186	1,029
Soldado	1	1955	201	"	15,209,968	16,451,289	68,283
T.N.A. TOTAL			217		15,312,144	16,560,475	69,312

III. (Cont'd)

III. (iii)

FIELD	(+) Area No.	Discovery Year	Total Wells Drilled	Name and/or Age of Producing Formation	Annual 1963	Production 1964	Cumulative Production Through December 1964 (X1000)
<u>SHELL TRINIDAD LIMITED</u>							
Balata East & West	9	1952	48	Miocene	157,659	144,626	1,115
Catshill	9	1950	110	"	1,230,661	1,004,947	14,577
Inniss	9	1956	33	"	351,951	295,764	4,307
Rock Dome	9	1962	3	"	11,021	3,135	16
Penal	8	1936	253	"	1,218,826	1,438,111	44,439
New Dome	5	1928	31	"	37,981	34,977	2,874
Point Fortin East	5	1929	108	"	814,200	739,592	15,267
San Francique	5	1929	27	"	33,585	23,408	5,599
Los Bajos	4	1918	29	"	5,285	6,410	534
Erin	4	1963	3	"	-	124,622	125
Area IV and Guapo	2	1913	156	"	395,599	350,642	30,668
Parrylands 2, 3	2	1918	197	")	401,551	184,718	18,810
Parrylands 1, 4, 5	2	1913	136	")		140,512	11,784
Point Fortin Central	2	1907	93	"	154,926	158,800	10,878
Point Fortin West	2	1907	204	"	313,554	271,451	16,200
Company Total			1,431		5,126,799	4,921,715	177,593 *
GRAND TOTAL			7,780		48,678,270	49,730,998	900,177
						Abandoned Fields	3,061
							<u>903,238</u>

(+) See index map.

* Abandoned Fields not included.

SUMMARY OF WILDCAT DRILLING IN 1964

Operator	Well Name	Index Map Reference	Lahee Exploratory Classification	Completion Date	Total Depth (Feet)	Name and/or age deepest formation	Result and/or Remarks
Texaco Trinidad Inc.	ABM-72	I/11	A.1	25. 4. 64	7,374	Gautier/Cretaceous	Oil Producer
" " "	ABM-73	I/11	A.3	26. 6. 64	9,934	Nariva	Oil Producer
" " "	ABM-74	I/11	A.1	12. 8. 64	8,030	Nariva	Oil Producer
" " "	ABM-75	I/11	A.1	-	-	-	Drilling
" " "	ALM-10	G/9	A.1	12. 9. 64	6,423	Cipero	Abandoned
" " "	ALM-11	G/9	A.2c	12. 64	8,000	Cruse	Oil Producer
" " "	P.S.234	E/11	A.26	16. 8. 64	10,776	Cruse	Oil Producer
" " "	A.T.75	G/21	A.2c	28. 4. 64	2,970	Karamet	Abandoned
" " "	A.T.76	G/21	A.2c	3. 6. 64	3,696	Lengua	Oil Producer
" " "	G'yare 369	F/23	A.1	5. 2. 64	5,931	Gros Morne	Awaiting Abandonment
" " "	G'yare 370	G/24	A.2c	9. 2. 64	5,000	Gros Morne	Oil Producer
" " "	G'yare 371	F/23	A.2c	17. 4. 64	5,786	Argillite/Cretaceous	Produced water
" " "	G'yare 374	F/24	A.2c	29. 9. 64	6,467	Gros Morne	Abandoned
Texaco/P.S.C.L.	R.D. 10	F/17	A.3	21. 4. 64	5,270	Cruse	Abandoned
" " "	R.D. 10X	F/17	A.3	9. 6. 64	7,400	Berrera	Awaiting Abandonment
Dominion Oil	Palmiste 2	I/28	A.3	29. 2. 64	9,869	-	Abandoned
" " "	E. Galeota 1	I/29	A.3	8. 64	10,204	-	Abandoned

SUMMARY OF WILDCAT DRILLING IN 1964

Operator	Well Name	Index Map Reference	Lakee Exploratory Classification	Completion Date	Total Depth (Feet)	Name and/or deepest formation	Result and/or Remarks
Trinidad Petroleum Development Co.	W-262	E/13	A.1	1. 3. 64	5,000	Lower Cruse	Producer
"	NM-9	I/9	A.2c	2. 2. 64	8,000	Nariva Sands	Producer
"	NM-10	I/7	A.1	2. 4. 64	5,730	?	Abandoned
"	NM-11	E/7	A.1	19. 6. 64	4,300	?	Abandoned
"	NM-12	I/7	A.2b	-	-	-	Drilling
"	PS-567	E/12	A.1	20. 1. 64	5,700	Lower Cruse	Producer
"	PS-568	E/12	A.1	3. 3. 64	7,379	Lower Cruse	"
"	PS-570	E/12	A.1	14. 2. 64	6,700	Lower Cruse	"
"	PS-571	E/12	A.1	8. 4. 64	8,500	Upper Cruse	"
"	PS-572	E/13	A.1	25. 3. 64	7,000	Lower Cruse	"
"	PS-586	E/13	A.1	5. 6. 64	6,300	Lower Cruse	"
"	PS-587	E/12	A.1	3. 7. 64	4,500	Lower Cruse	"
"	PS-588	E/12	A.1	12. 7. 64	5,550	Lower Cruse	"
"	PS-590	E/12	A.1	18. 7. 64	4,200	Lower Cruse	"
"	PS-591	F/12	A.1	27. 7. 64	6,000	Upper Cruse	"
"	PS-592	E/12	A.1	31. 7. 64	4,400	Middle Cruse	"
"	PS-596	E/12	A.1	12. 8. 64	4,750	Middle Cruse	"
"	Co-323	E/14	A.1	18. 6. 64	5,000	Upper Cruse	"
"	ER-15	F/11	A.1	9. 3. 64	8,650	Upper Cruse	"
"	ER-18	E/11	A.1	25. 8. 64	6,700	Forest and Cruse	"
"	EM-3	D/13	A.2c	4.11. 64	11,156	Miocene	Abandoned

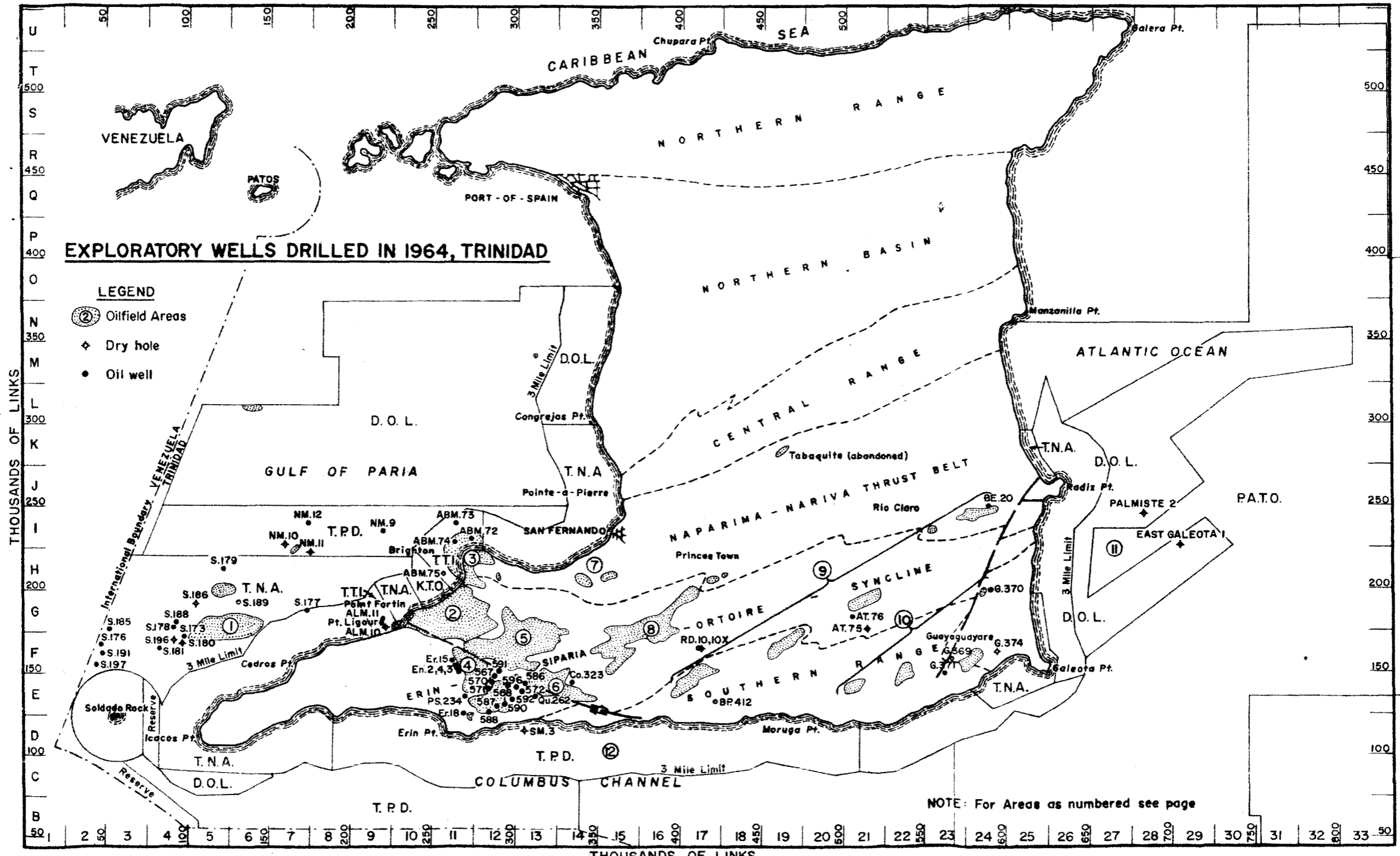
SUMMARY OF WILDCAT DRILLING IN 1964

Operator	Well Name	Index Map Reference	Lahee Exploratory Classification	Completion Date	Total Depth (Feet)	Name and/or age deepest formation	Results and/or Remarks
Trinidad Northern Areas	S-173	F/4	A.1	10. 1. 64	7,755	Upper Cruse Sands	Producer
"	S-176	F/2	A.1	16. 3. 64	5,500	Cruse	"
"	S-177	G/7	A.2c	11. 3. 64	7,074	Talparo/Horne L'Enfer	"
"	S-178	G/4	A.1	26. 3. 64	5,700	Cruse Sands	"
"	S-179	H/5	A.1	1. 6. 64	9,873	Manzanilla Sands	"
"	S-180	F/4	A.1	5. 7. 64	8,716	?	Abandoned
"	S-181	F/4	A.2c	2. 6. 64	11,000	Lower Cruse Sands	Producer
"	S-185	G/3	A.1	19. 7. 64	5,484	Lower Cruse Sands	"
"	S-186	G/5	A.1	1. 7. 64	4,000	?	Abandoned
"	S-188	G/4	A.1	6. 9. 64	6,000	Cruse	Producer
"	S-189	G/6	A.3	-	-	Cretaceous	Drilling
"	S-191	F/2	A.1	6. 9. 64	6,000	Cruse	Producer
"	S-196	F/4	A.1	17.11. 64	8,614	Cruse	Abandoned
"	S-197	F/2	A.1	27.12. 64	10,000	Cruse Sands	Producer
Shell Trinidad Ltd.	EN-2	F/11	A.1	20. 4. 64	8,500	Cruse	Producer
" " "	EN-3	F/11	A.1	10. 6. 64	8,900	Lower Forest Clay	Producer
" " "	BE-20	I/24	A.1	7. 7. 64	4,530	Herrera	Producer
" " "	EN-4	F/11	A.1	3.10. 64	8,104	Lower Forest Clay	Producer

VII.

PARTY-MONTHS OF GEOLOGICAL AND GEOPHYSICAL
EXPLORATION IN 1964(Party-months each type of work)

<u>Company or Area</u>	<u>Surface Geology</u>	<u>Seismograph</u>	<u>Gravimeter</u>	<u>Stratigraphic (Others)</u>	<u>Total</u>
BP (T'dad) Ltd.	-	-	1½	-	1½
Dominion Oil Ltd.	¾	-	-	-	¾
Shell T'dad Ltd	-	-	-	-	-
T.N.A.	-	-	-	-	-
Texaco T'dad Inc.	13	-	-	-	13
T'dad Canadian Oilfields	-	-	-	-	-
Pan American T'dad Oil	-	-	-	-	-
P.C.O.L.	-	-	-	-	-
TOTALS	<u>13¾</u>	<u>-</u>	<u>1½</u>	<u>-</u>	<u>15¾</u>



NOTE: For Areas as numbered see page

THOUSANDS OF LINKS

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