

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Assessment of conventionally recoverable petroleum resources
of Trinidad

by

Charles D. Masters

Open-File Report 81-1145

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

Assessment of conventionally recoverable petroleum resources
of Trinidad

by

Charles D. Masters

PREFACE

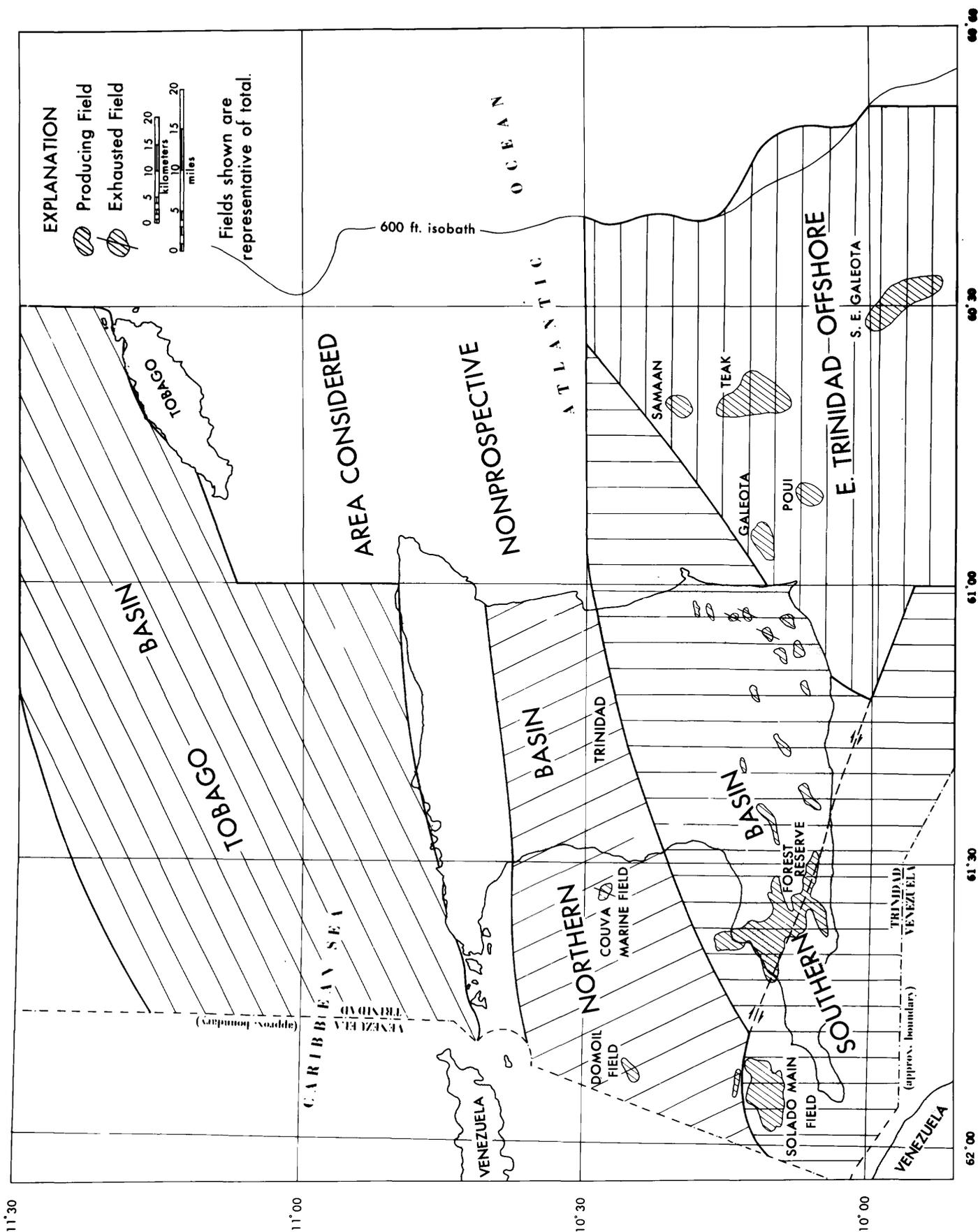
The following preliminary report is a product of the World Energy Resources Program of the U.S. Geological Survey (USGS). The program is designed to prepare geologically based resource assessments of the potential petroleum basins of the world. Initial investigations of the program focus on the major petroleum-producing regions of the world with the objective of acquiring a critical, unbiased perspective on the resource potential of a field, a basin, and ultimately a country as a whole. In selected areas, follow-on studies to analyze production potential are conducted by U.S. Department of Energy (DOE) petroleum engineers, and the combined results are incorporated in a report for the Foreign Energy Supply Assessment Program (FESAP) of the DOE and the USGS. This USGS Open-File report includes only the preliminary assessment and some minimal backup data and comments relevant to the assessment.

INTRODUCTION

The locations of the Trinidad basins are shown in figure 1. Unconditional estimates by the USGS of oil and gas resources in these basins are given in table 1 and figures 2 and 3. Data supporting these estimates are supplied in table 2.

ACKNOWLEDGEMENT

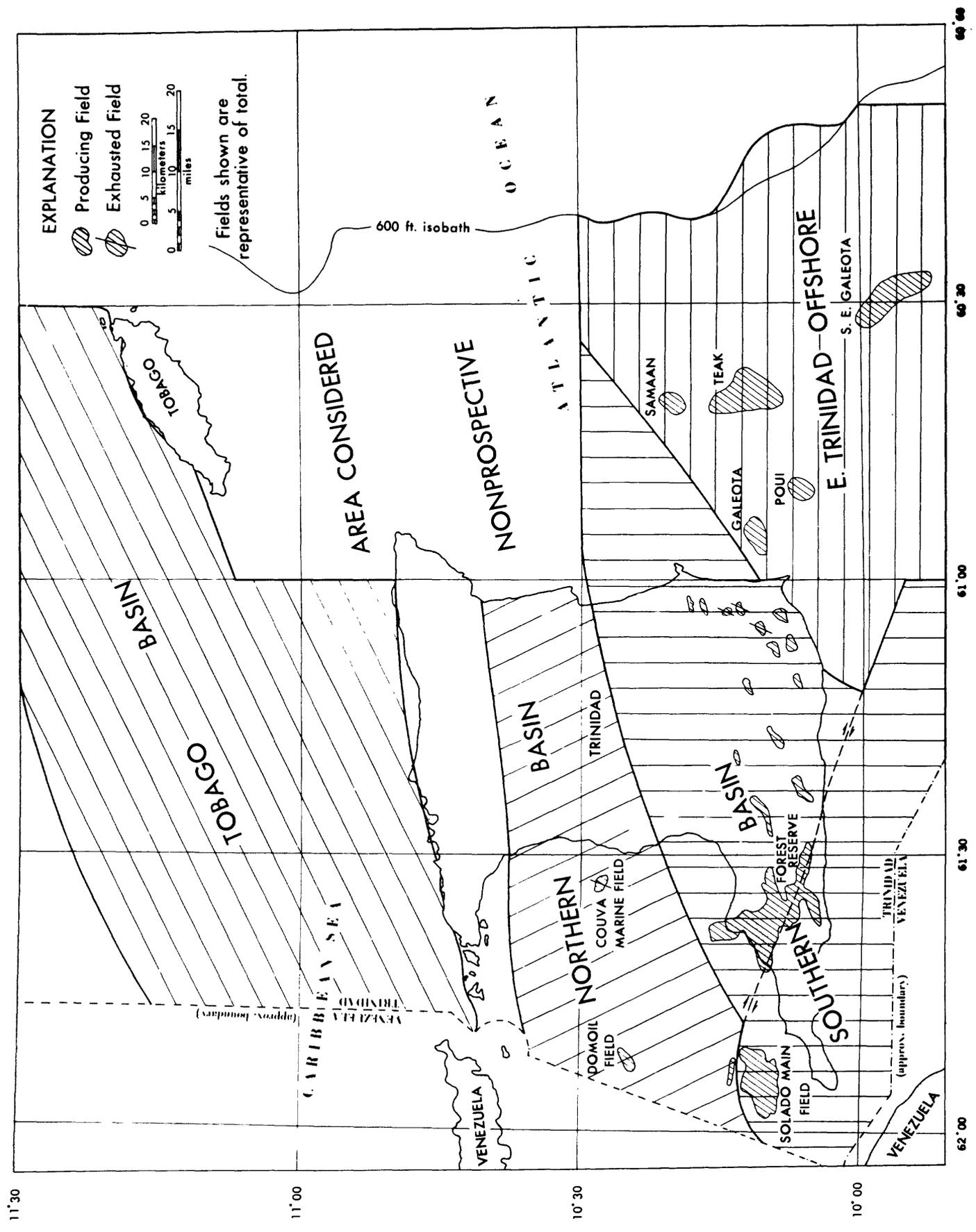
The resource assessment for this report was prepared under the guidance of the Resource Appraisal Group of the Branch of Oil and Gas Resources. The geologic investigation leading to the assessment was conducted by Philip R. Woodside.



Modified from: Petroconsultants and Barr, K. W., et al., 1958, The habitat of oil, Am. Assoc. Petrol. Geol., p. 533-550.

Figure 1. LOCATION OF TRINIDAD ASSESSMENT REGIONS

The boundary lines on this chart are for purposes of illustration only, and do not necessarily reflect the position or views of the United States with respect to the boundaries involved.



Modified from: Petroconsultants and Barr, K. W., et al., 1958, The habitat of oil, Am. Assoc. Petrol. Geol., p. 533-550.

Figure 1. LOCATION OF TRINIDAD ASSESSMENT REGIONS

The boundary lines on this chart are for purposes of illustration only, and do not necessarily reflect the position or views of the United States with respect to the boundaries involved.

Table 1.--Assessment of conventionally recoverable petroleum resources of Trinidad

Unconditional resource assessment by USGS as of 12/2/80; see also figures 2 and 3.

Probability of occurrence in %	Crude Oil in Billions of Barrels (BB)			Natural Gas in Trillions of Cubic Feet (Tcf) and Billions of Barrels of Oil Equiv- alent (BBOE) @ 6,000 cuft/bbl.		
	<u>95%</u>	<u>5%</u>	<u>Mean</u>	<u>95%</u>	<u>5%</u>	<u>Mean</u>
=====						
1. Southern basin						
Estimate:	0.1	1.2	0.5	0.5	2.9	1.4

2. Northern basin						
Estimate:	negl.	0.6	0.2	0.1	1.7	0.6

3. E. Trinidad Offshore						
Estimate:	0.3	3.2	1.2	7.4	31.3	16.2

4. Tobago basin Offshore ^{1/}						
Estimate:	0	0.8	0.2	0.1	5.2	1.8

5. Trinidad total ^{2/}						
Estimate:	0.8	4.4	2.1	Tcf	10.6	34.5
				BBOE	1.8	5.8
						20.0
						3.4

^{1/} A marginal probability of .61 is assigned to the occurrence of commercial oil in this basin.

^{2/} Totals are derived by statistical aggregation; only the mean total equals the sum of the component parts.

UNCOND ** OR **

Assessment date: 12/2/80

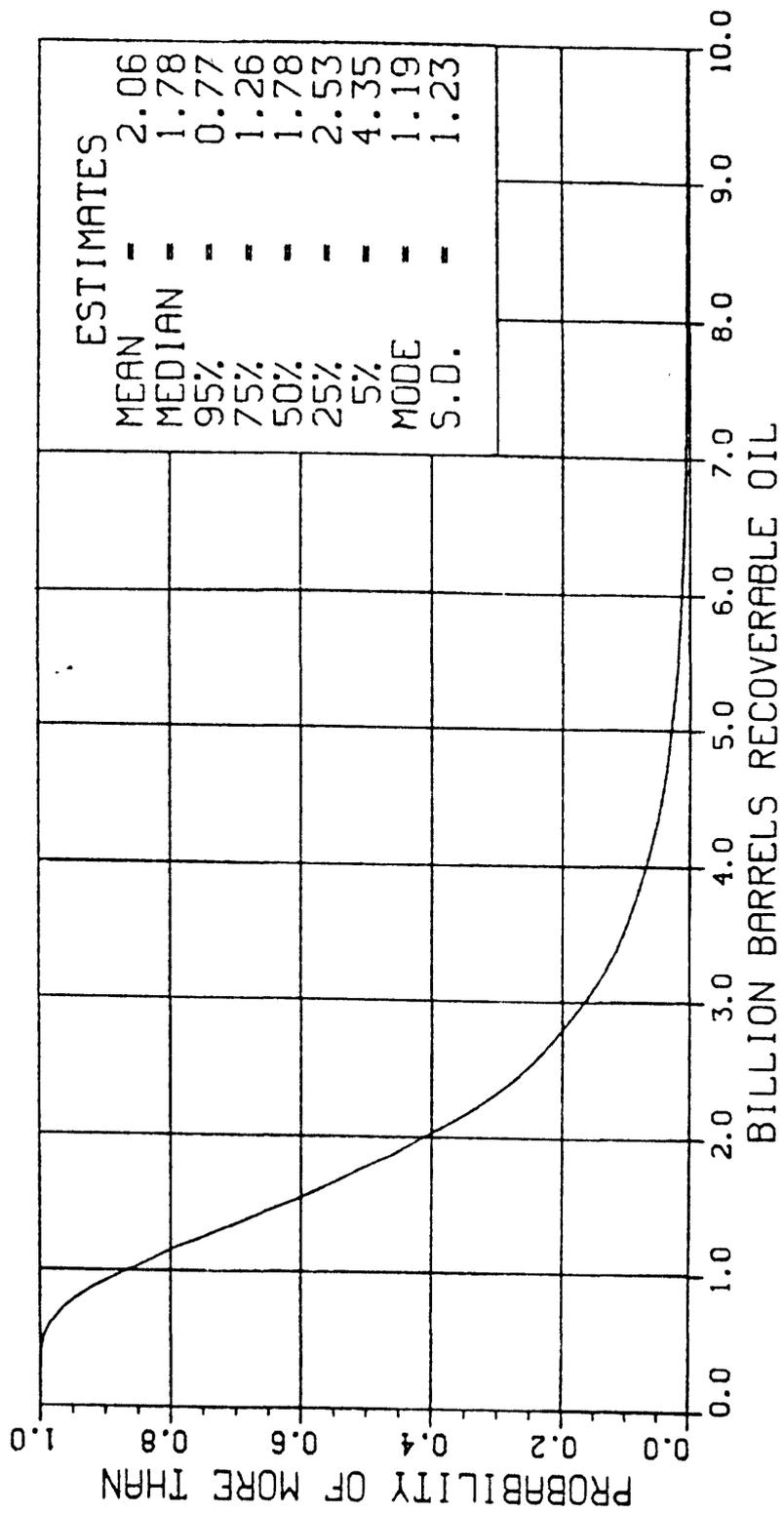


Figure 2.--Trinidad onshore and offshore aggregate recoverable oil

UNCOND ** OR **

Assessment date: 12/2/80

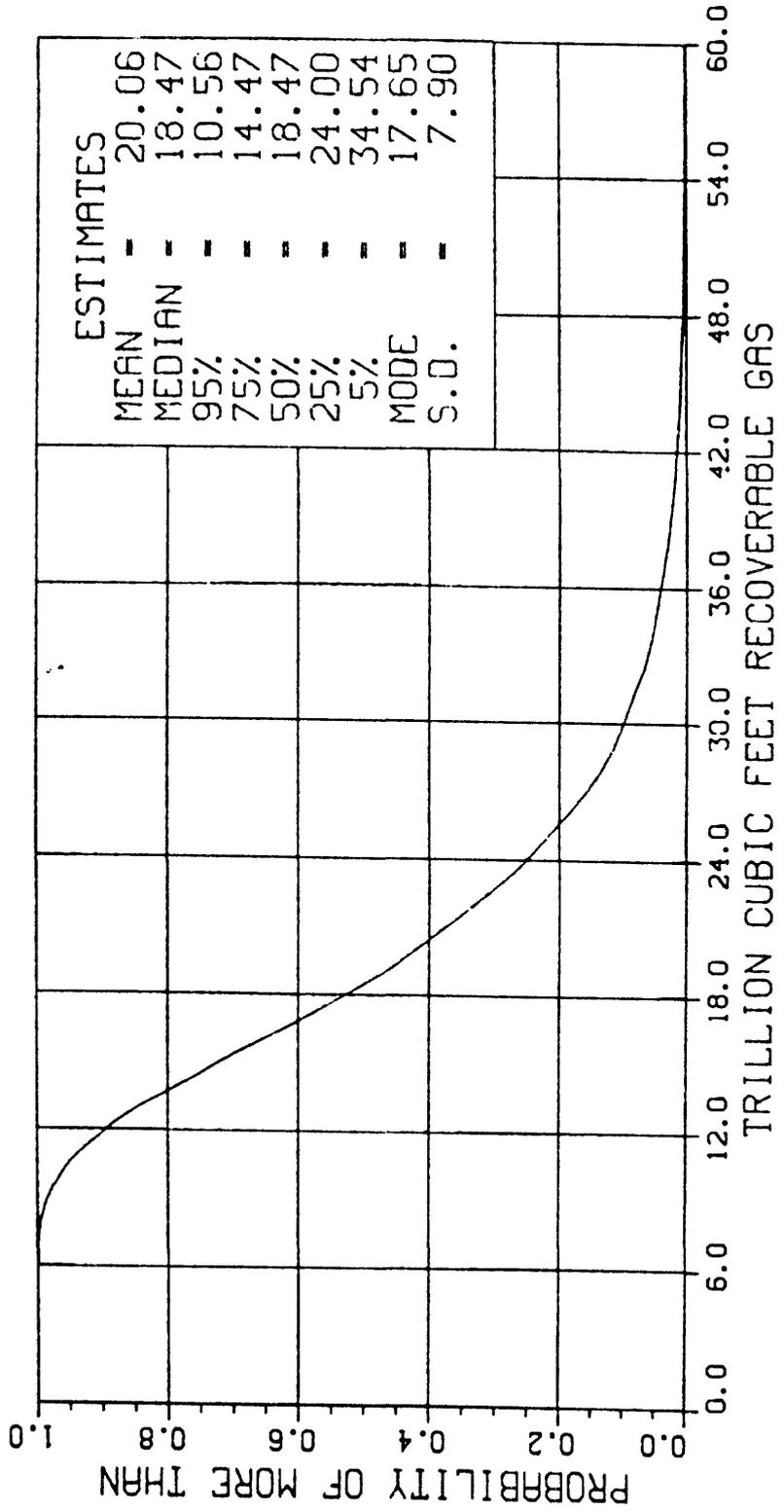


Figure 3.--Trinidad onshore and offshore aggregate recoverable total gas

Table 2.--Supplementary and comparative data supporting this resource assessment of Trinidad^{1/}

	Crude Oil (BB)	Natural Gas (Tcf)
1. Cumulative production to 1/1/78 (estimate)	1.6	2.9
2. Identified reserves to 1/1/78 ^{2/}		
Demonstrated	0.9	7.3
Inferred	+ <u>3/</u>	+ <u>3/</u>
3. Original recoverable resources (ultimate) of Trinidad		
Cumulative	1.6	2.9
Identified		
Reserves	0.9+	7.3+
Undiscovered		
Resources (mean)	<u>2.1</u>	<u>20.1</u>
	4.6	30.3+
		BBOE 5.0+
Total = 9.6+ BBOE		

^{1/} Cumulative production and reserves are composited estimates from various sources.

^{2/} Follows terminology outlined in USGS Circular 831. Demonstrated is equivalent to API Proved and Indicated Additional. Inferred represents anticipated field growth in existing fields.

^{3/} Quantity positive but data unavailable.

COMMENTS

- o Future petroleum discoveries in Trinidad are expected to be predominantly of gas from the offshore, both to the north and to the east.
- o In both of the prime offshore areas, gas discoveries have been found in basins that are continuous with Venezuelan basins in which discoveries have also been recorded. Venezuelan discoveries in the northern offshore area are particularly encouraging. In the eastern offshore area, Trinidad discoveries provide incentive for Venezuelan exploration.
- o East Trinidad offshore production occurs in the Neogene; the Tobago basin area produces from the Paleogene. A possible subthrust play below the zone of diapir origin in the Southern Basin has probably not been tested.
- o Onshore basins are in a highly mature stage of development.
- o Heavy oils found in the onshore fields are evidence of the poor seals for gas; light oils in the offshore fields suggest much improved sealing conditions for gas and oil.
- o Average recoverability of heavy oils is 13 percent, that of light oils is 24 percent, and that of gas is 80 percent. Enhanced recovery practices will significantly affect Trinidad's future production.