

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PETROLEUM POTENTIAL OF DESIGNATED VERSUS PROPOSED
WILDERNESS LANDS IN THE WESTERN UNITED STATES

by

Robert A. Crovelli

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

CONTENTS

	Page
Introduction.....	5
Acknowledgment.....	55
References.....	55

ILLUSTRATIONS

Figures 1A-12D.--Probability graphs of petroleum potential

1A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Arizona.....	6
1B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Arizona.....	7
1C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Arizona.....	8
1D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Arizona.....	9
2A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in California.....	10
2B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in California.....	11
2C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in California.....	12
2D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in California.....	13

	Page
3A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Colorado.....	14
3B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Colorado.....	15
3C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Colorado.....	16
3D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Colorado.....	17
4A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Idaho.....	18
4B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Idaho.....	19
4C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Idaho.....	20
4D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Idaho.....	21
5A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Montana.....	22
5B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Montana.....	23
5C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Montana.....	24
5D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Montana.....	25
6A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Nevada.....	26
6B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Nevada.....	27
6C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Nevada.....	28
6D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Nevada.....	29

	Page
7A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in New Mexico.....	30
7B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in New Mexico.....	31
7C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in New Mexico.....	32
7D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in New Mexico.....	33
8A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Oregon.....	34
8B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Oregon.....	35
8C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Oregon.....	36
8D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Oregon.....	37
9A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Utah.....	38
9B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Utah.....	39
9C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Utah.....	40
9D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Utah.....	41
10A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Washington.....	42
10B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Washington.....	43
10C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Washington.....	44
10D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Washington.....	45

	Page
11A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Wyoming.....	46
11B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Wyoming.....	47
11C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Wyoming.....	48
11D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Wyoming.....	49
12A.--Total undiscovered recoverable oil resources in Designated Wilderness Lands in 11 Western States.....	50
12B.--Total undiscovered recoverable oil resources in Proposed Wilderness Lands in 11 Western States.....	51
12C.--Total undiscovered recoverable gas resources in Designated Wilderness Lands in 11 Western States.....	52
12D.--Total undiscovered recoverable gas resources in Proposed Wilderness Lands in 11 Western States.....	53

TABLE

Table 1.--Petroleum potential of Designated versus Proposed Wilderness Lands by State in Western United States.....	54
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INTRODUCTION

U.S. Geological Survey Circular 902-A-P, "Petroleum potential of Wilderness Lands in the western United States" (Miller, 1983, editor), presented oil and gas resource estimates of Wilderness Lands without distinguishing between Designated and Proposed Wilderness Lands. Those estimates were derived from an assessment of 183 clusters of wilderness tracts. Of those 183 clusters, 43 consist of both Designated and Proposed lands; the remaining 140 clusters are either 100 percent Designated or 100 percent Proposed Wilderness Lands.

A division of petroleum potential into the two categories, Designated and Proposed Wilderness Lands, is now made based on the percentage of the acreage of each category in each wilderness cluster. That is, for each cluster, the "cluster area fraction" (Crovetli, 1983, p. 02 and 04) is reduced by applying the percentage for Designated Wilderness Land, and the methodology then continues as described by Crovetli, 1983. The process is repeated for Proposed Wilderness Land in each cluster.

Graphs of undiscovered recoverable oil and gas resource potential in Designated versus Proposed Wilderness Lands are presented for the 11 western states. The graphs are more-than cumulative distribution functions that give the probability of more than a specific amount. A summary table of resource estimates is also given.

DESIGNATED WILDERNESS LANDS -- Oil -- Arizona

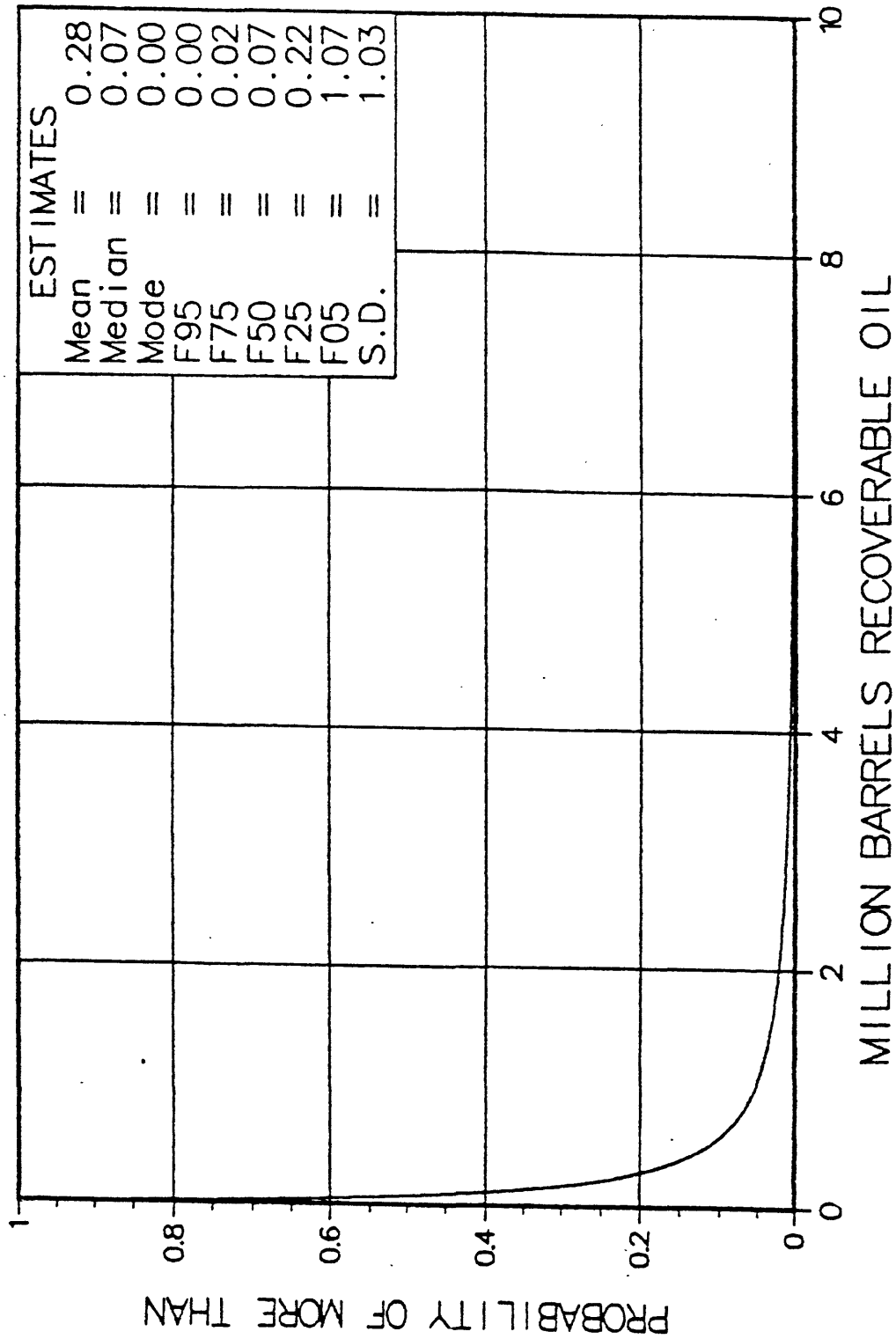


Figure 1A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Arizona.

PROPOSED WILDERNESS LANDS — Oil — Arizona

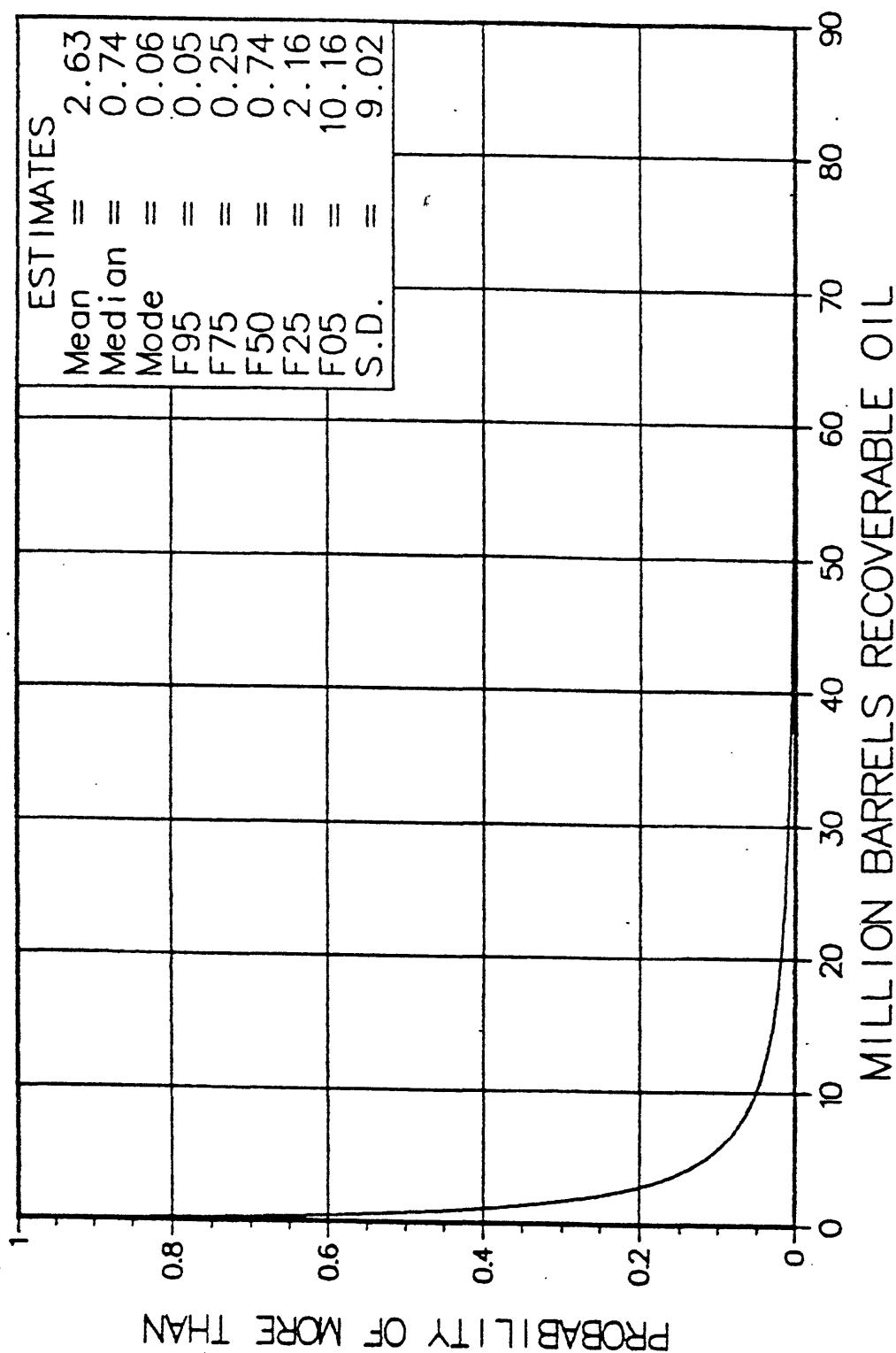


Figure 1B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Arizona.

DESIGNATED WILDERNESS LANDS -- Gas -- Arizona

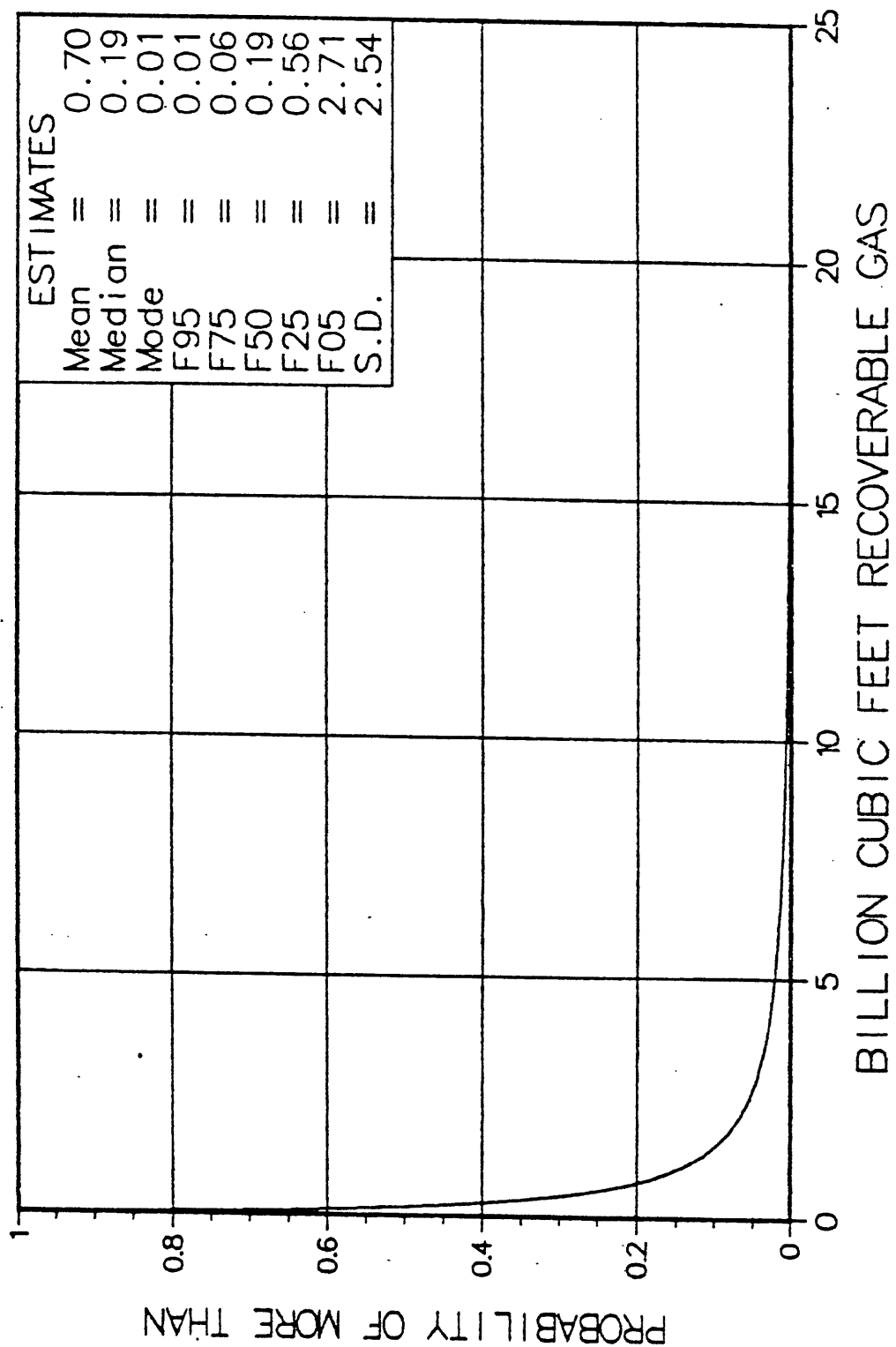


Figure 1C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Arizona.

PROPOSED WILDERNESS LANDS - Gas - Arizona

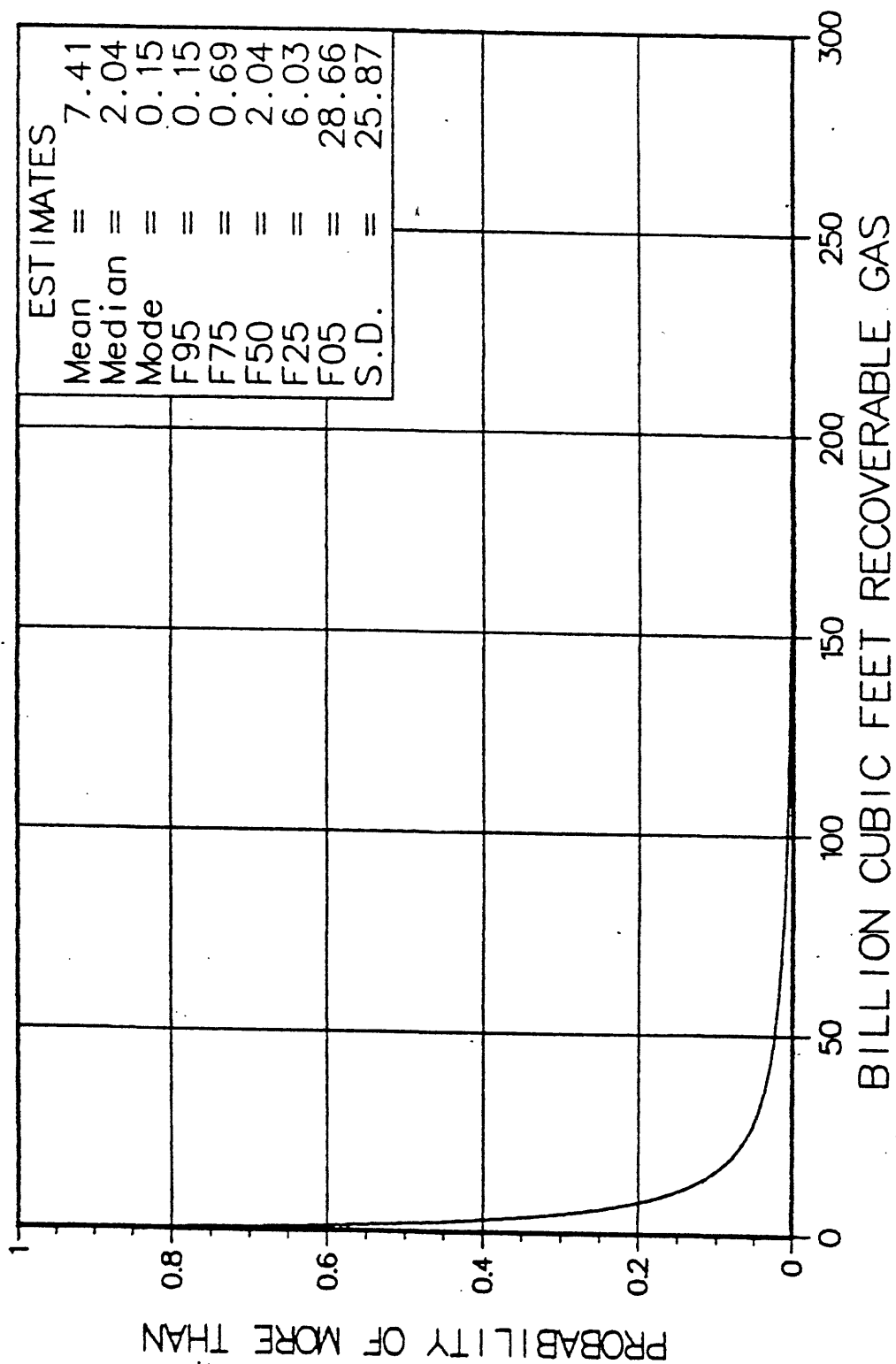


Figure 1D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Arizona.

DESIGNATED WILDERNESS LANDS -- Oil -- California

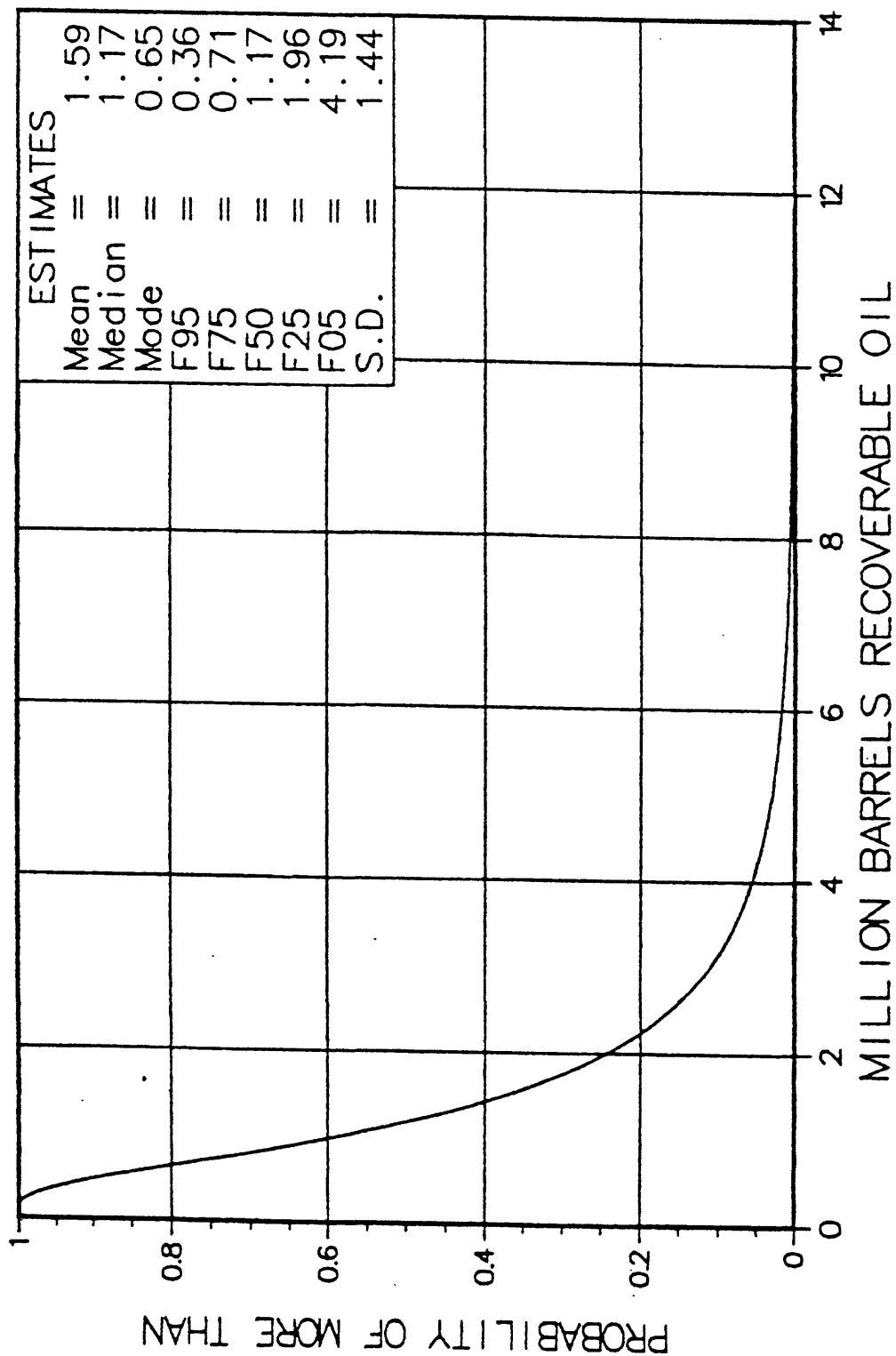


Figure 2A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in California.

PROPOSED WILDERNESS LANDS - Oil - California

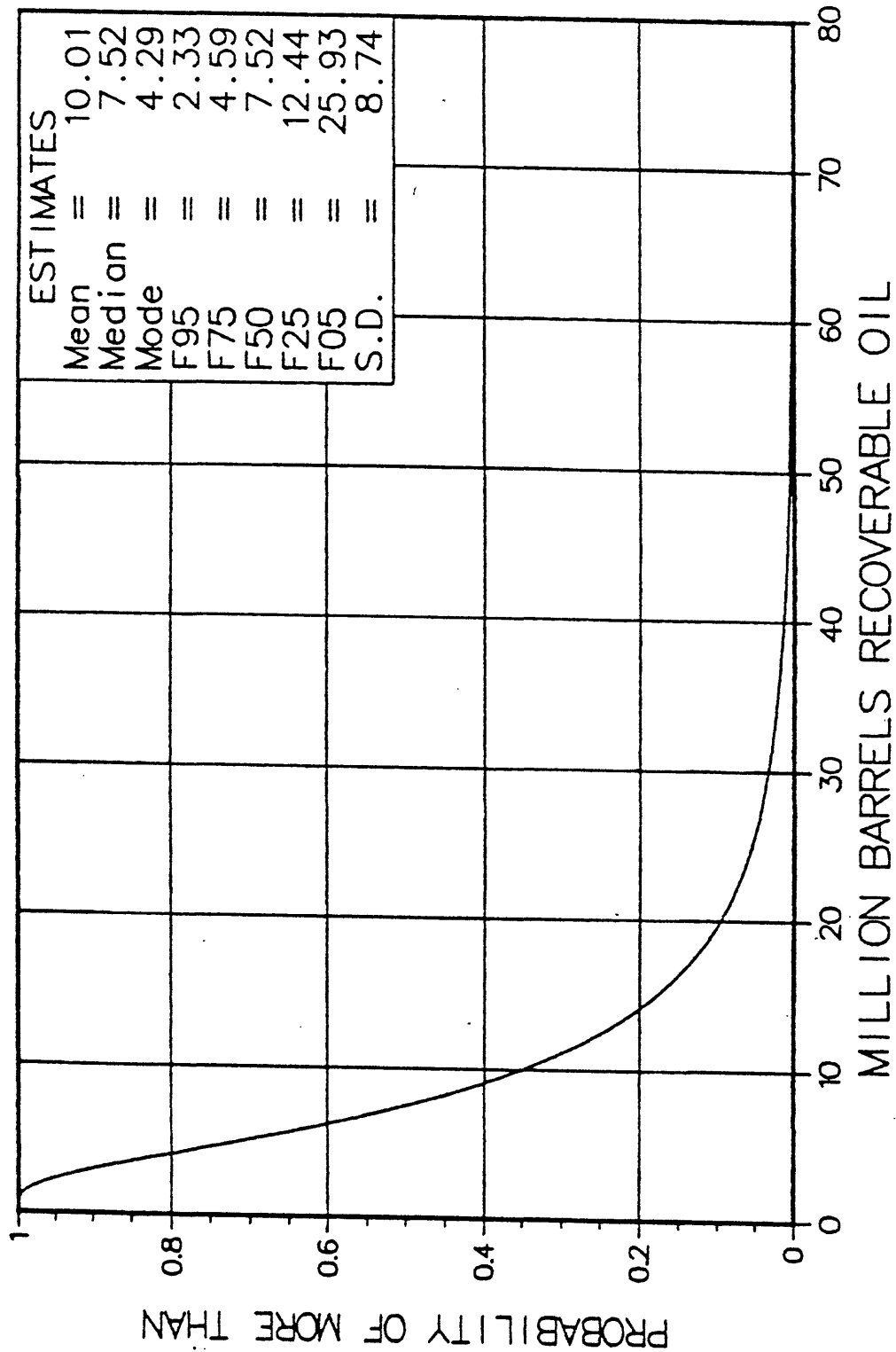


Figure 2B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in California.

DESIGNATED WILDERNESS LANDS -- Gas -- California

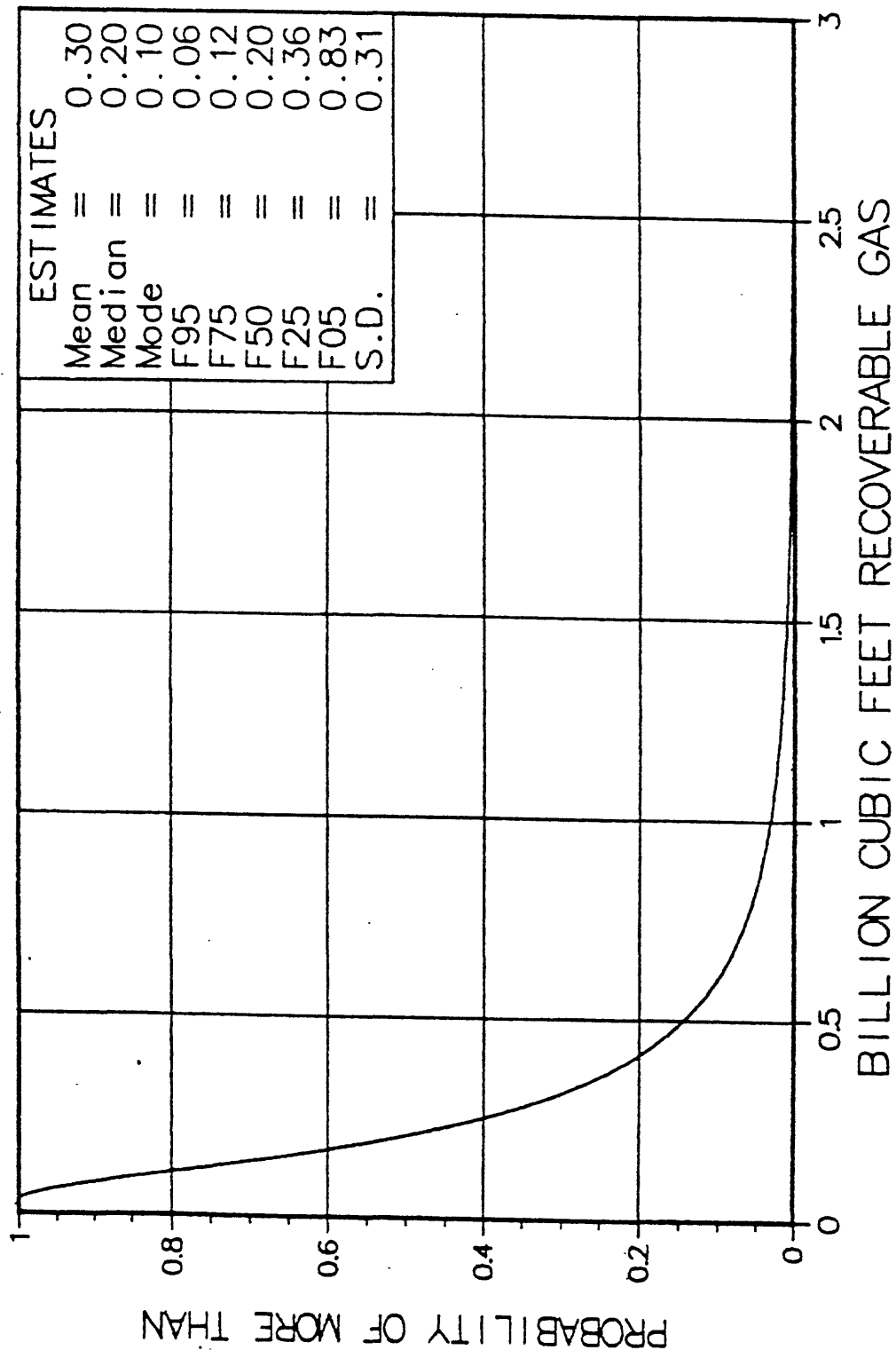


Figure 2C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in California.

PROPOSED WILDERNESS LANDS - Gas - California

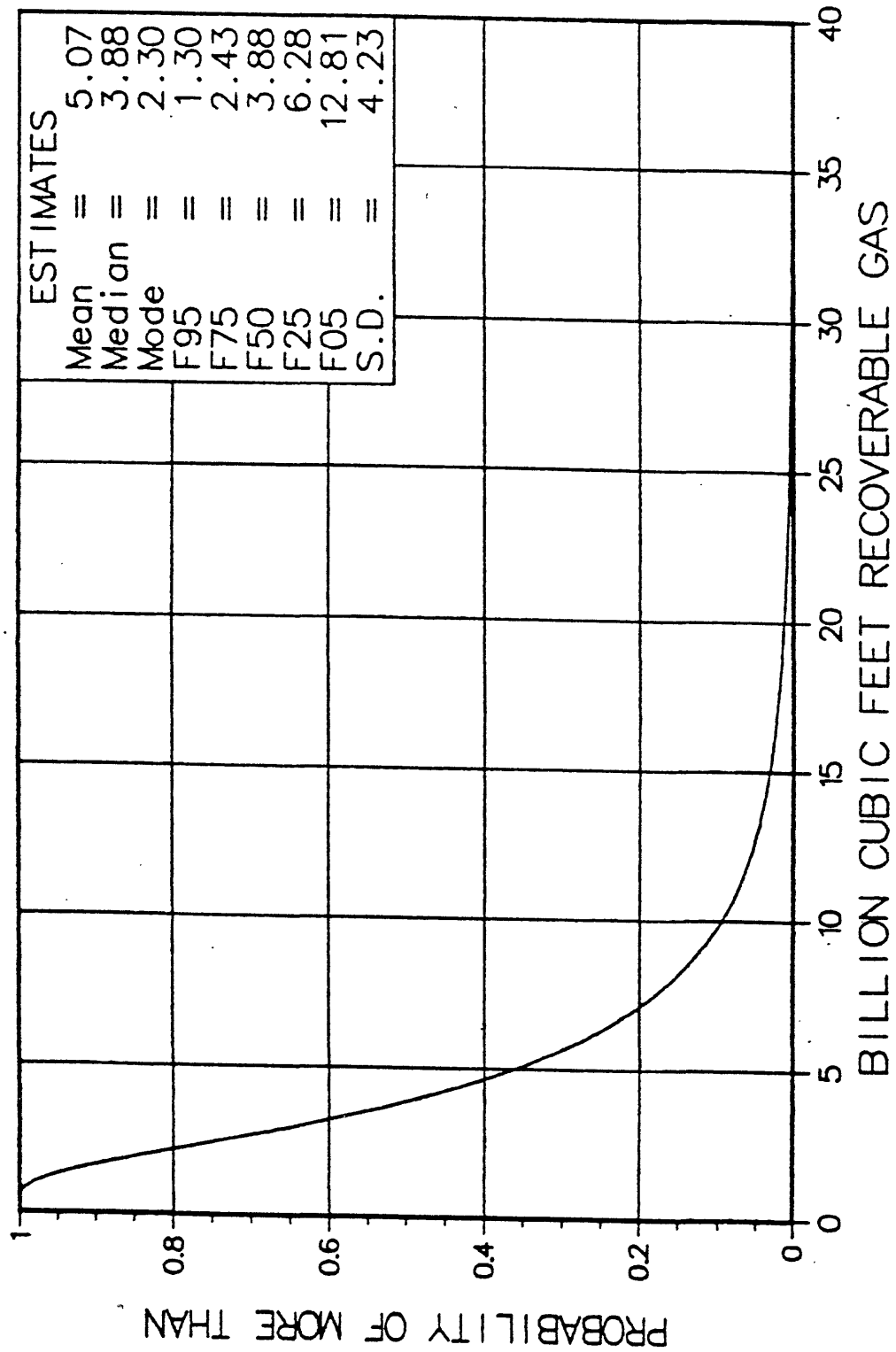


Figure 2D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in California.

DESIGNATED WILDERNESS LANDS -- Oil -- Colorado

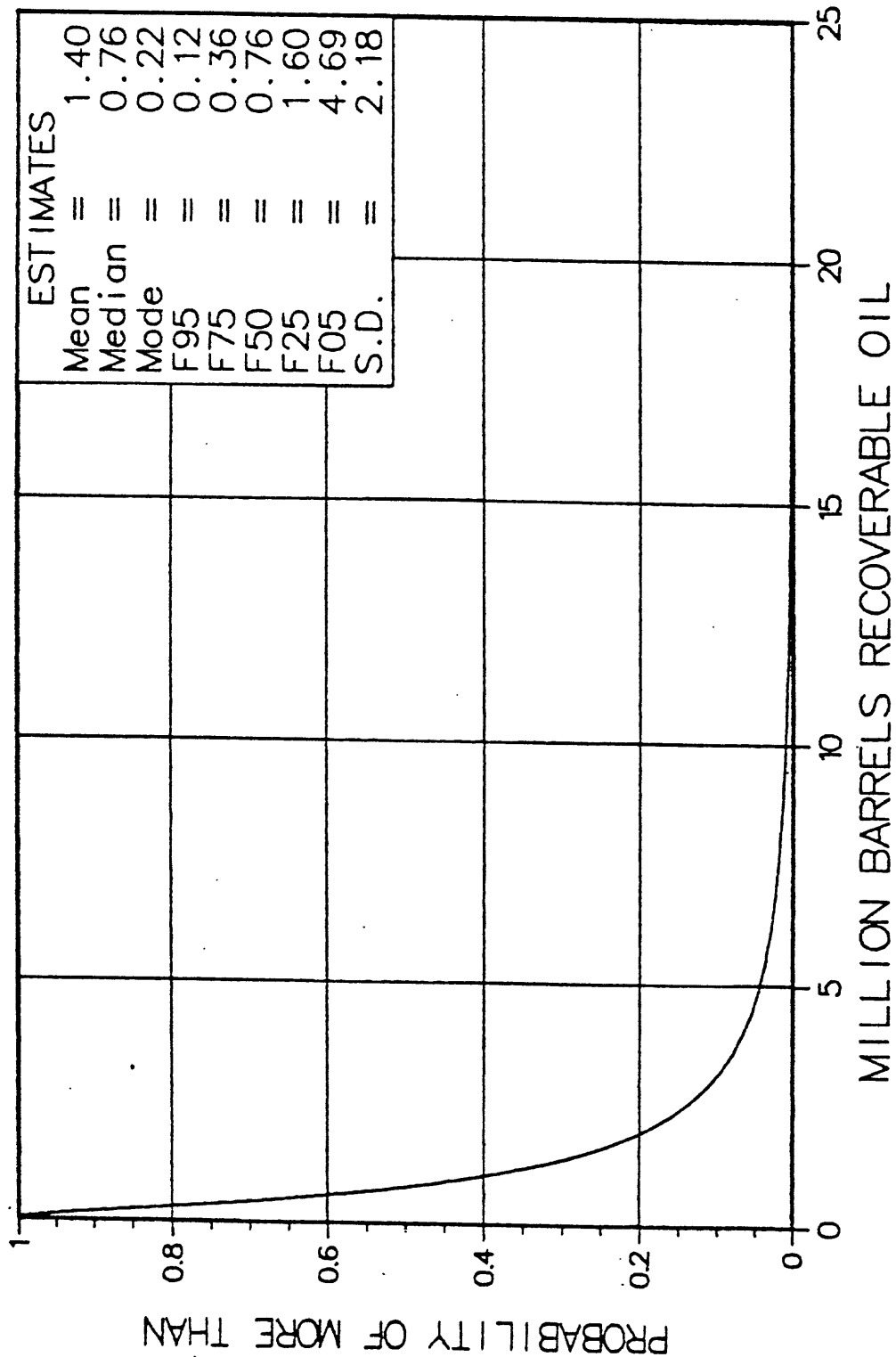


Figure 3A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Colorado.

PROPOSED WILDERNESS LANDS -- Oil -- Colorado

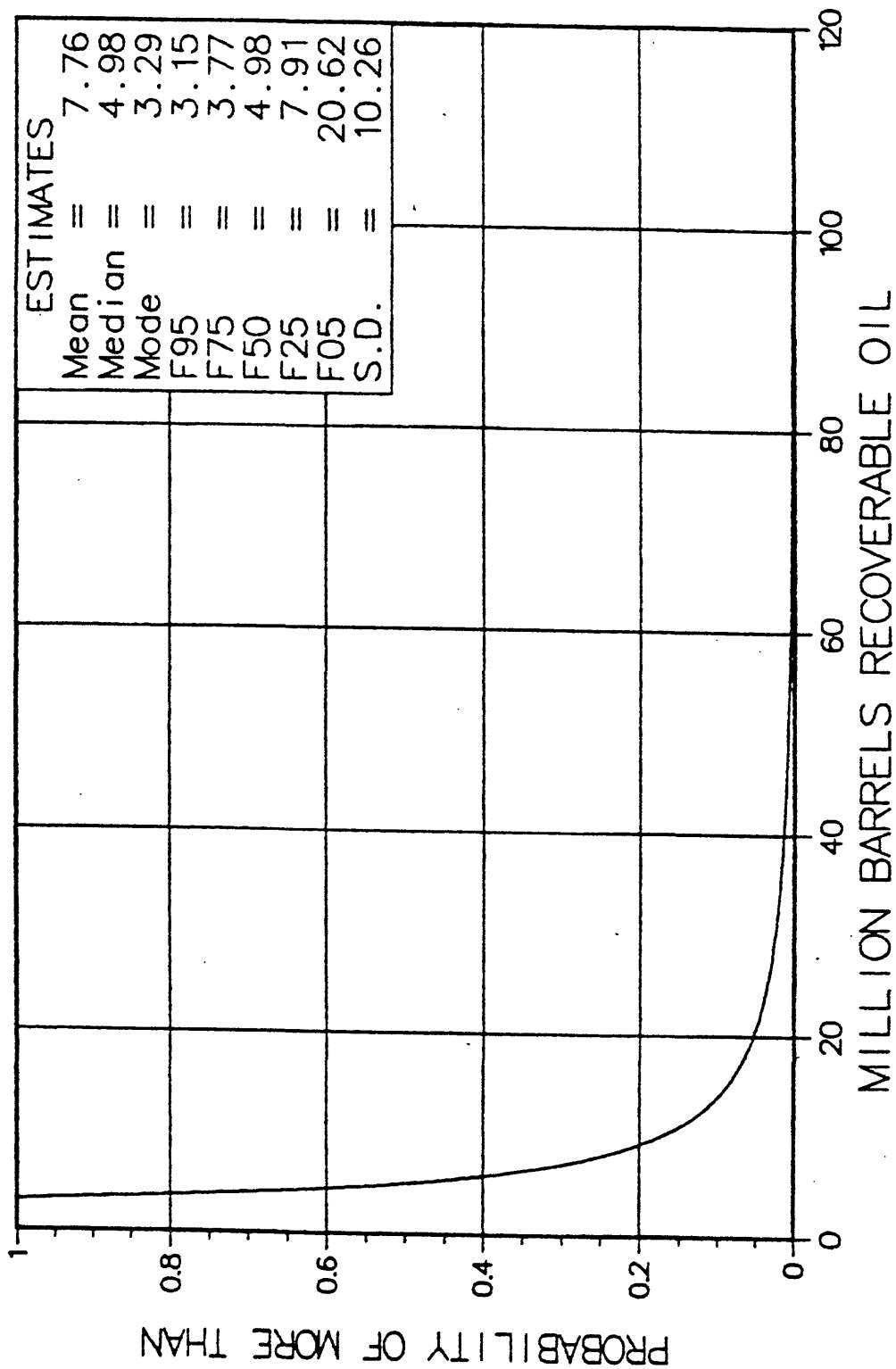


Figure 3B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Colorado.

DESIGNATED WILDERNESS LANDS -- Gas -- Colorado

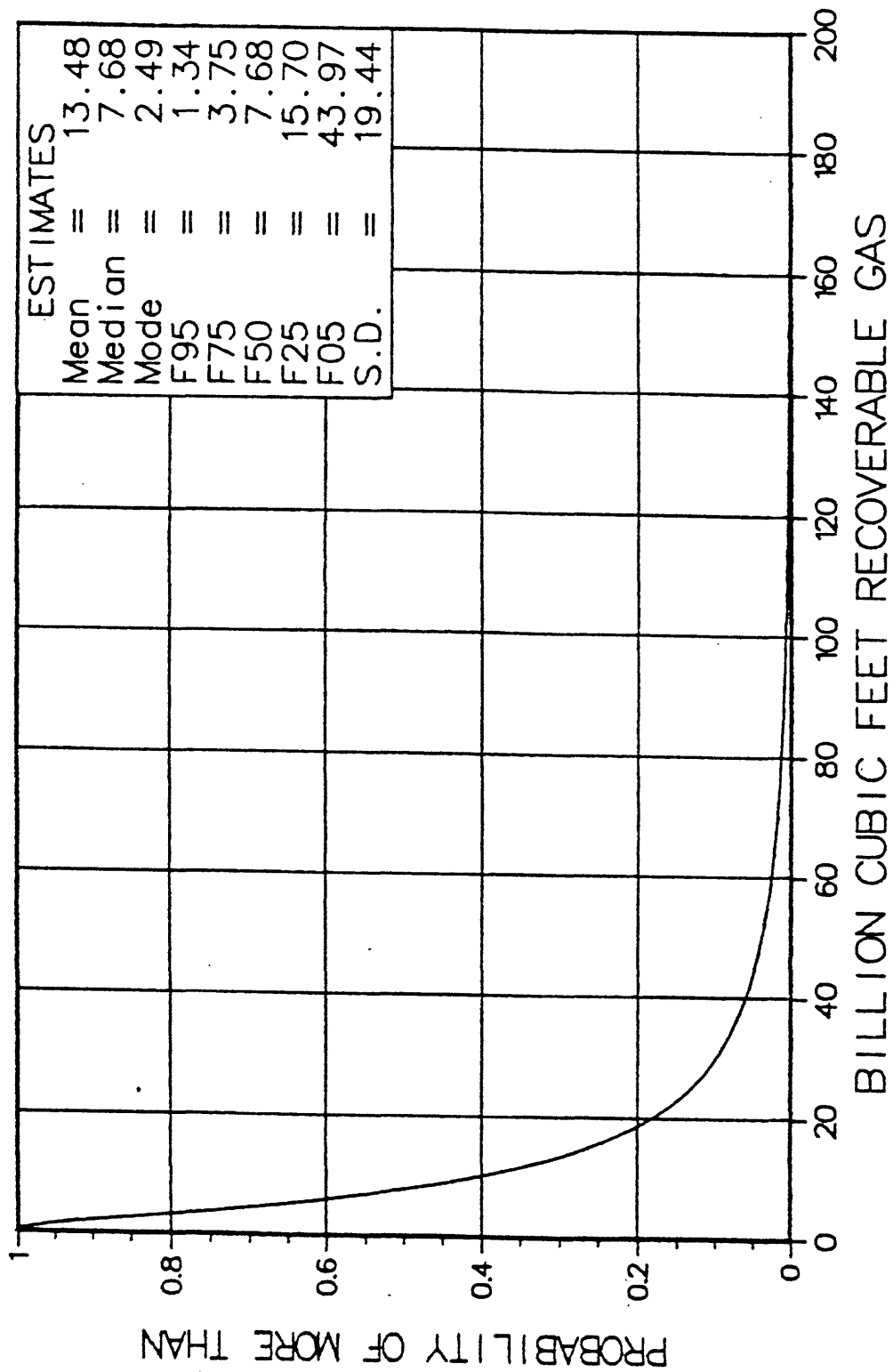


Figure 3C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Colorado.

PROPOSED WILDERNESS LANDS -- Gas -- Colorado

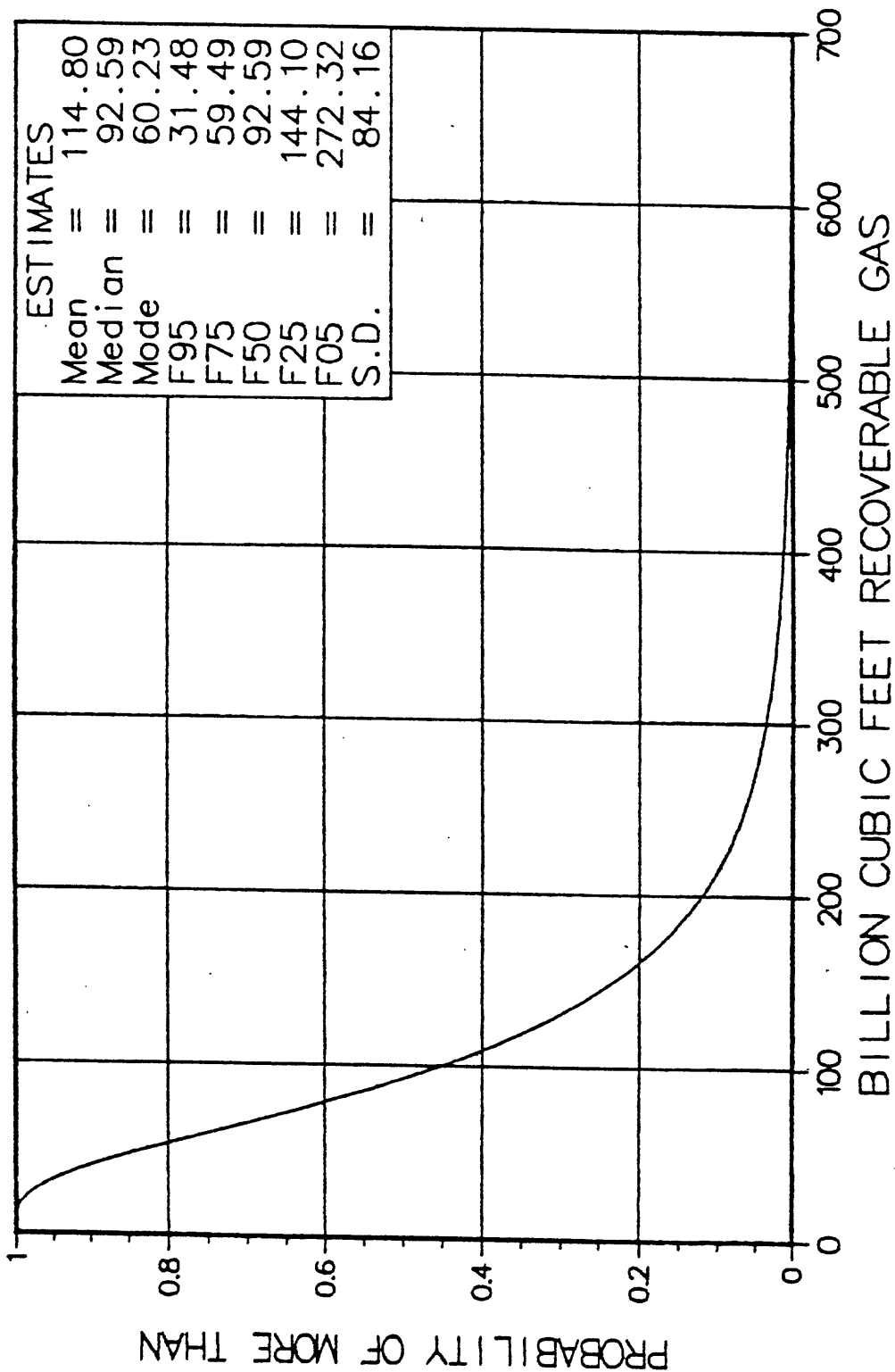


Figure 3D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Colorado.

DESIGNATED WILDERNESS LANDS -- Oil -- Idaho

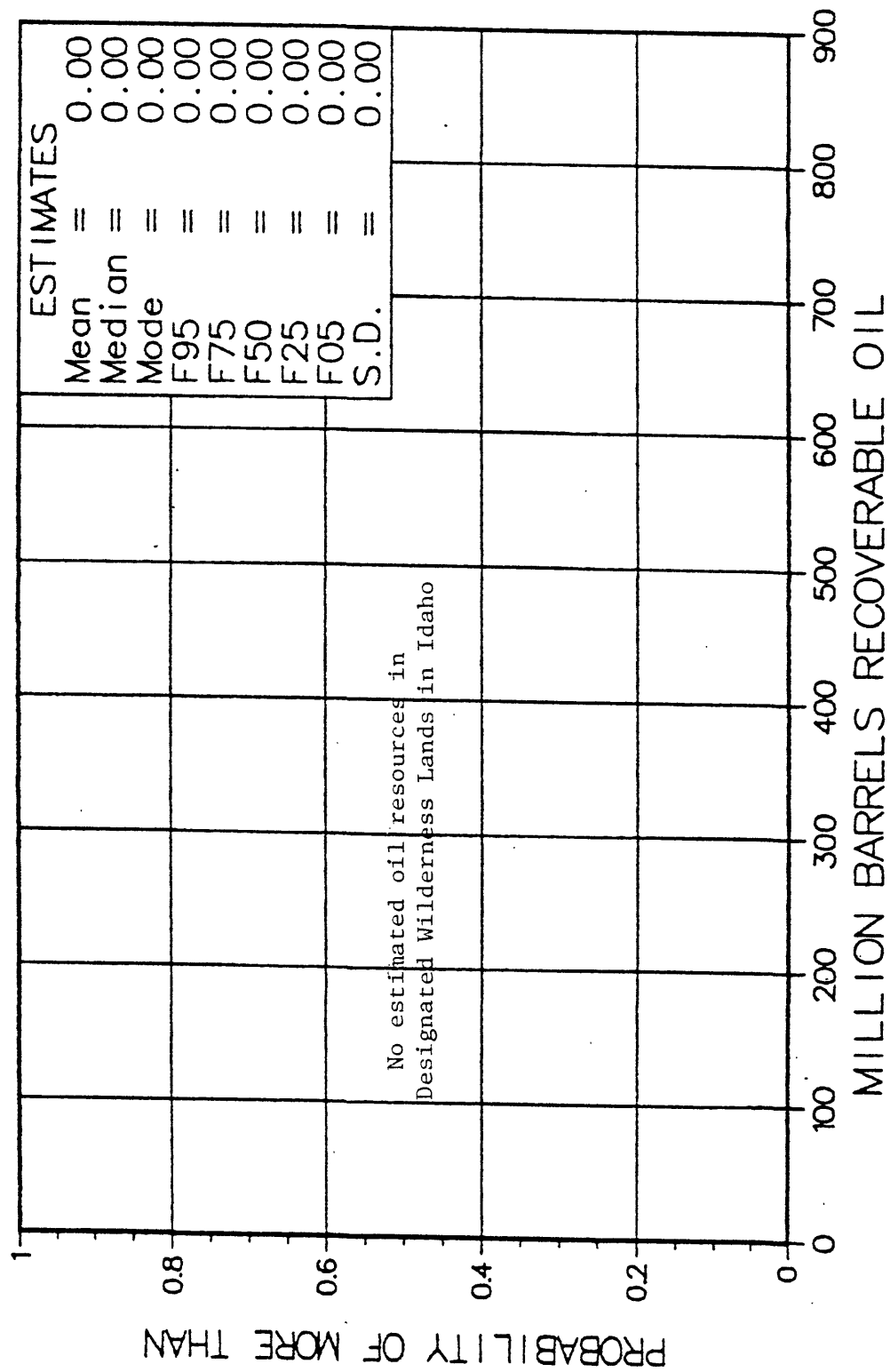


Figure 4A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Idaho.

PROPOSED WILDERNESS LANDS - Oil - Idaho

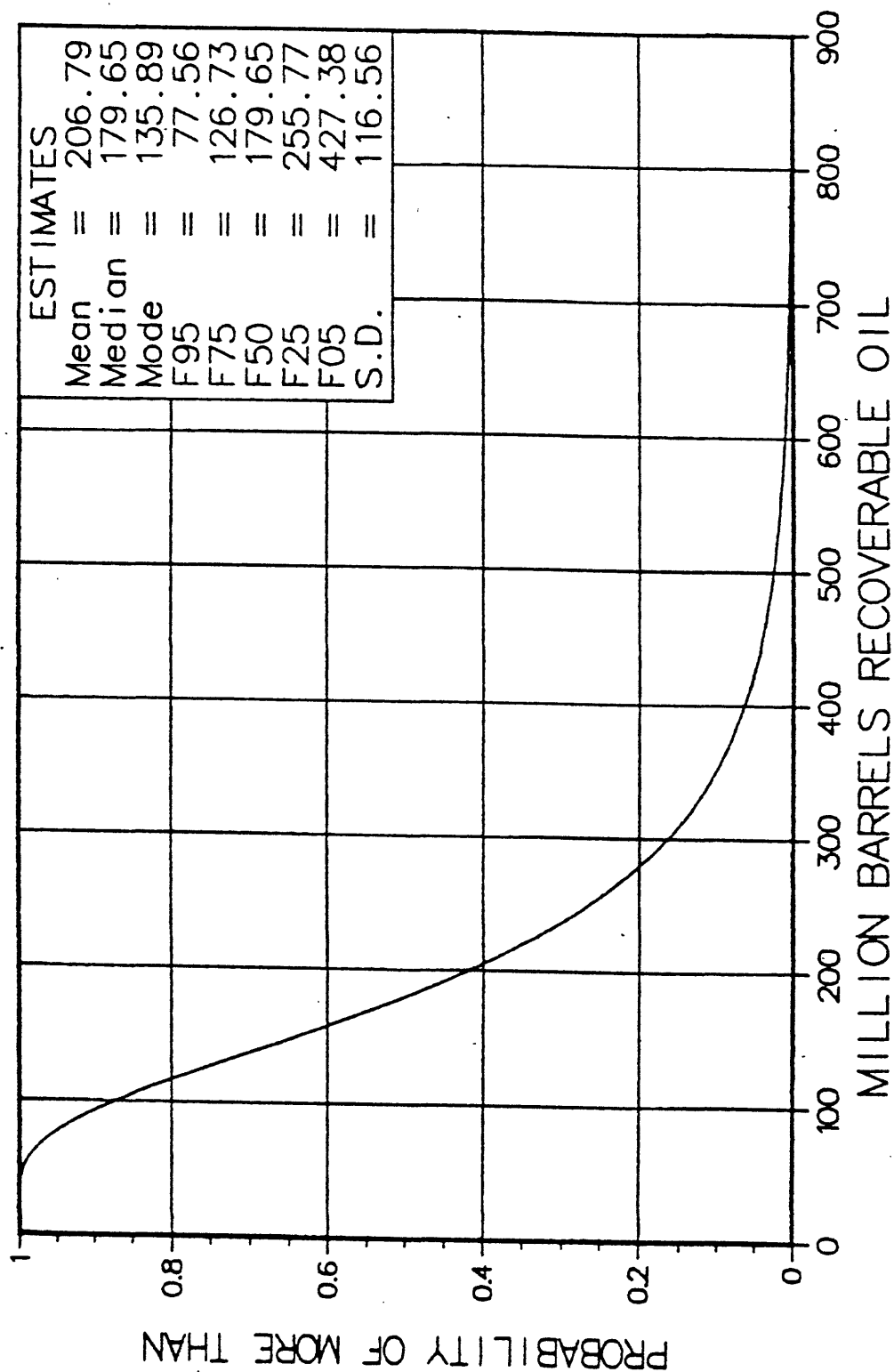


Figure 4B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Idaho.

DESIGNATED WILDERNESS LANDS -- Gas -- Idaho

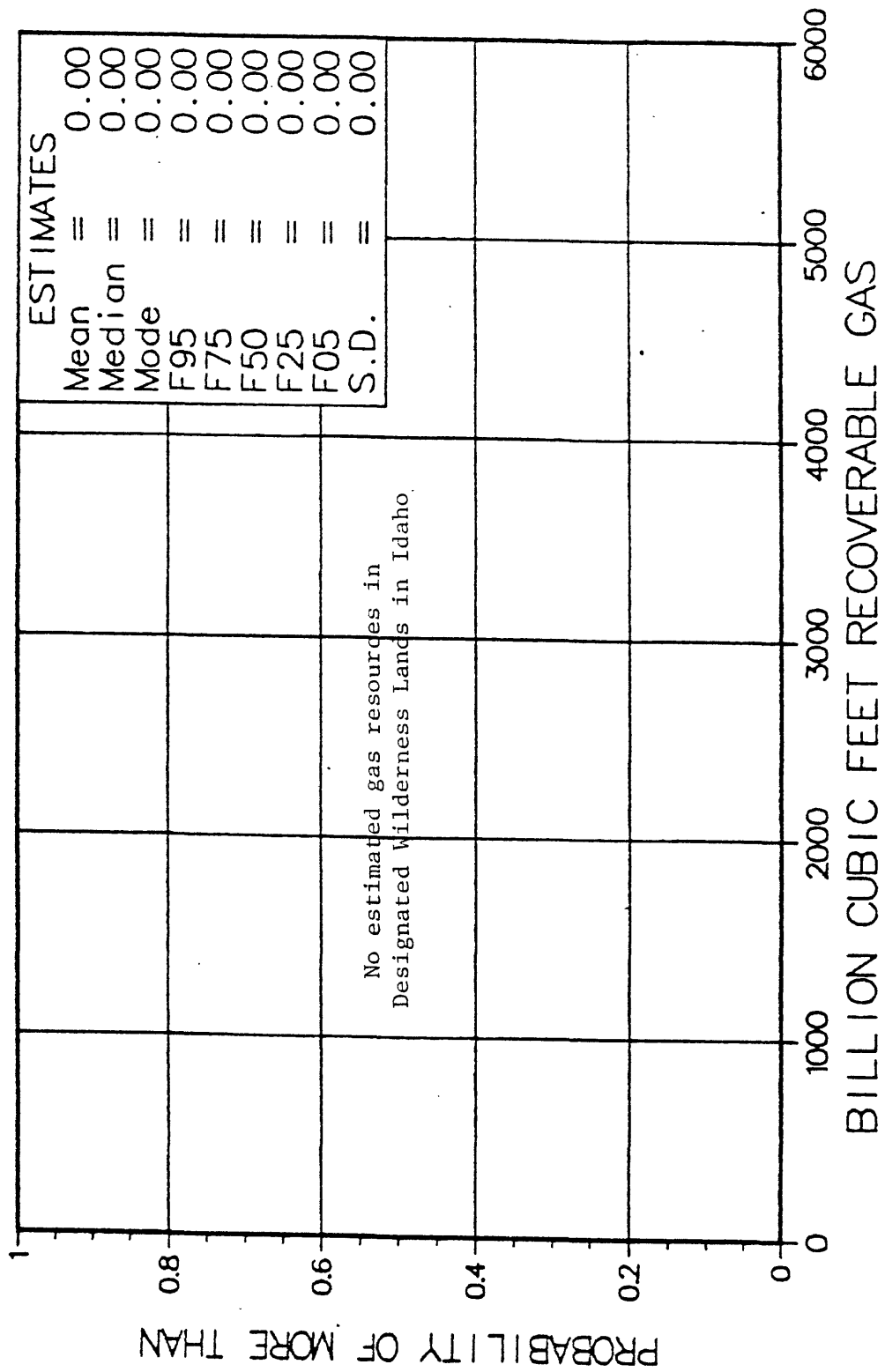


Figure 4C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Idaho.

PROPOSED WILDERNESS LANDS - Gas - Idaho

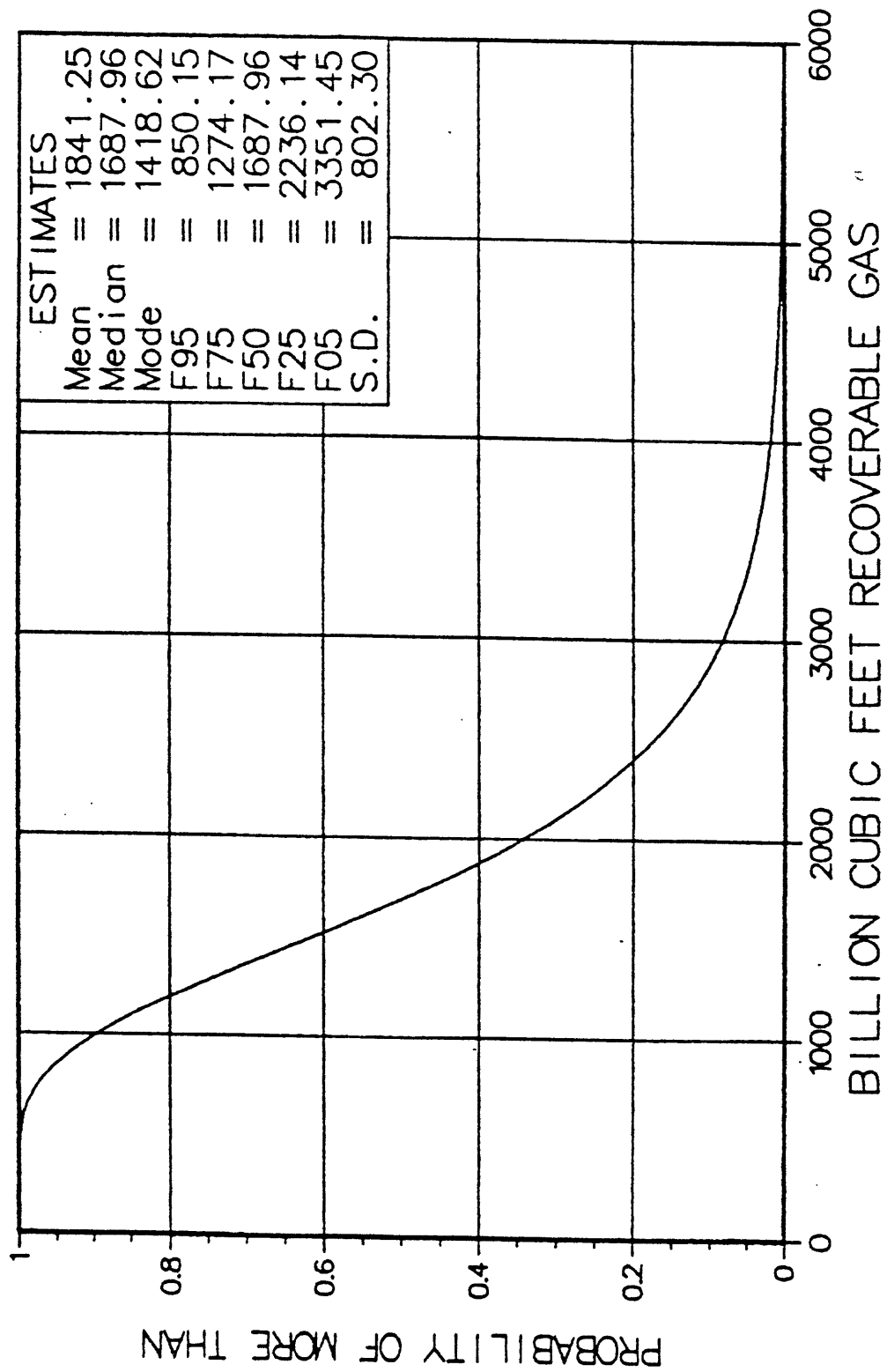


Figure 4D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Idaho.

DESIGNATED WILDERNESS LANDS -- Oil -- Montana

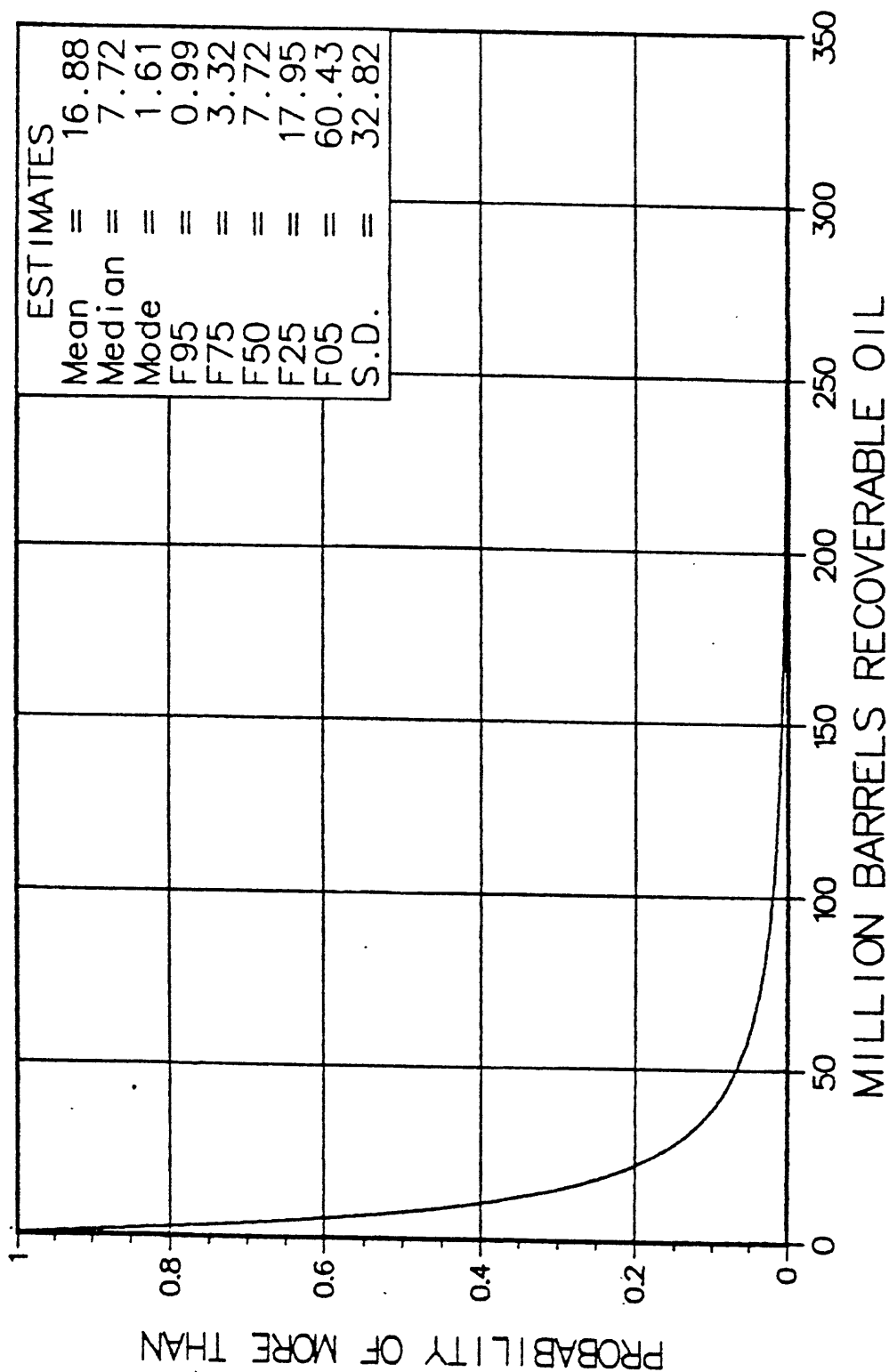


Figure 5A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Montana.

PROPOSED WILDERNESS LANDS - Oil - Montana

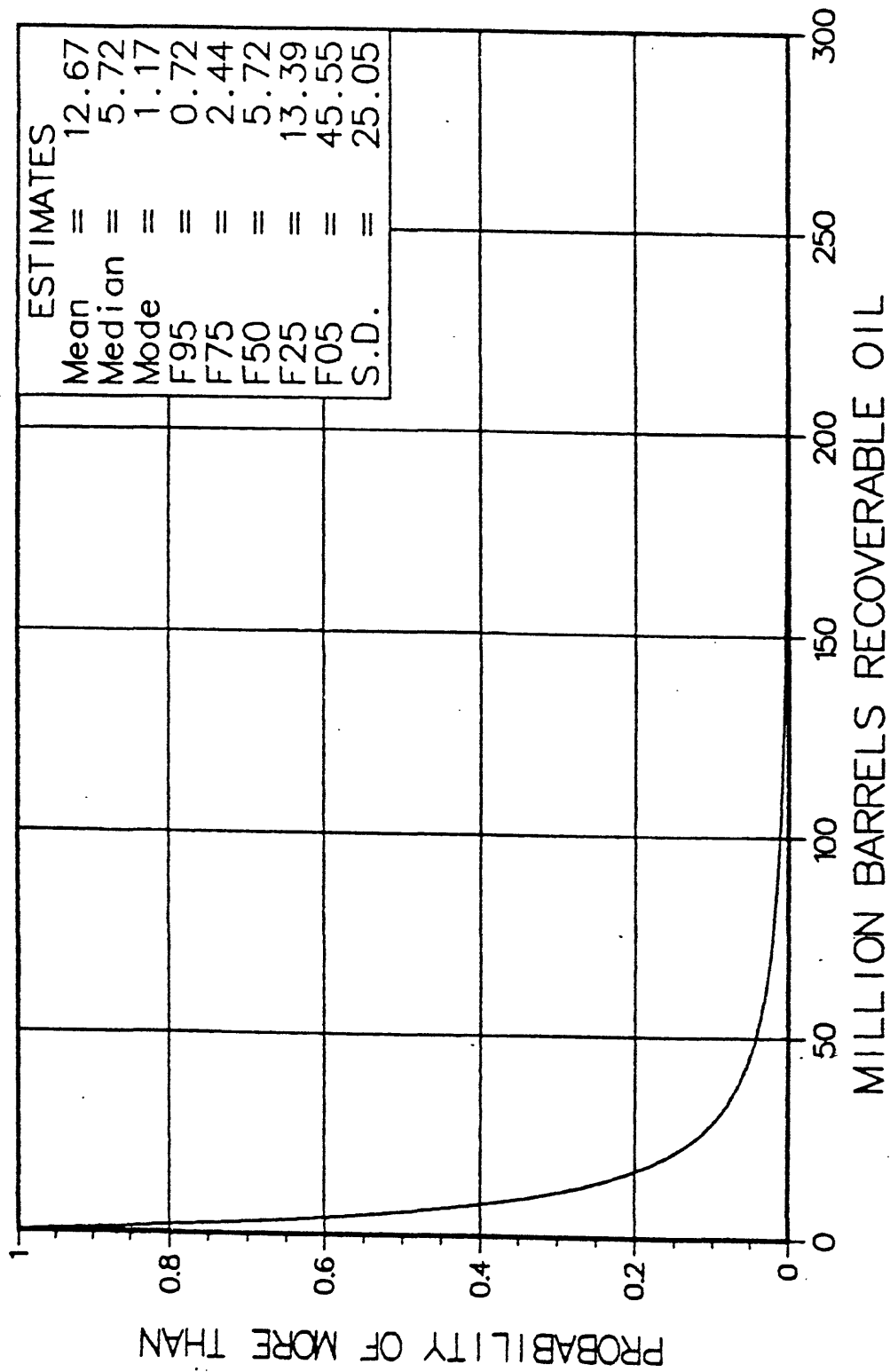


Figure 5B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Montana.

DESIGNATED WILDERNESS LANDS - Gas - Montana

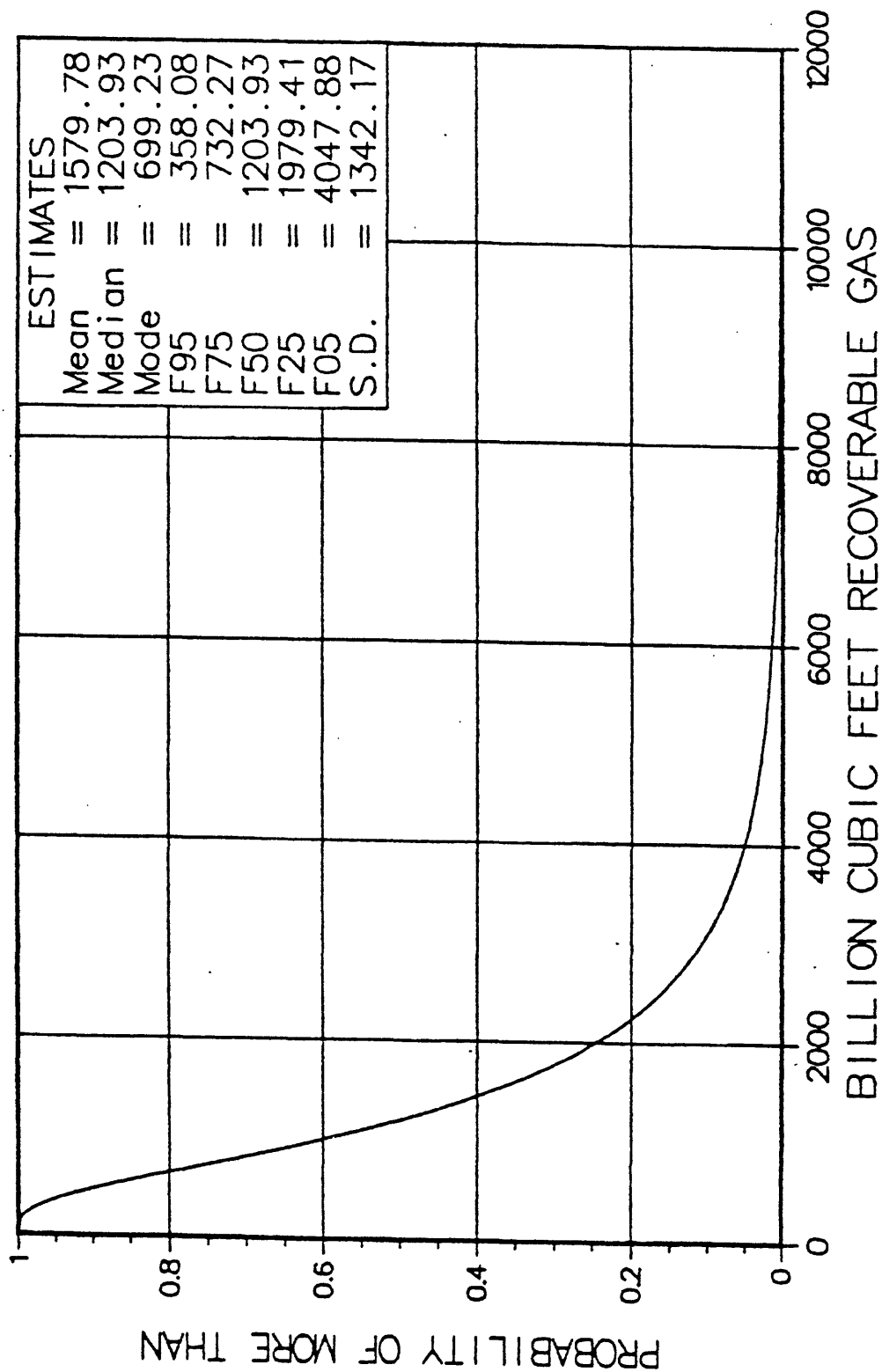


Figure 5C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Montana.

PROPOSED WILDERNESS LANDS - Gas - Montana

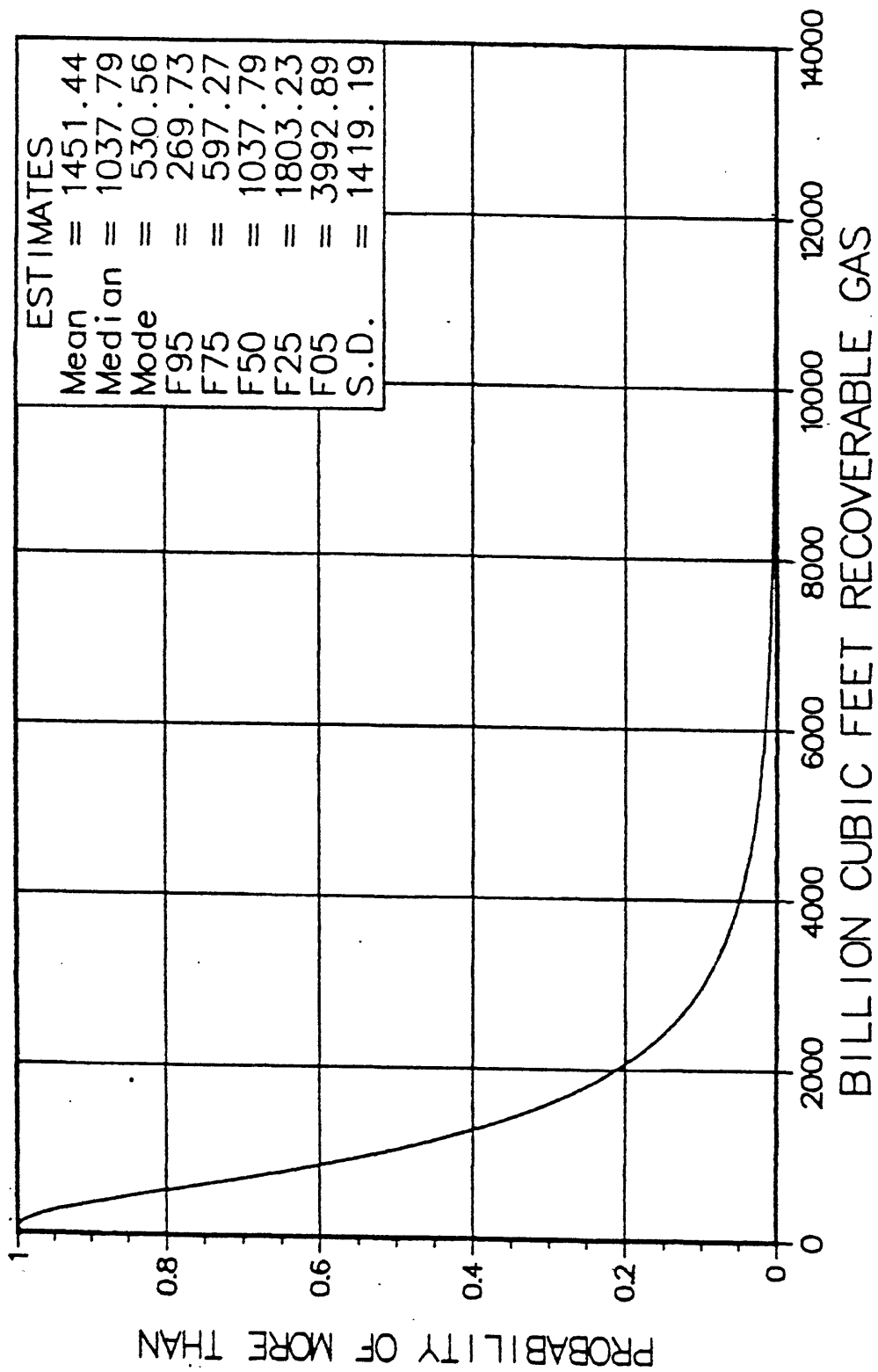


Figure 5D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Montana.

DESIGNATED WILDERNESS LANDS -- Oil -- Nevada

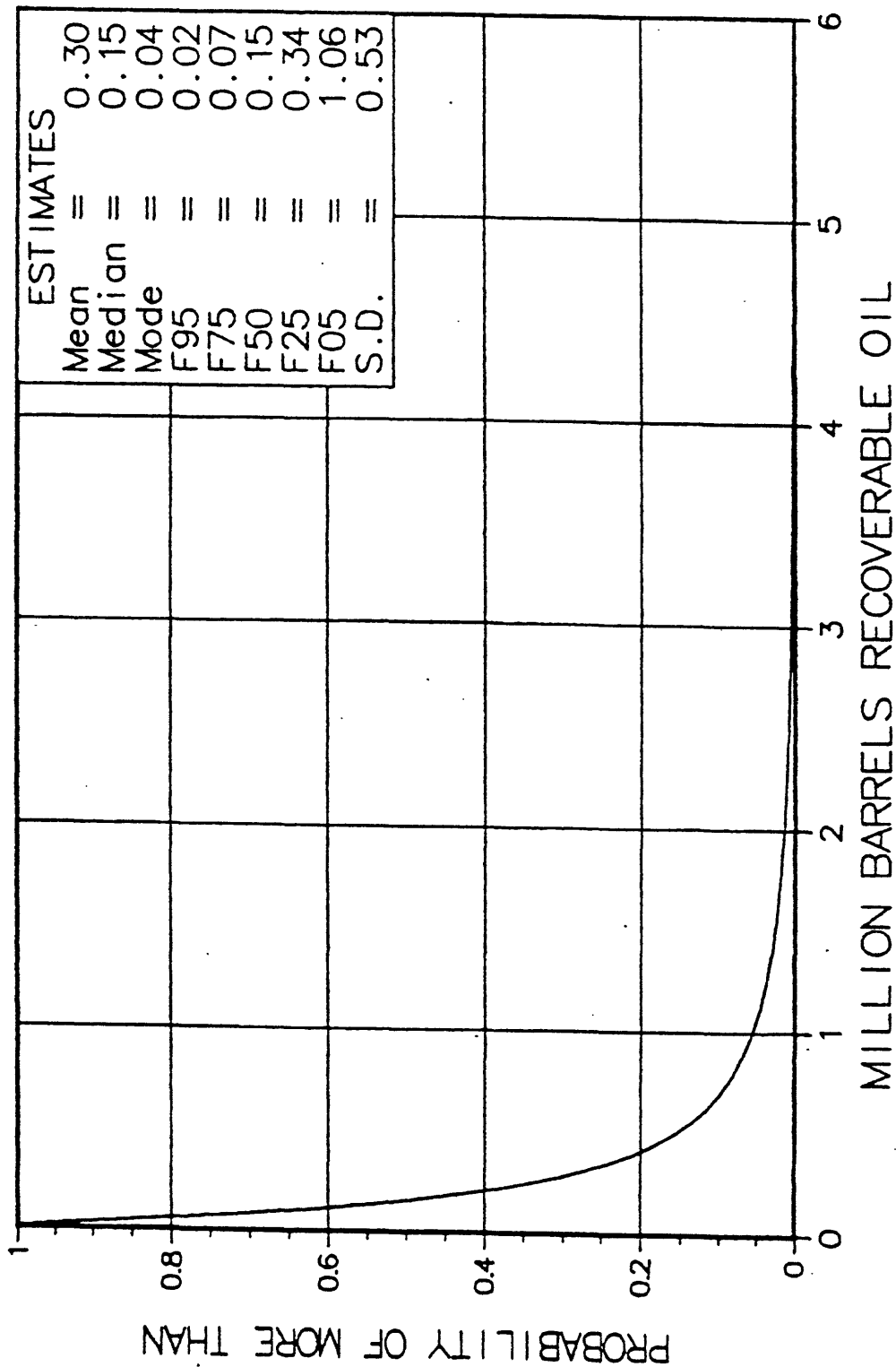


Figure 6A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Nevada.

PROPOSED WILDERNESS LANDS - Oil - Nevada

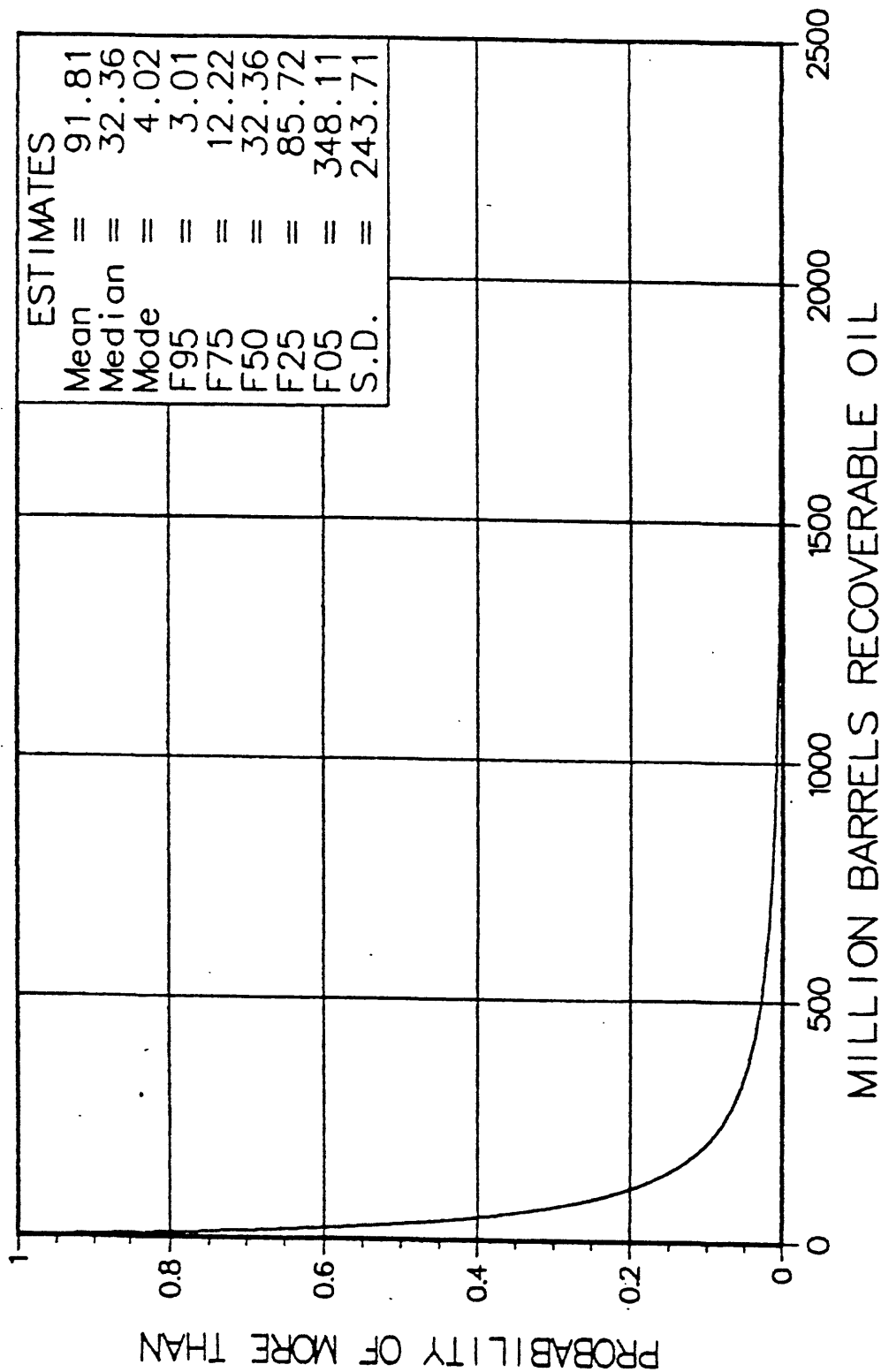


Figure 6B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Nevada.

DESIGNATED WILDERNESS LANDS -- Gas -- Nevada

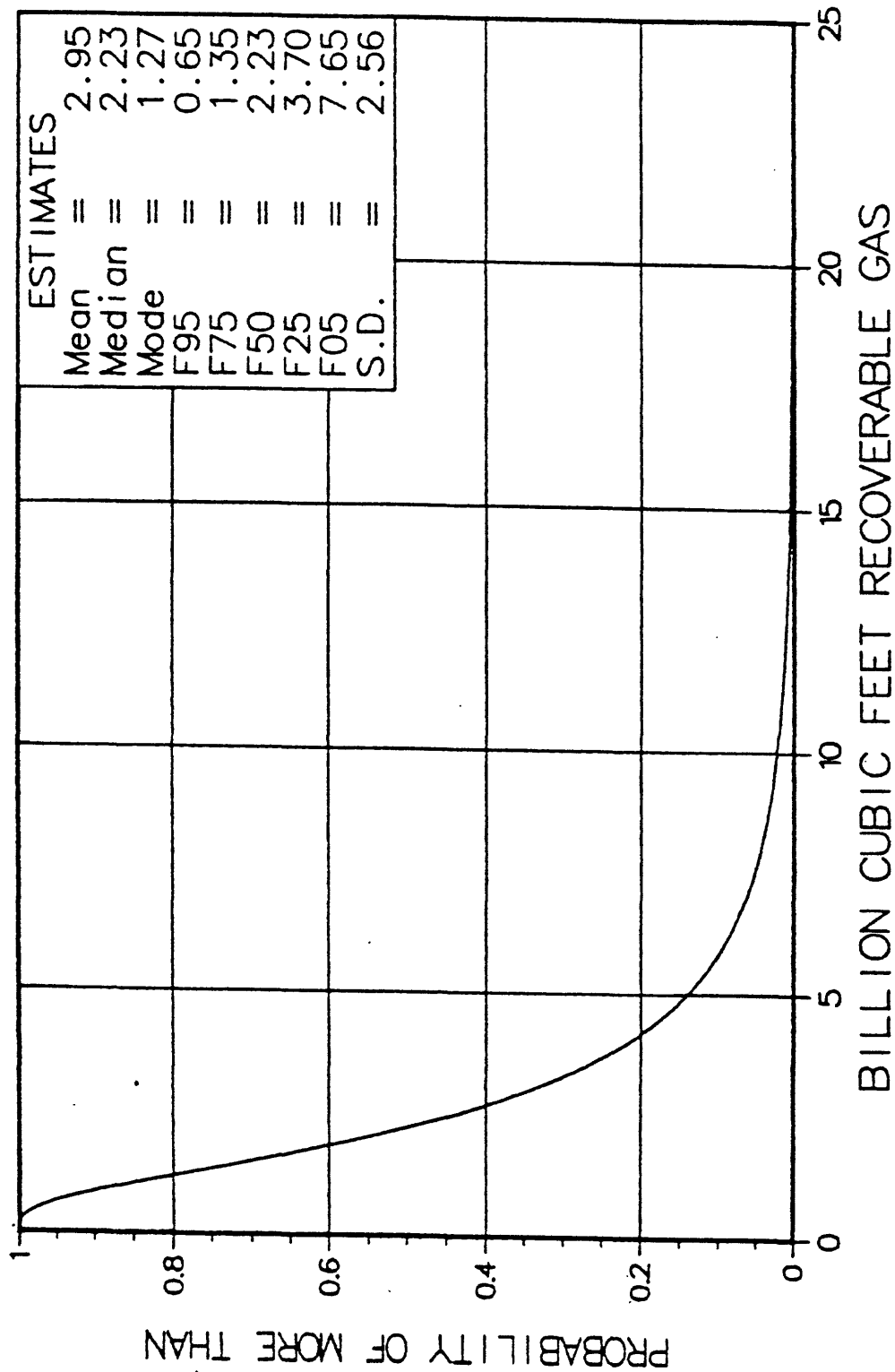


Figure 6C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Nevada.

PROPOSED WILDERNESS LANDS - Gas - Nevada

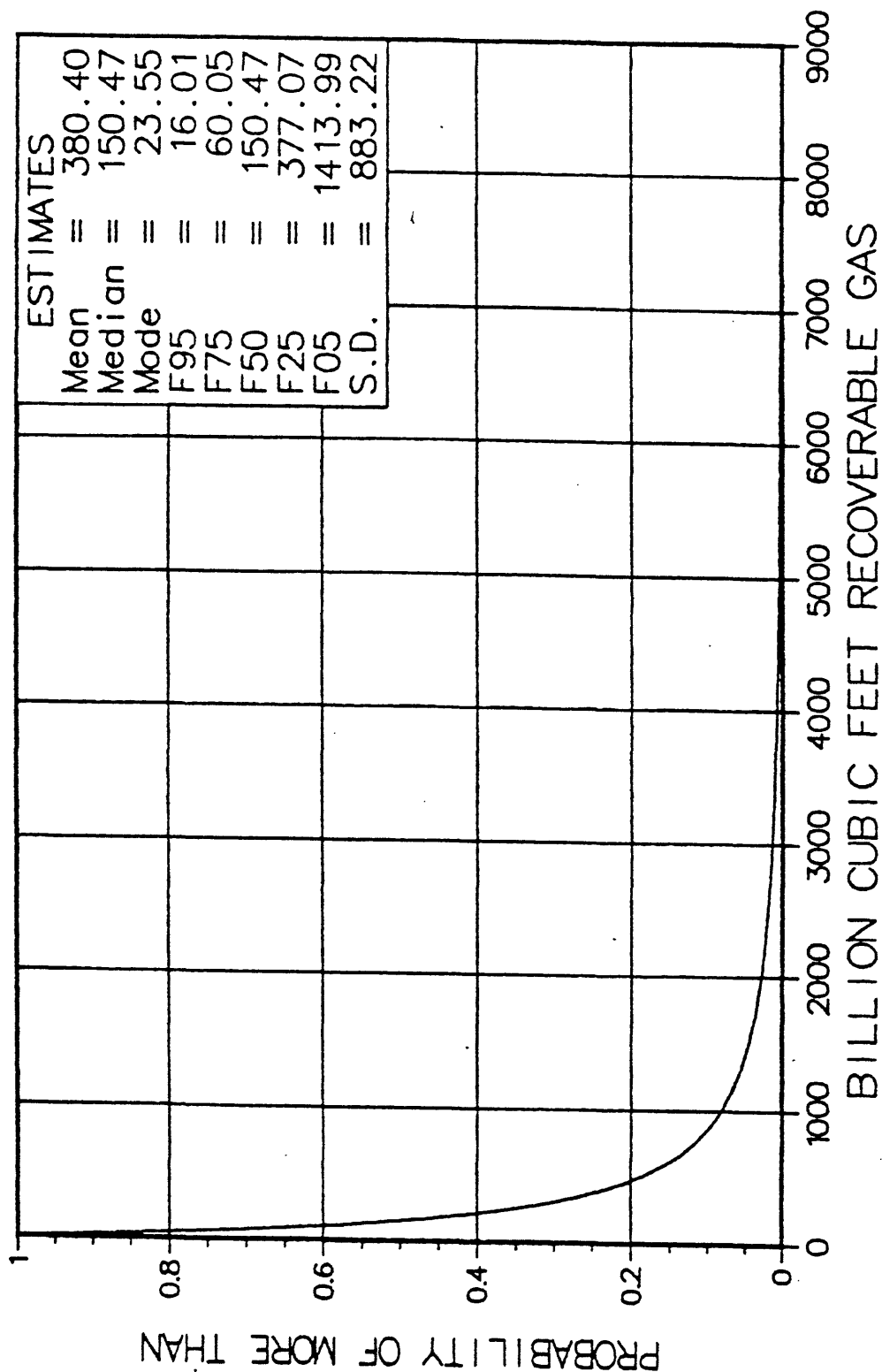


Figure 6D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Nevada.

DESIGNATED WILDERNESS LANDS -- Oil -- New Mexico

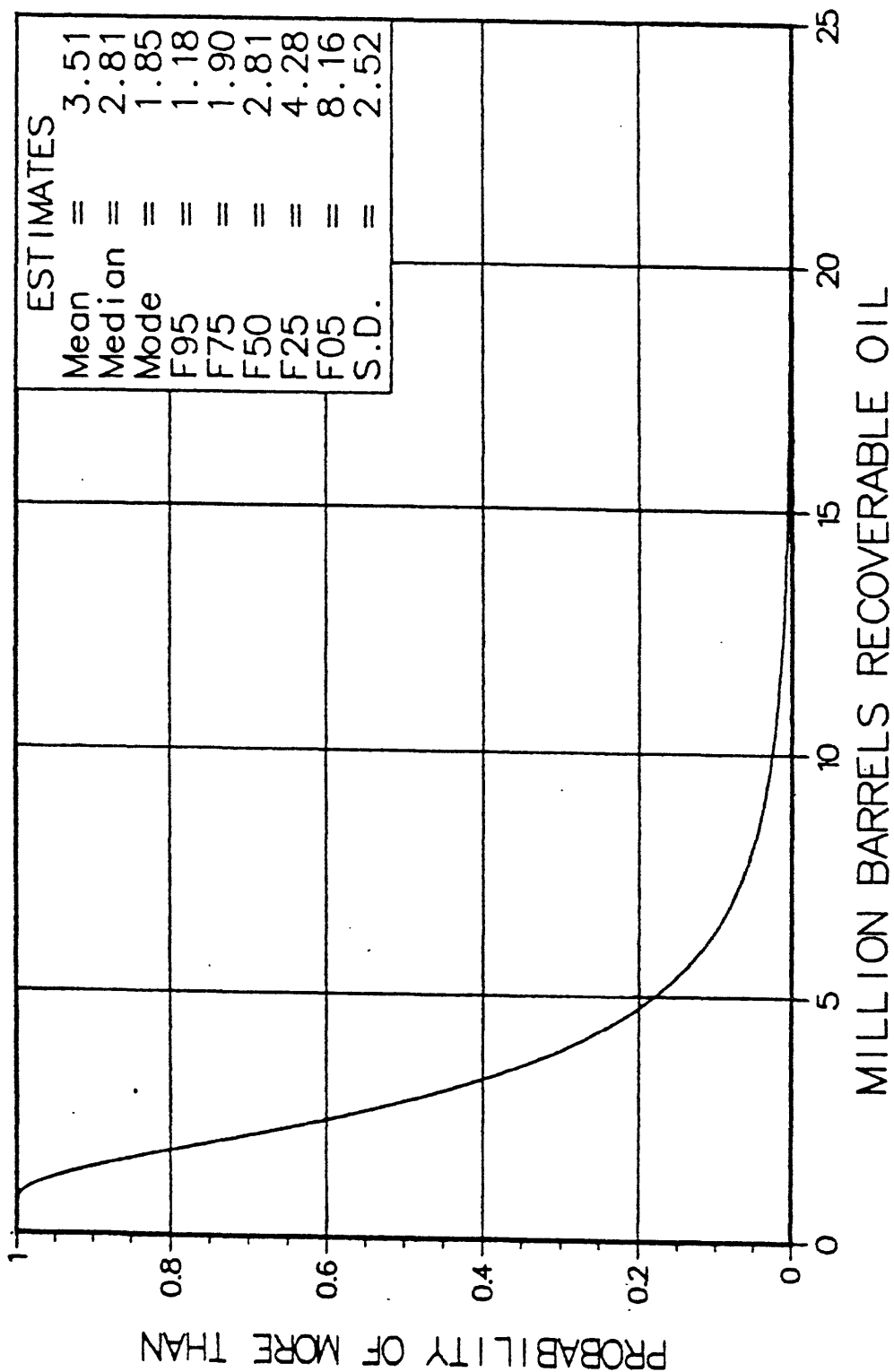


Figure 7A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in New Mexico.

PROPOSED WILDERNESS LANDS -- Oil -- New Mexico

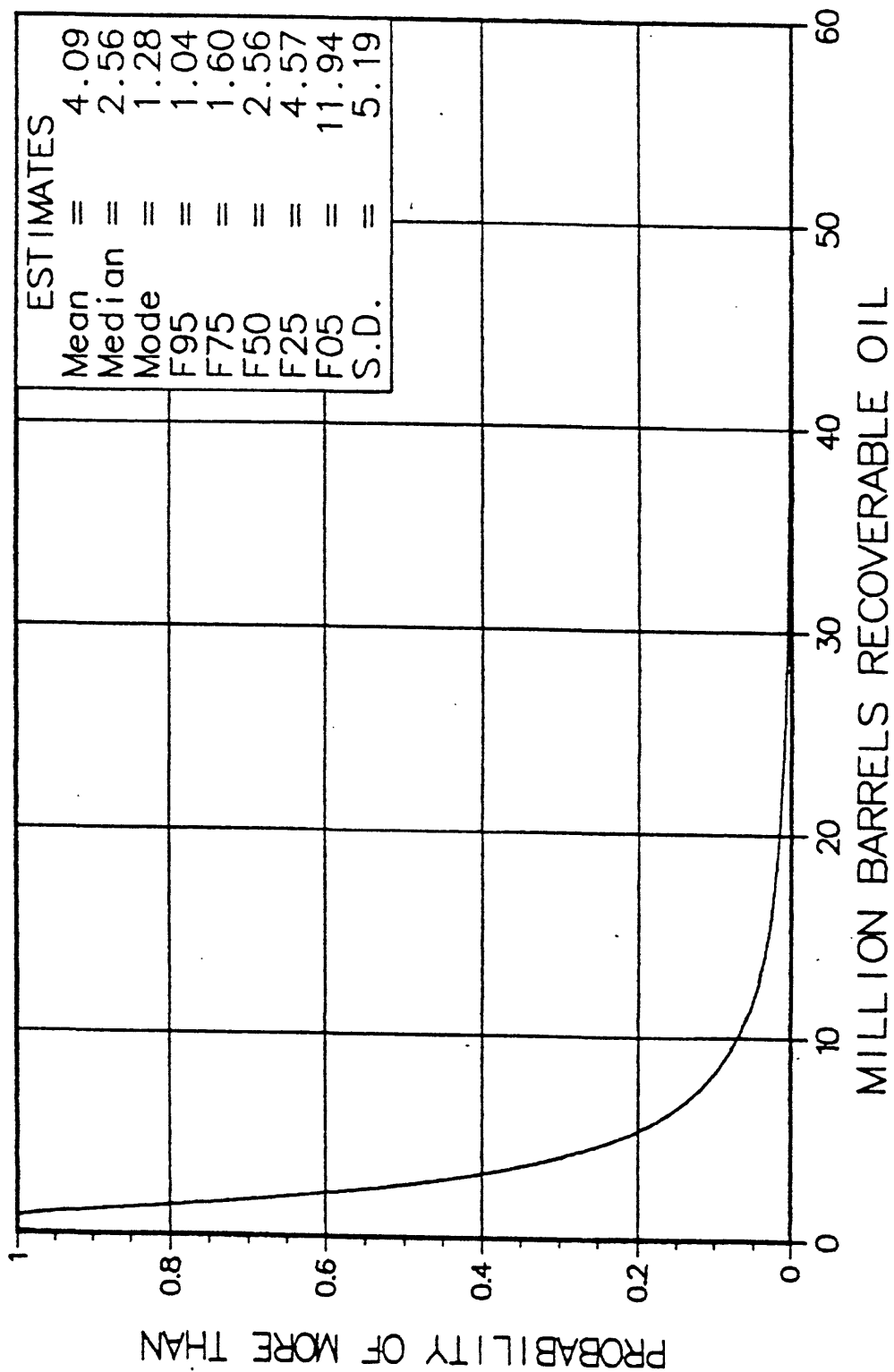


Figure 7B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in New Mexico.

DESIGNATED WILDERNESS LANDS -- Gas -- New Mexico

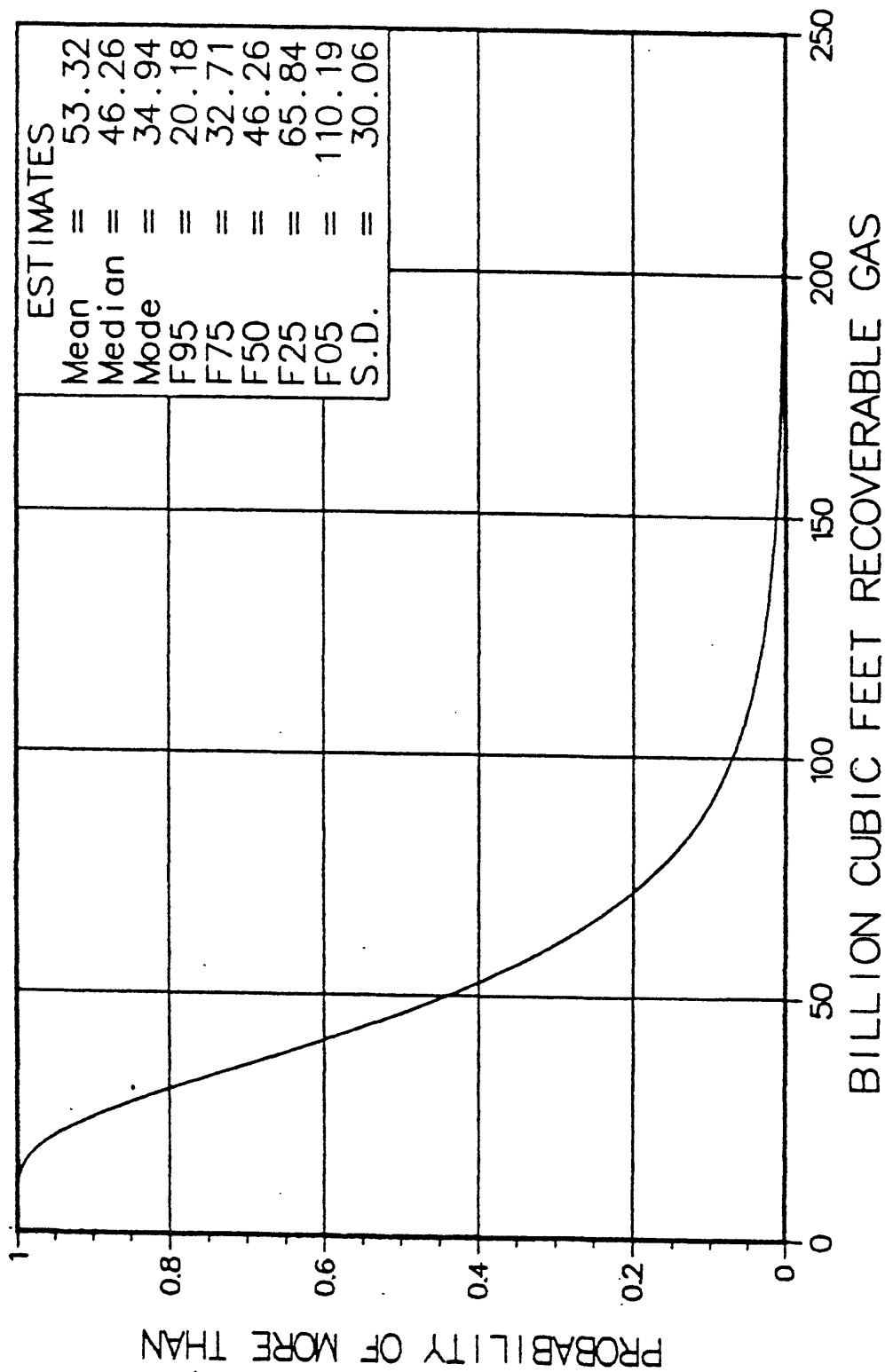


Figure 7C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in New Mexico.

PROPOSED WILDERNESS LANDS -- Gas -- New Mexico

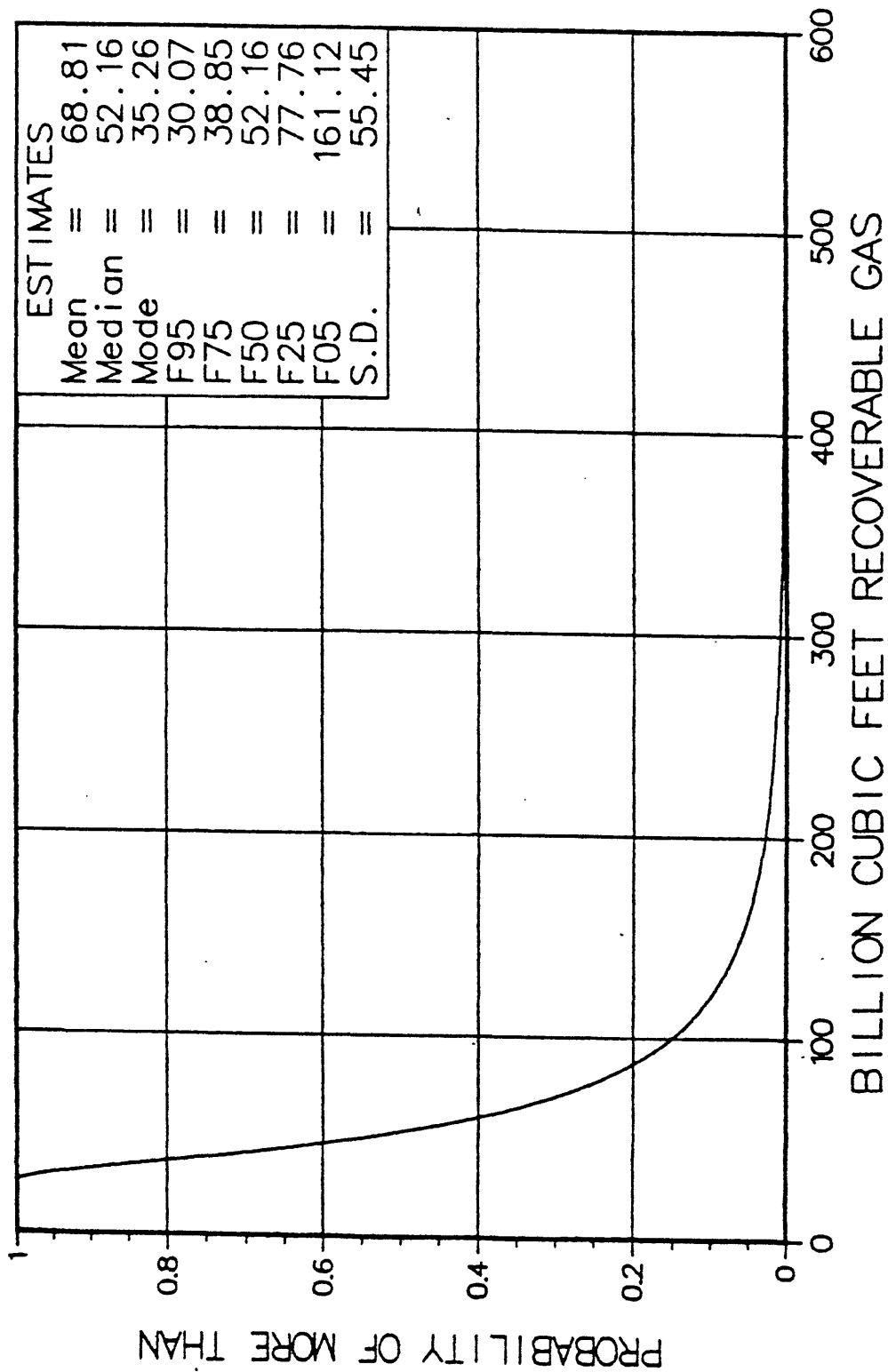


Figure 7D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in New Mexico.

DESIGNATED WILDERNESS LANDS -- Oil -- Oregon

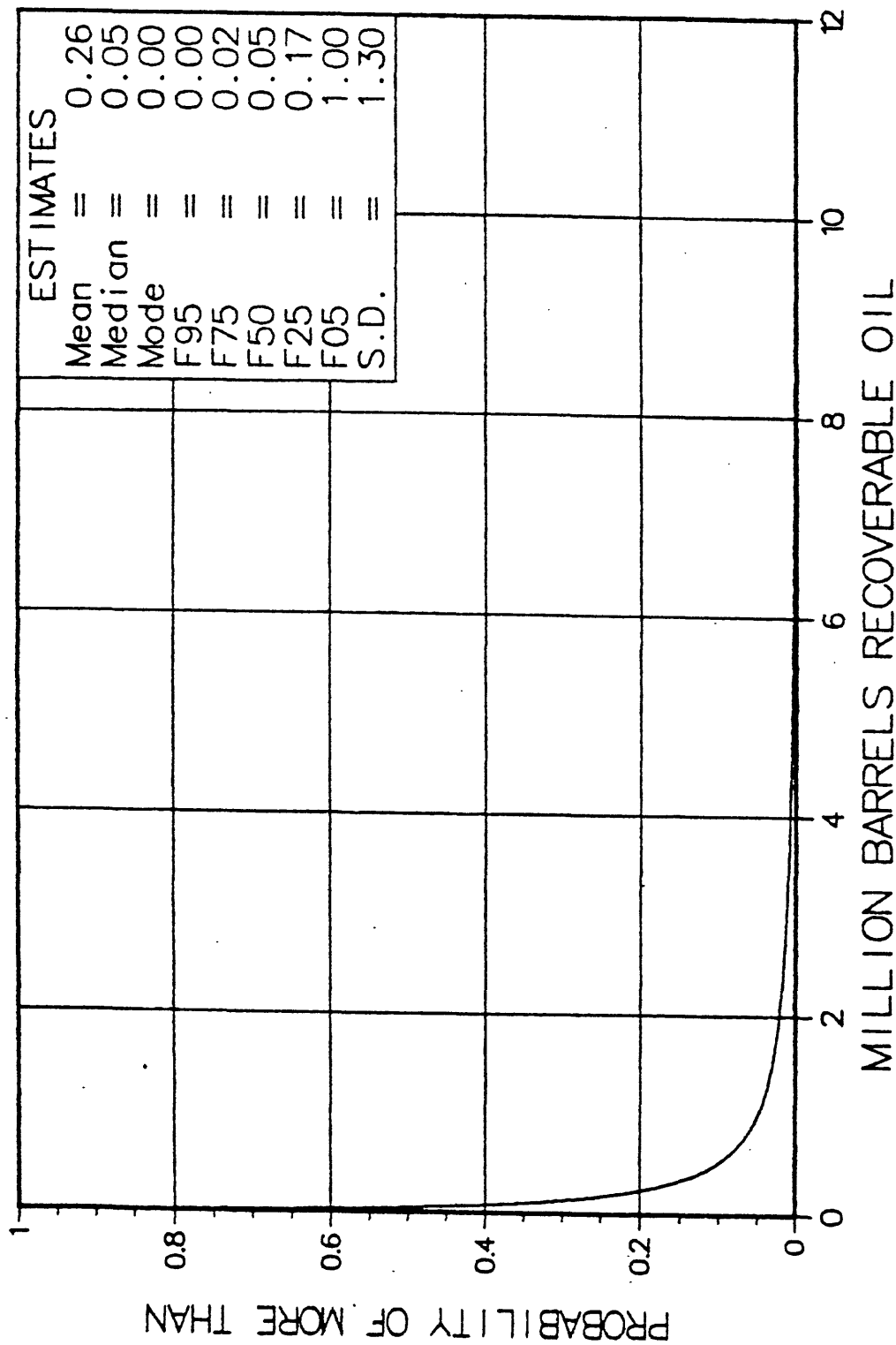


Figure 8A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Oregon.

PROPOSED WILDERNESS LANDS -- Oil -- Oregon

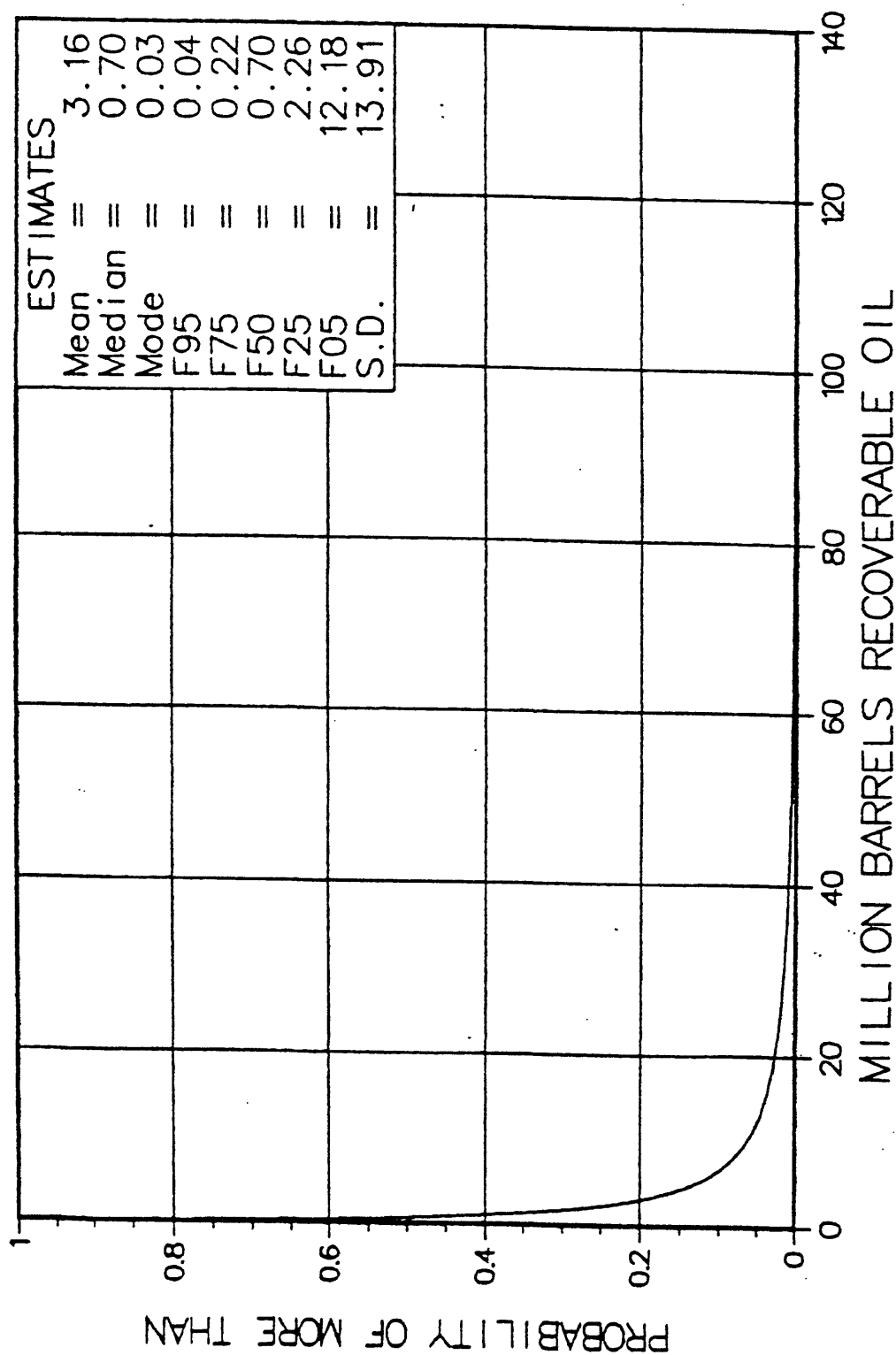


Figure 8B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Oregon.

DESIGNATED WILDERNESS LANDS - Gas - Oregon

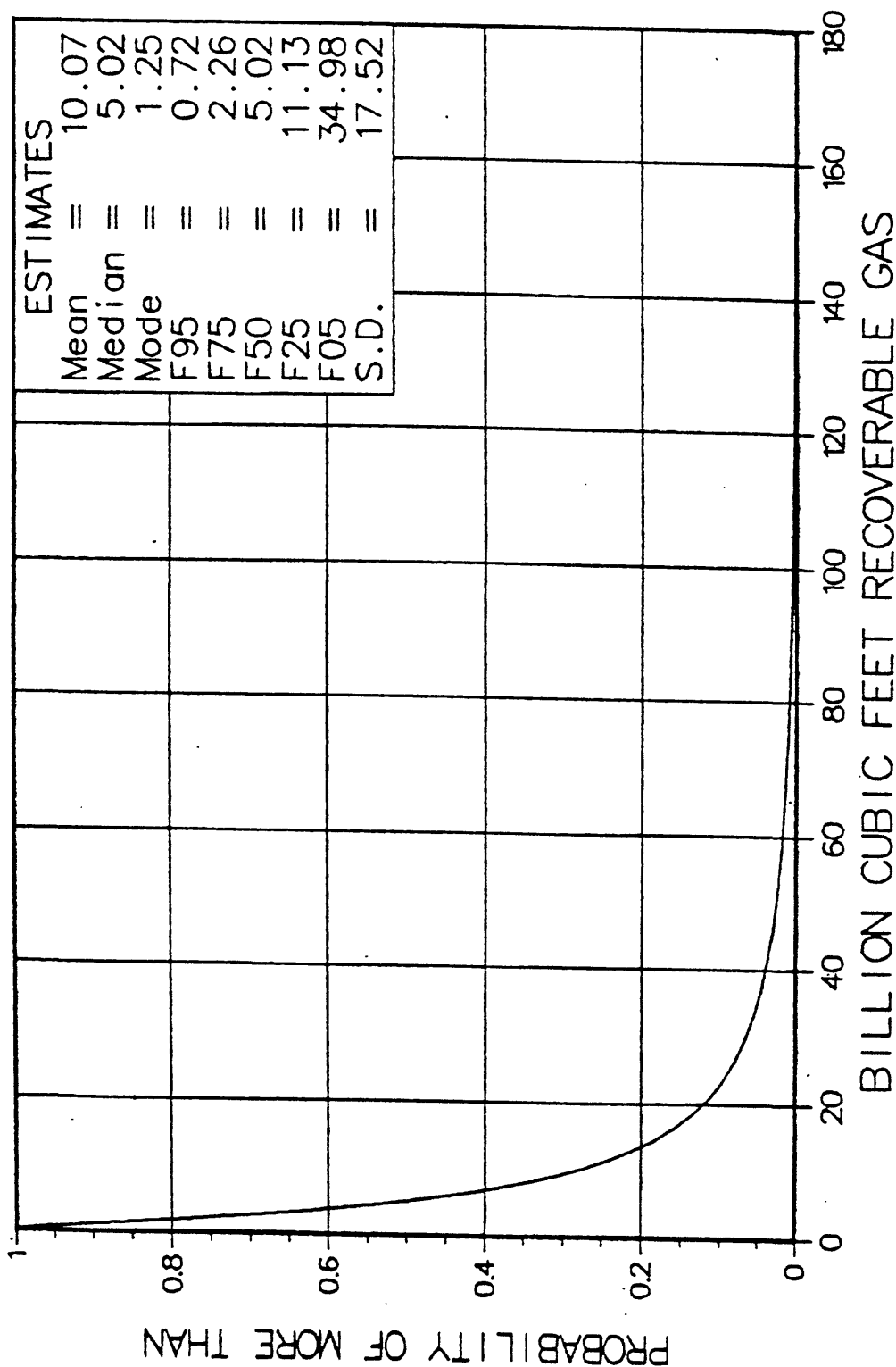


Figure 8C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Oregon.

PROPOSED WILDERNESS LANDS – Gas – Oregon

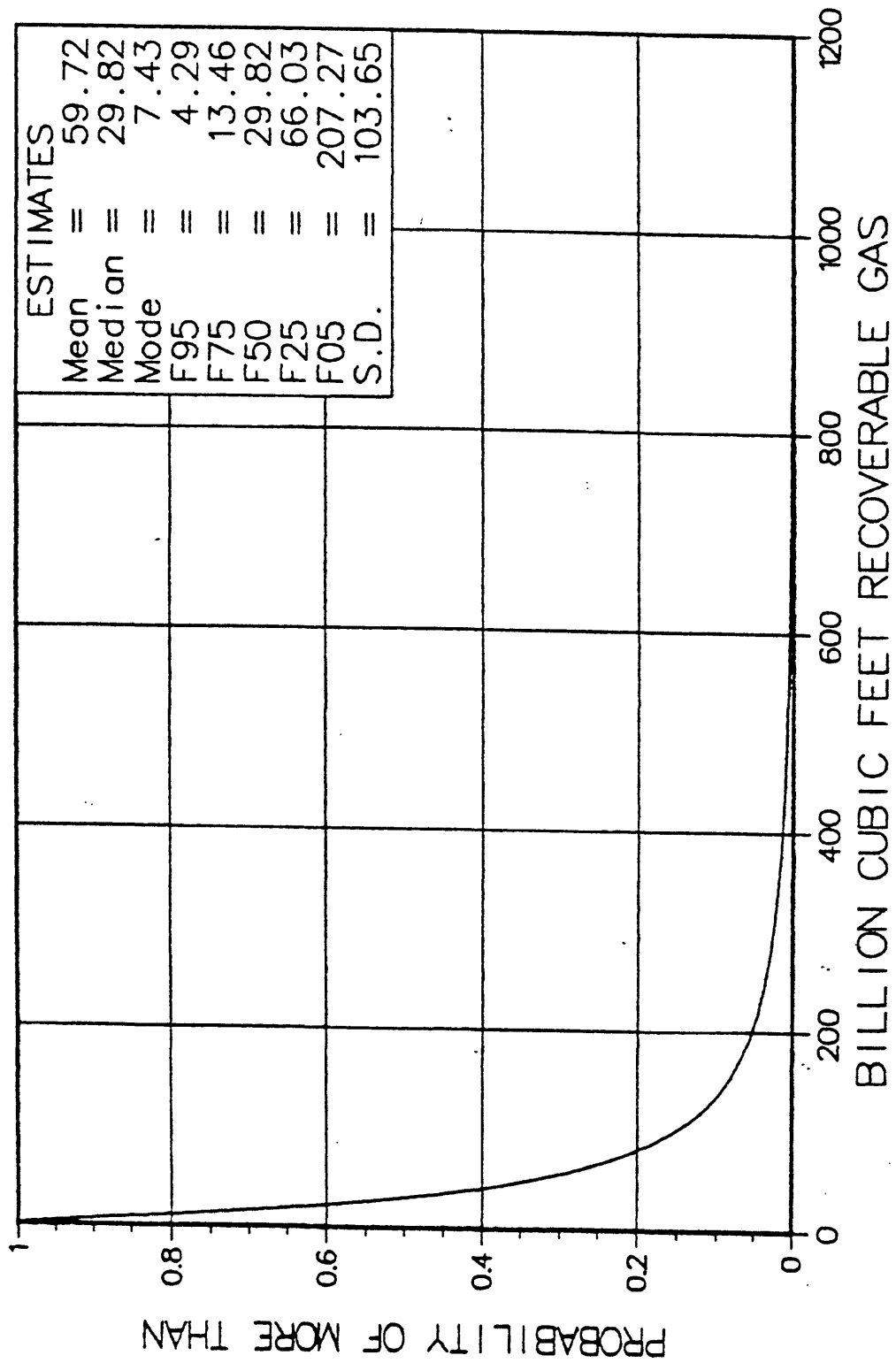


Figure 8D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Oregon.

DESIGNATED WILDERNESS LANDS -- Oil -- Utah

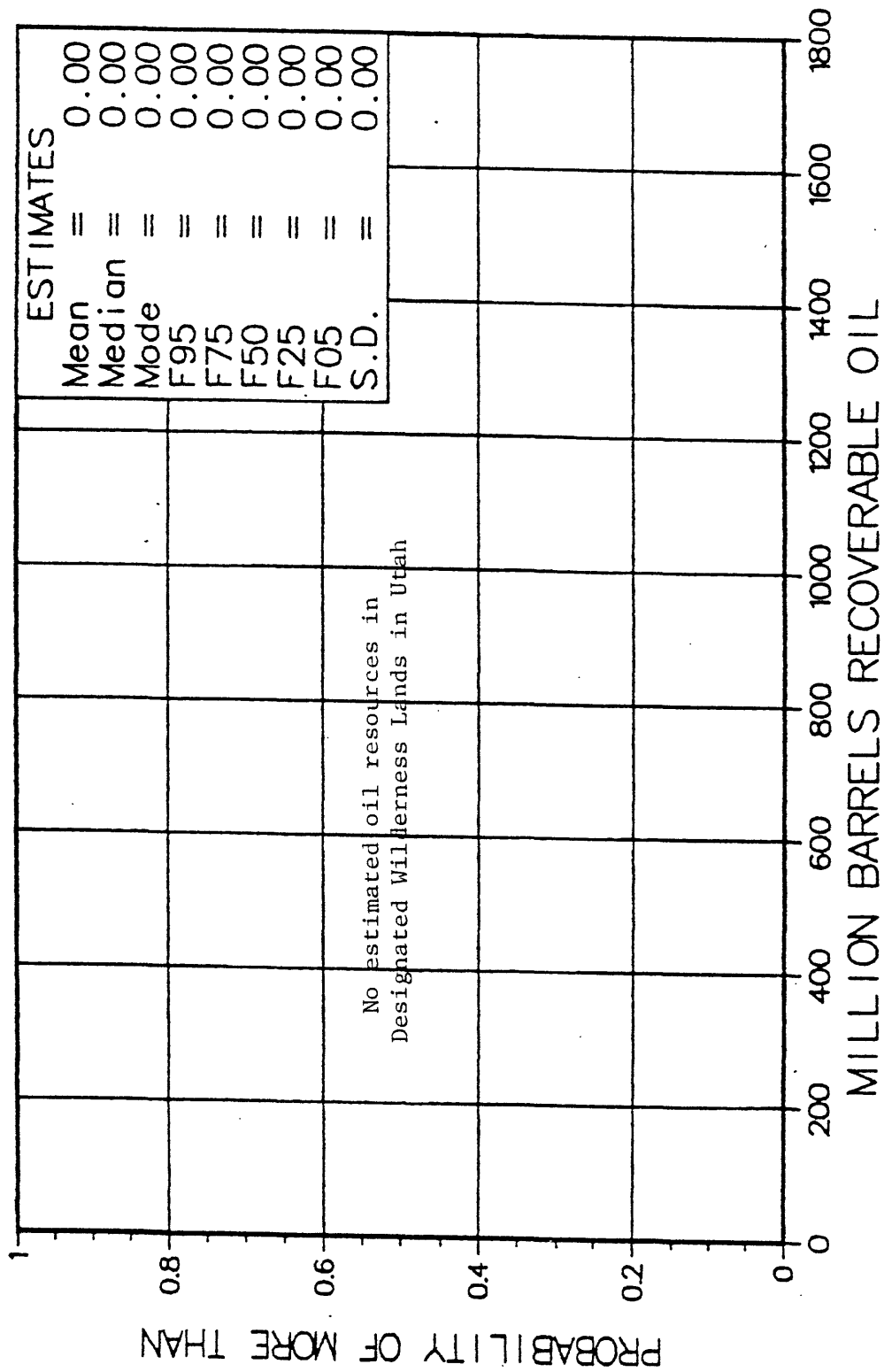


Figure 9A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Utah.

PROPOSED WILDERNESS LANDS - Oil - Utah

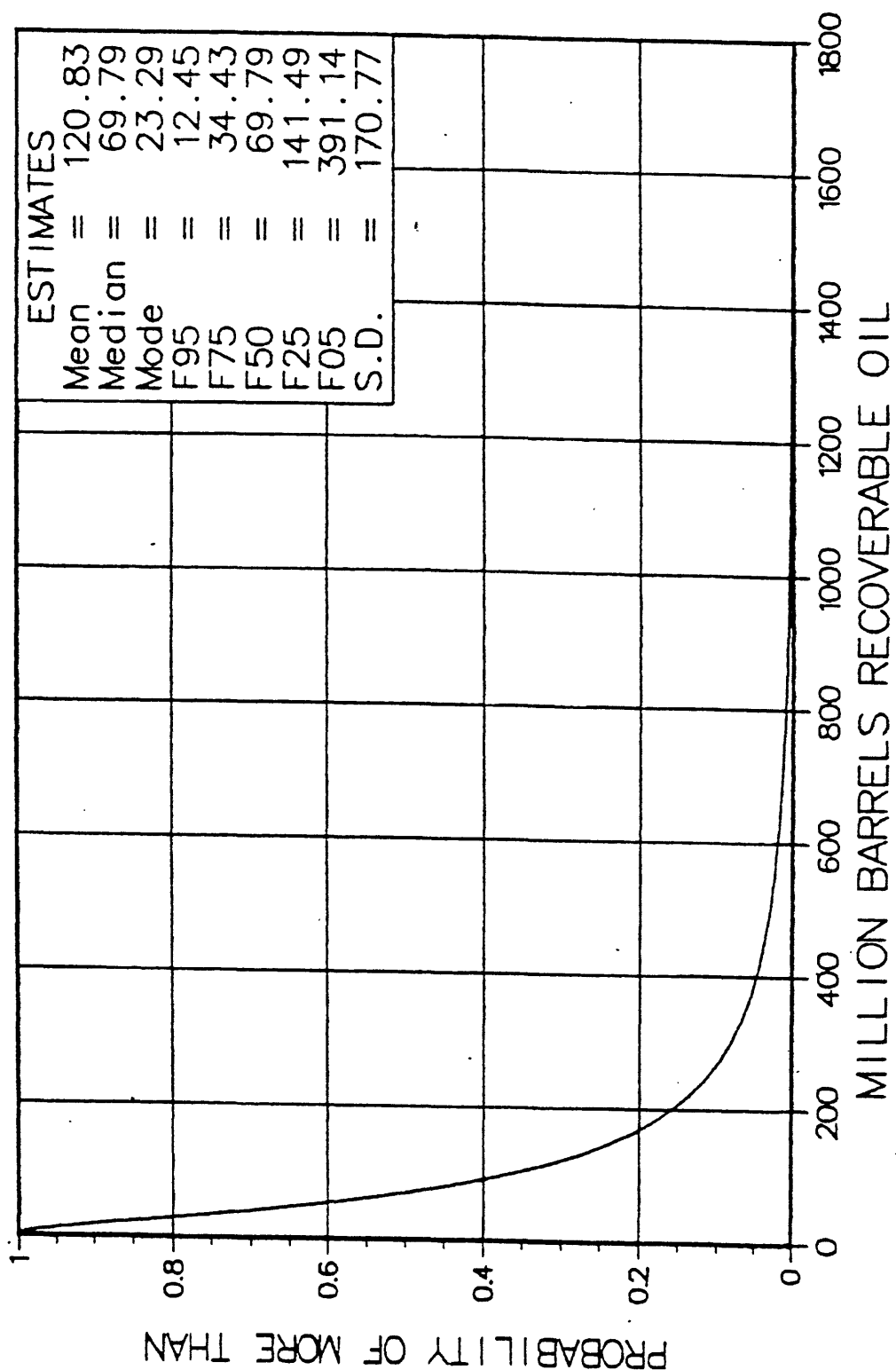


Figure 9B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Utah.

DESIGNATED WILDERNESS LANDS -- Gas -- Utah

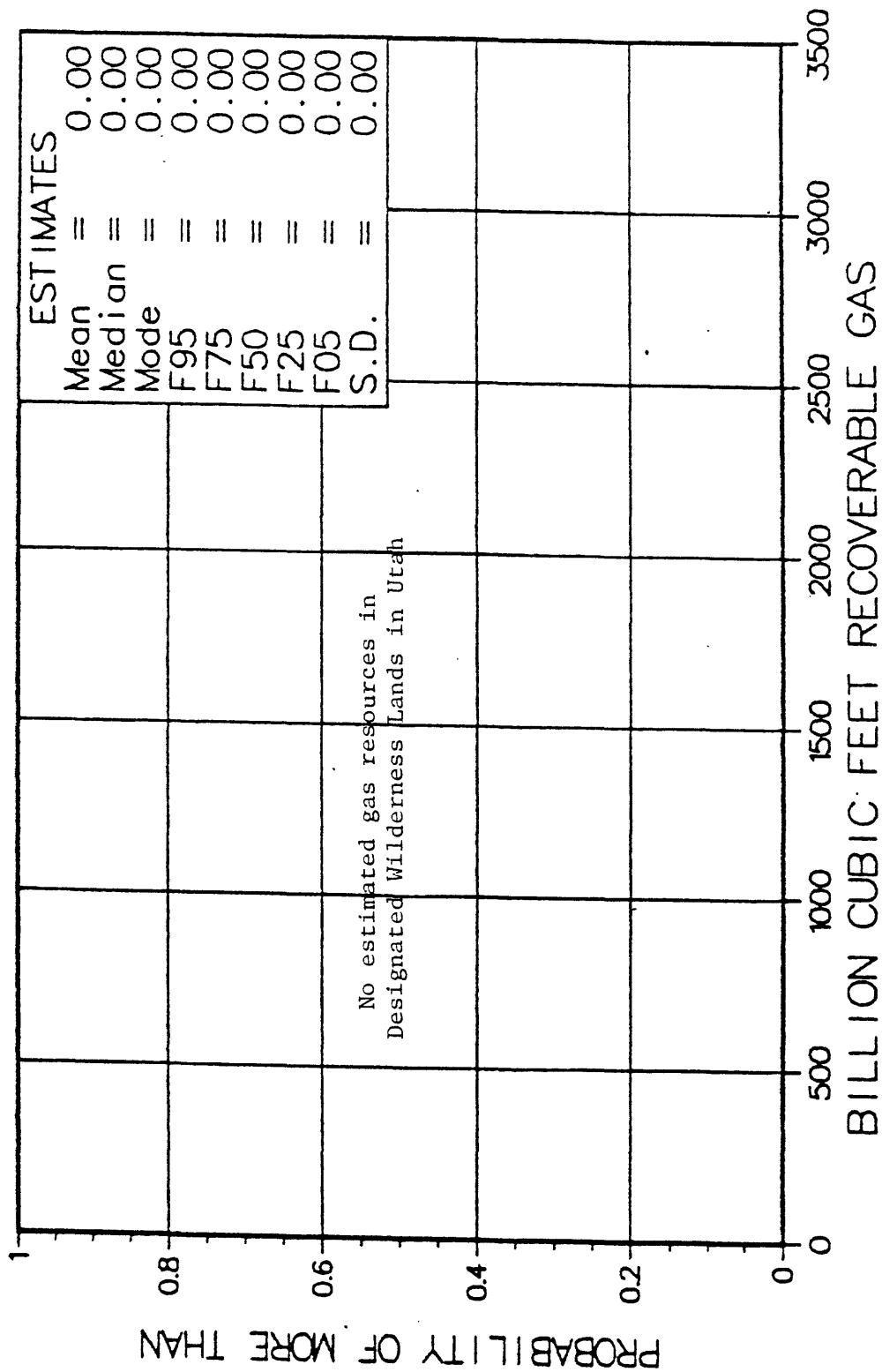


Figure 9C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Utah.

PROPOSED WILDERNESS LANDS - Gas - Utah

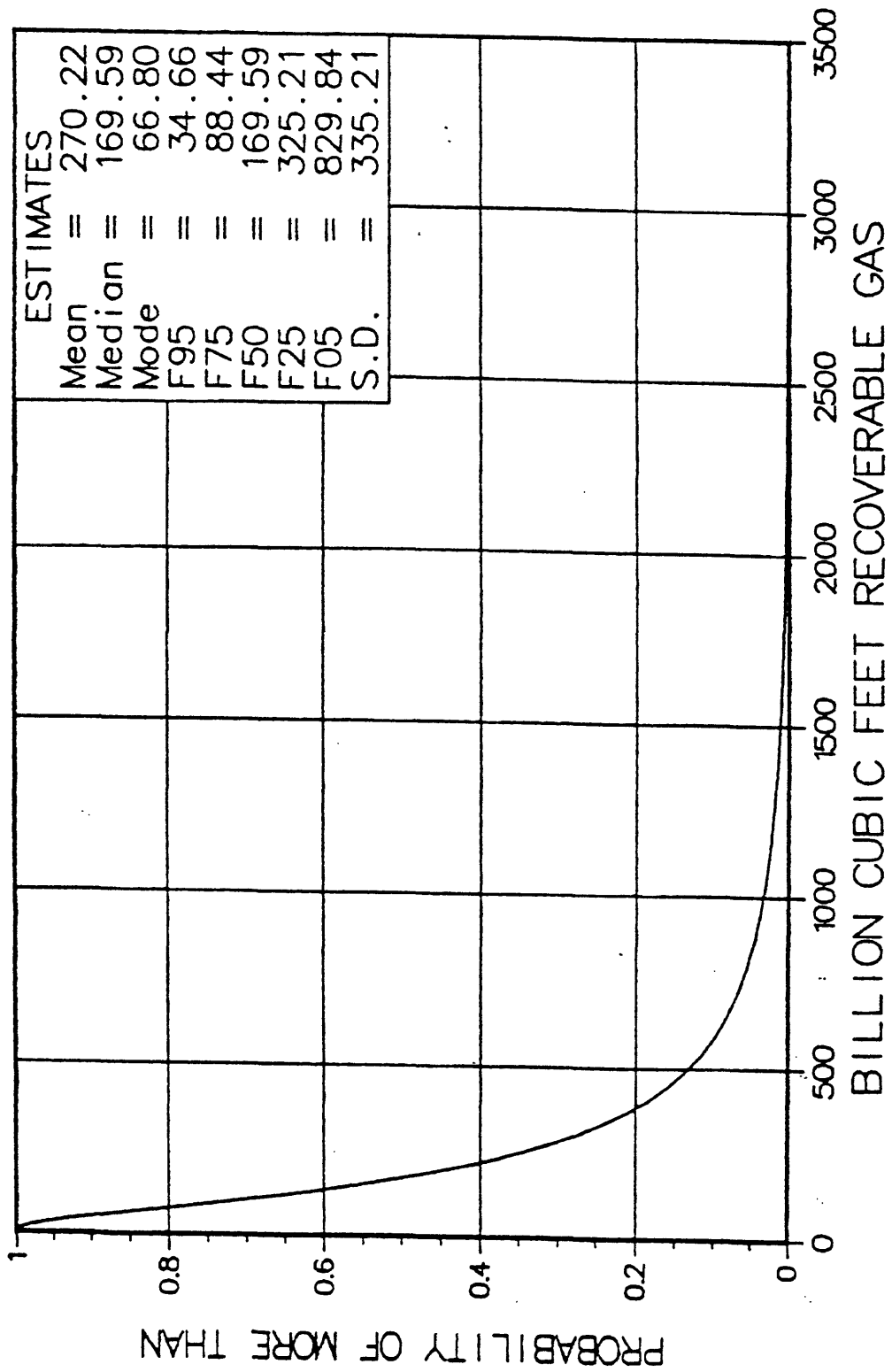


Figure 9D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Utah.

DESIGNATED WILDERNESS LANDS -- Oil -- Washington

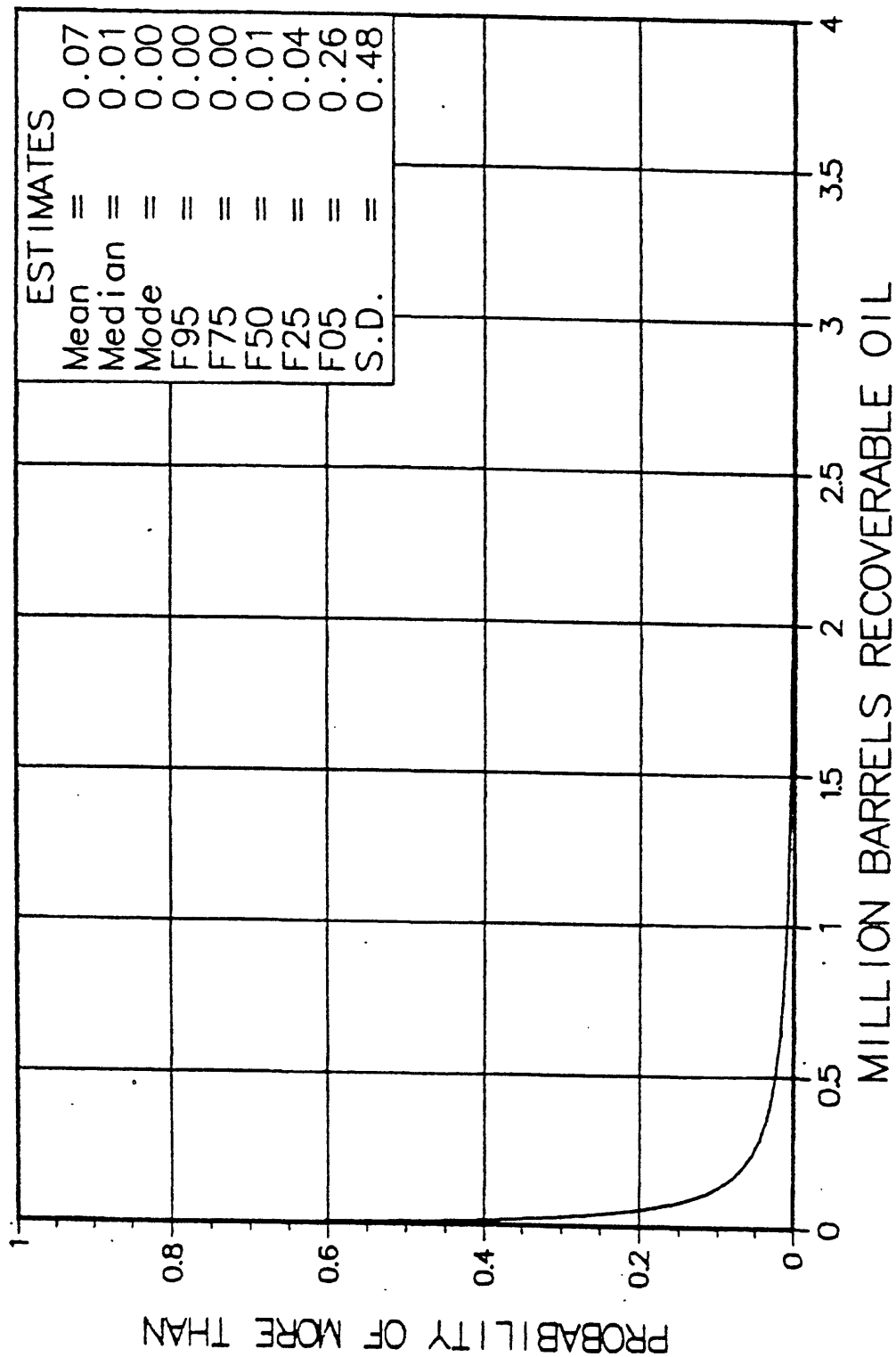


Figure 10A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Washington.

PROPOSED WILDERNESS LANDS -- Oil -- Washington

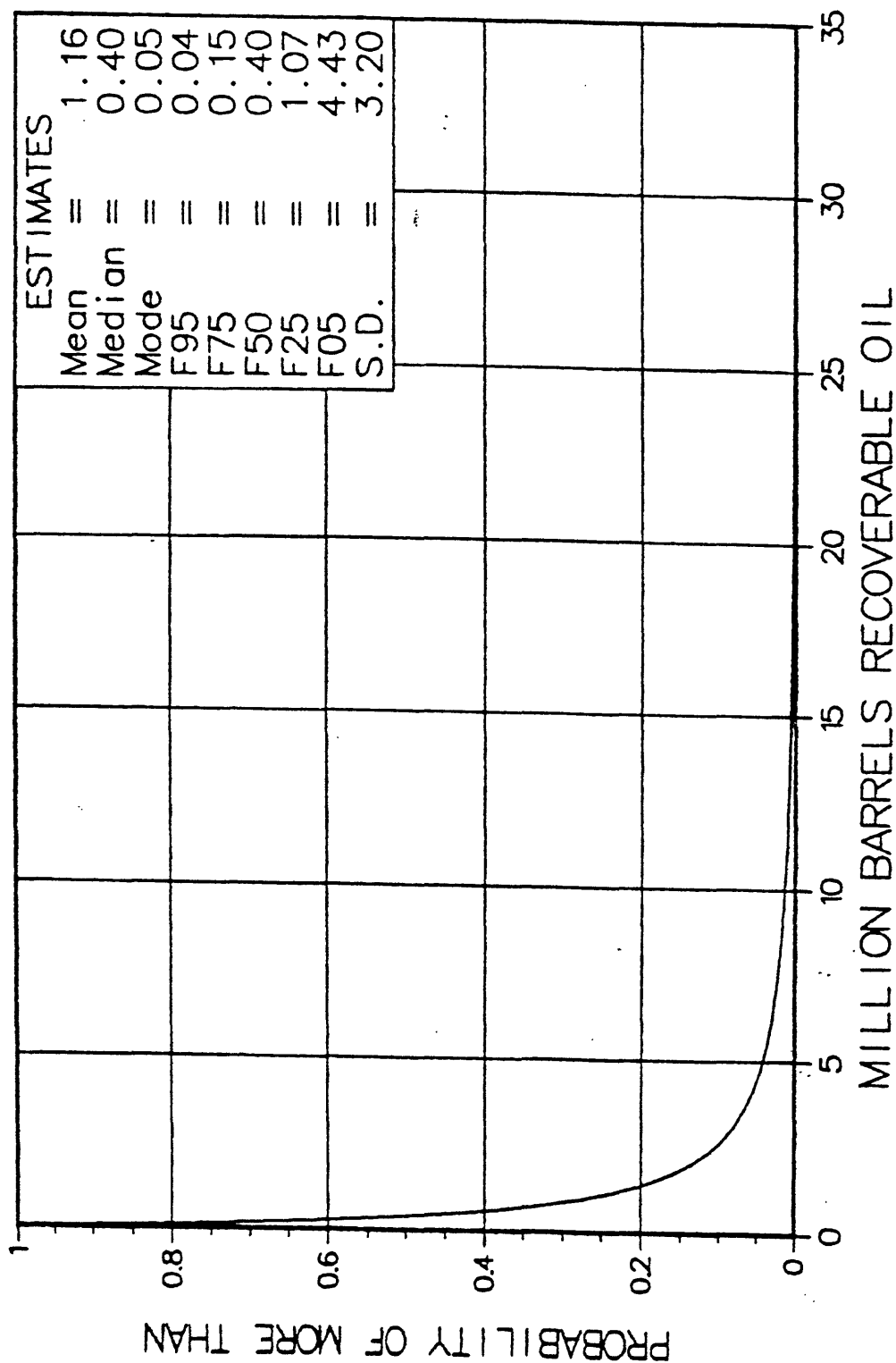


Figure 10B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Washington.

DESIGNATED WILDERNESS LANDS - Gas - Washington

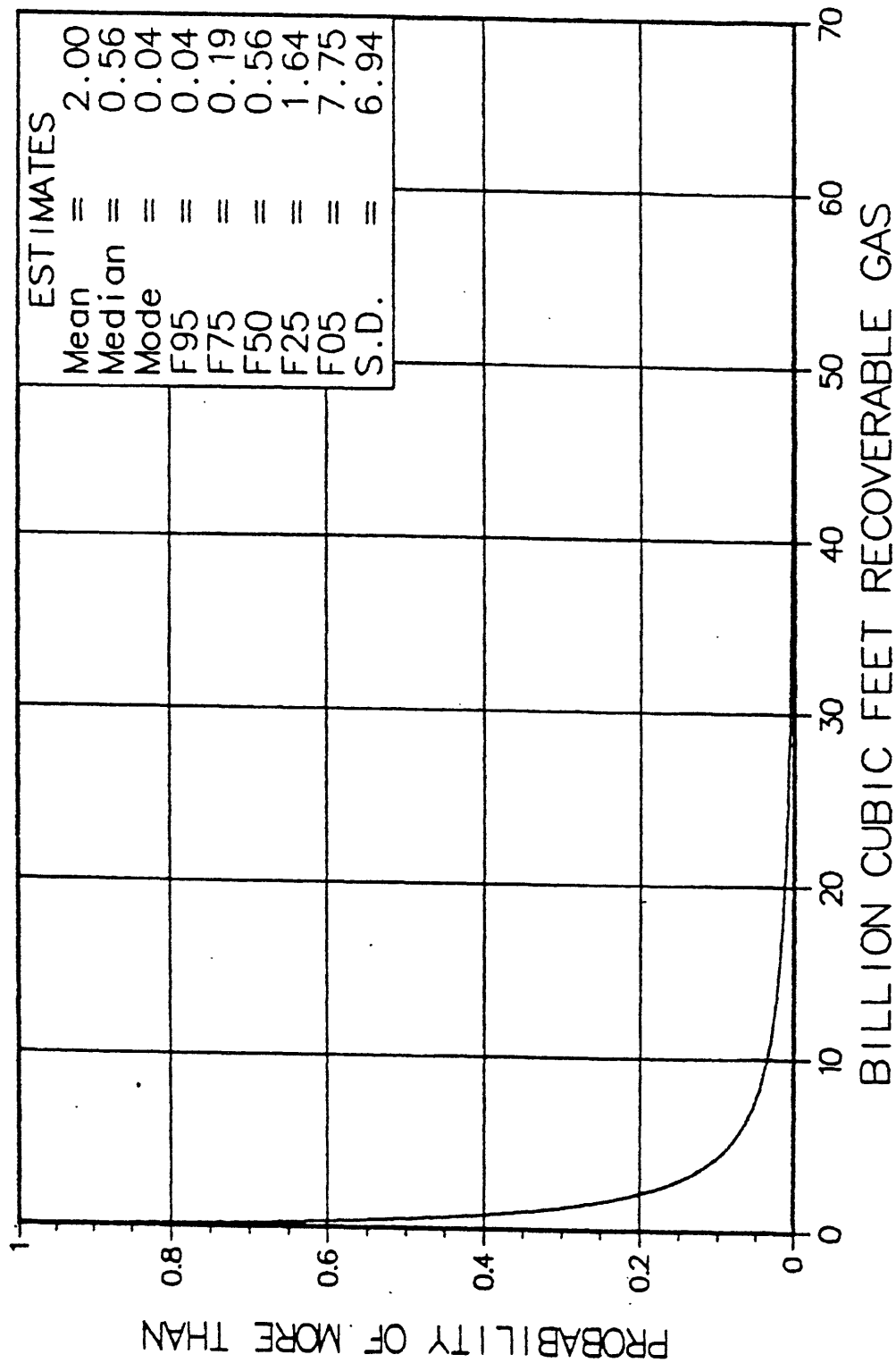


Figure 10C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Washington.

PROPOSED WILDERNESS LANDS - Gas - Washington

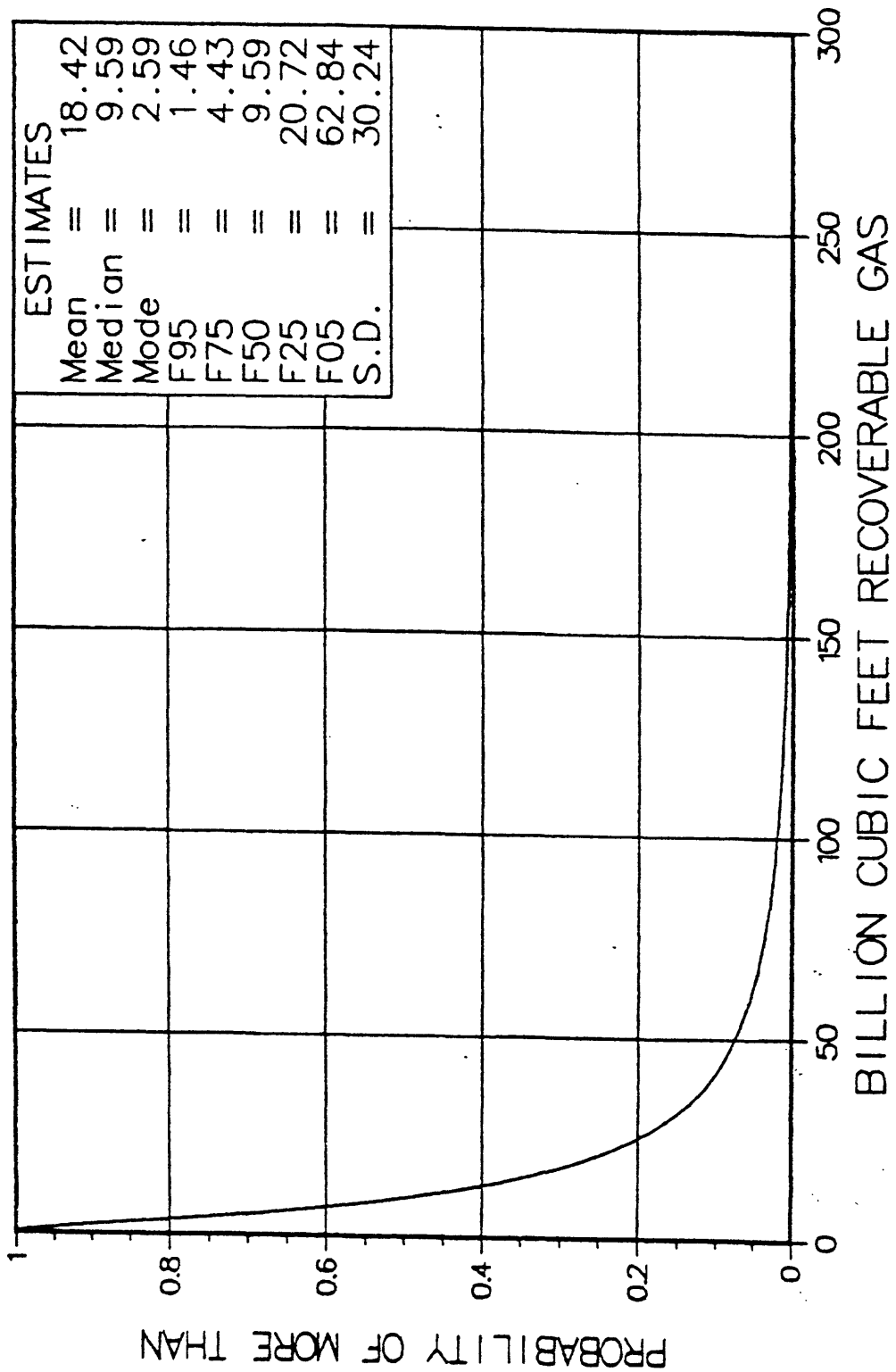


Figure 10D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Washington.

PROPOSED WILDERNESS LANDS -- Oil -- Wyoming

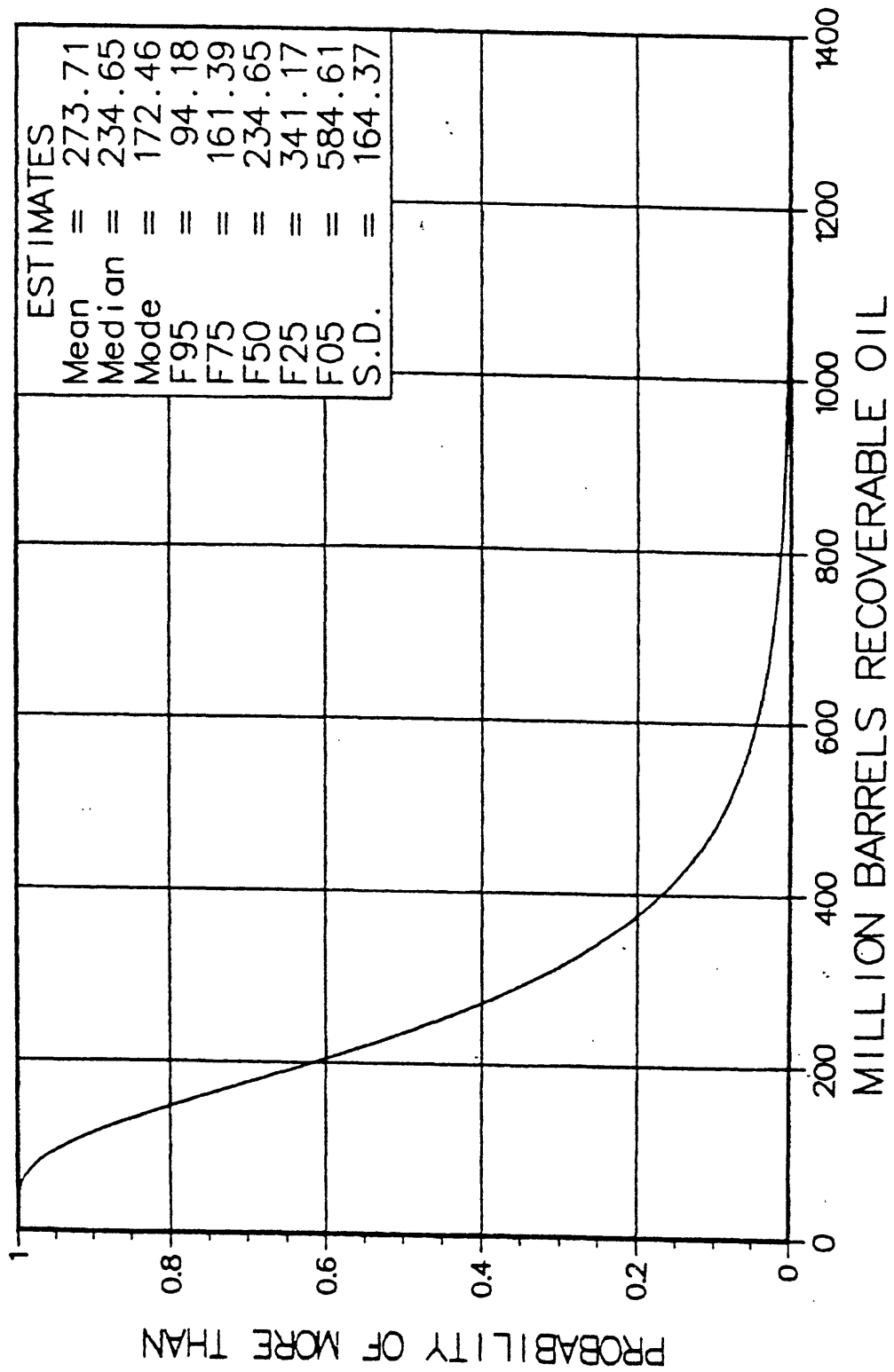


Figure 11B.--Undiscovered recoverable oil resources in Proposed Wilderness Lands in Wyoming.

DESIGNATED WILDERNESS LANDS -- Oil -- Wyoming

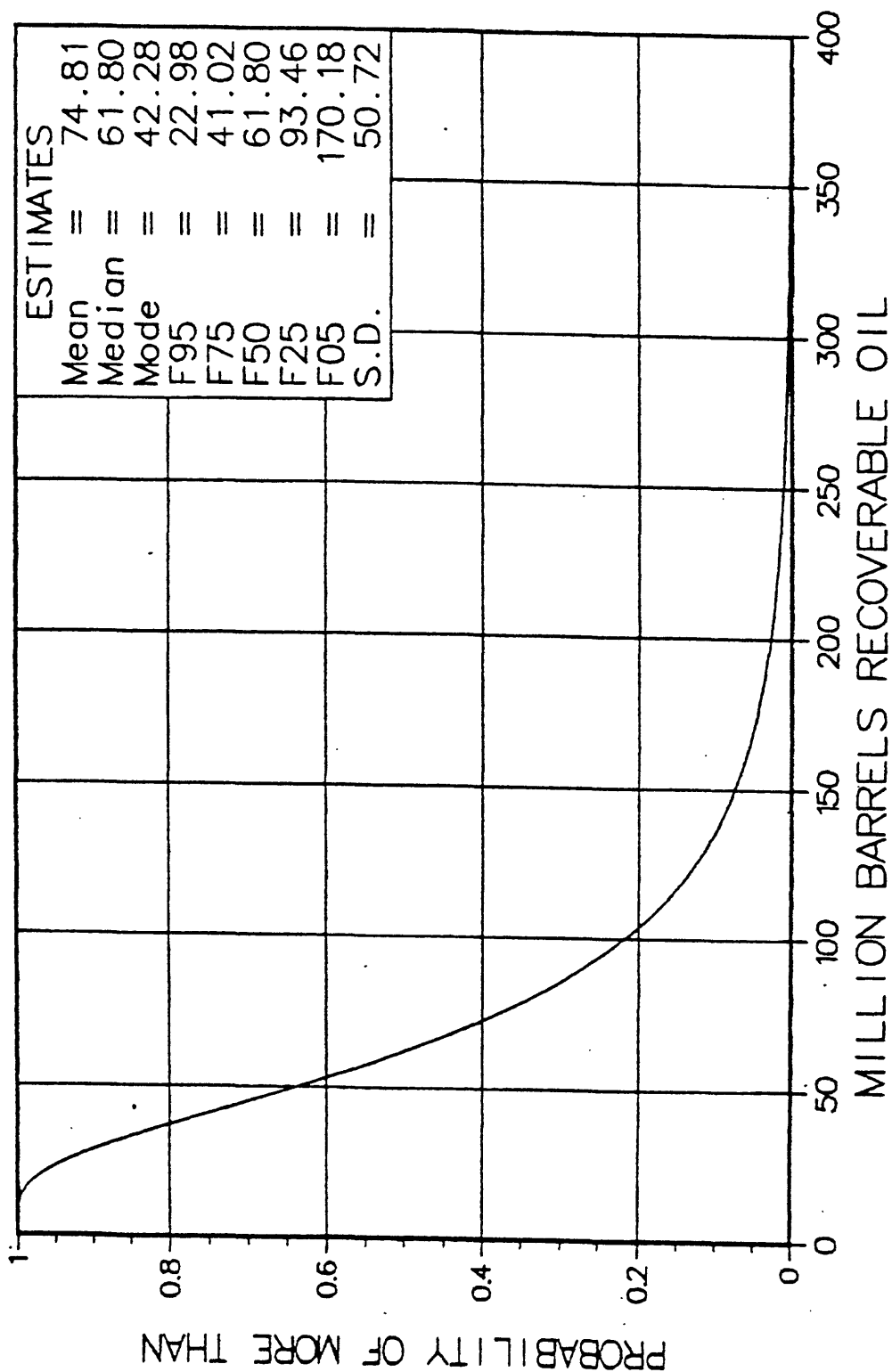


Figure 11A.--Undiscovered recoverable oil resources in Designated Wilderness Lands in Wyoming.

DESIGNATED WILDERNESS LANDS -- Gas -- Wyoming

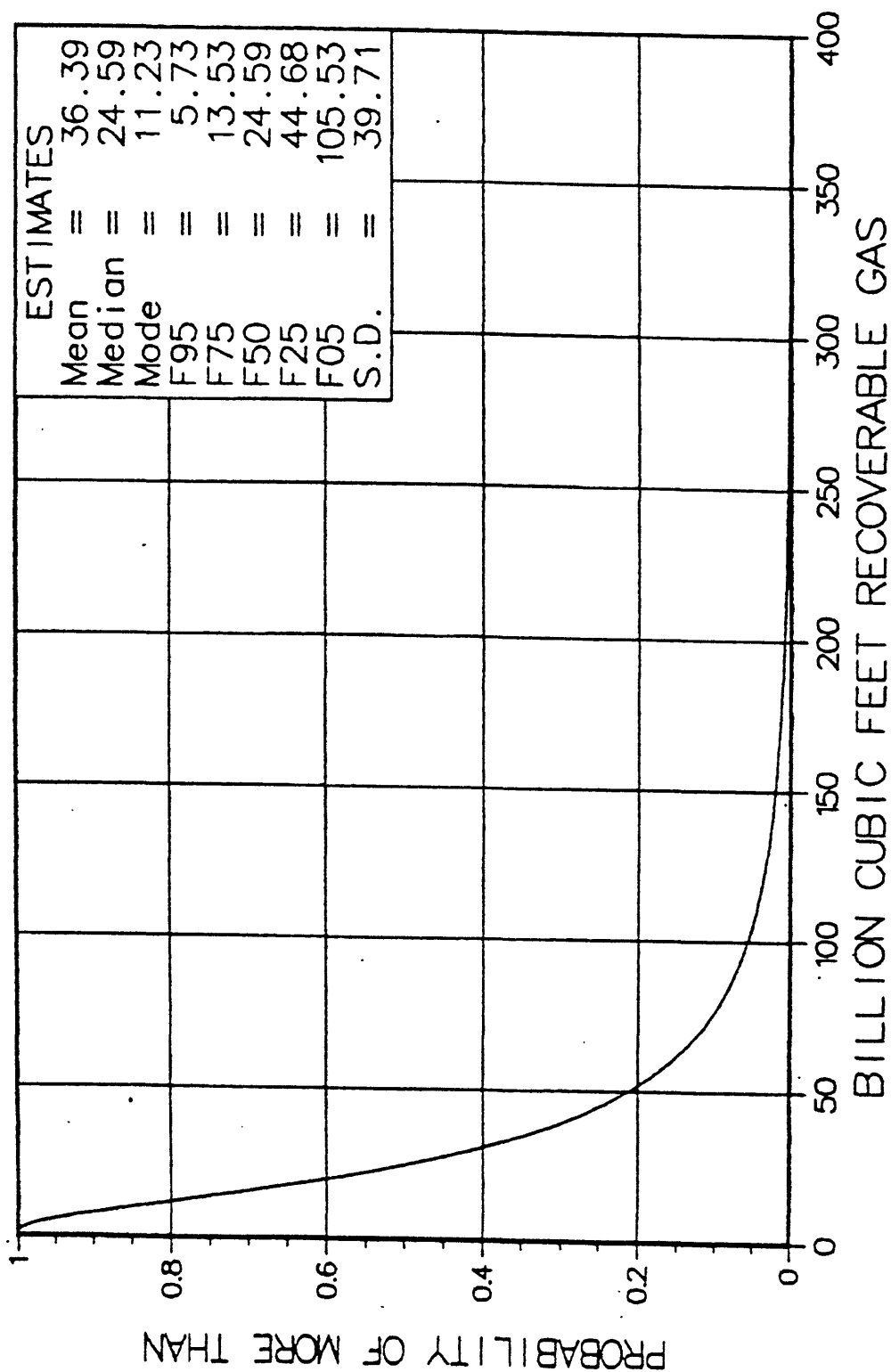


Figure 11C.--Undiscovered recoverable gas resources in Designated Wilderness Lands in Wyoming.

PROPOSED WILDERNESS LANDS - Gas - Wyoming

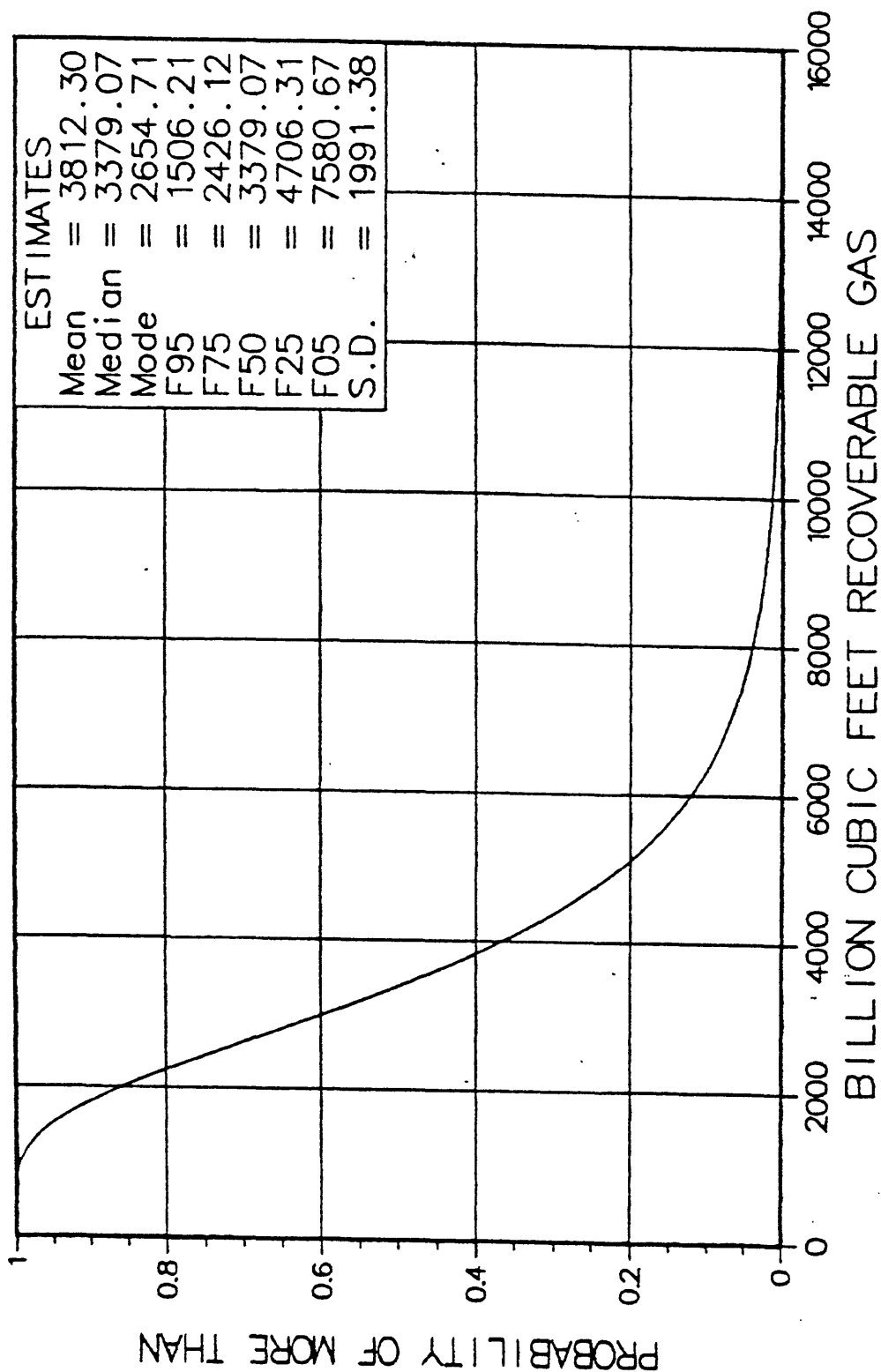


Figure 11D.--Undiscovered recoverable gas resources in Proposed Wilderness Lands in Wyoming.

DESIGNATED WILDERNESS LANDS - Oil - Total

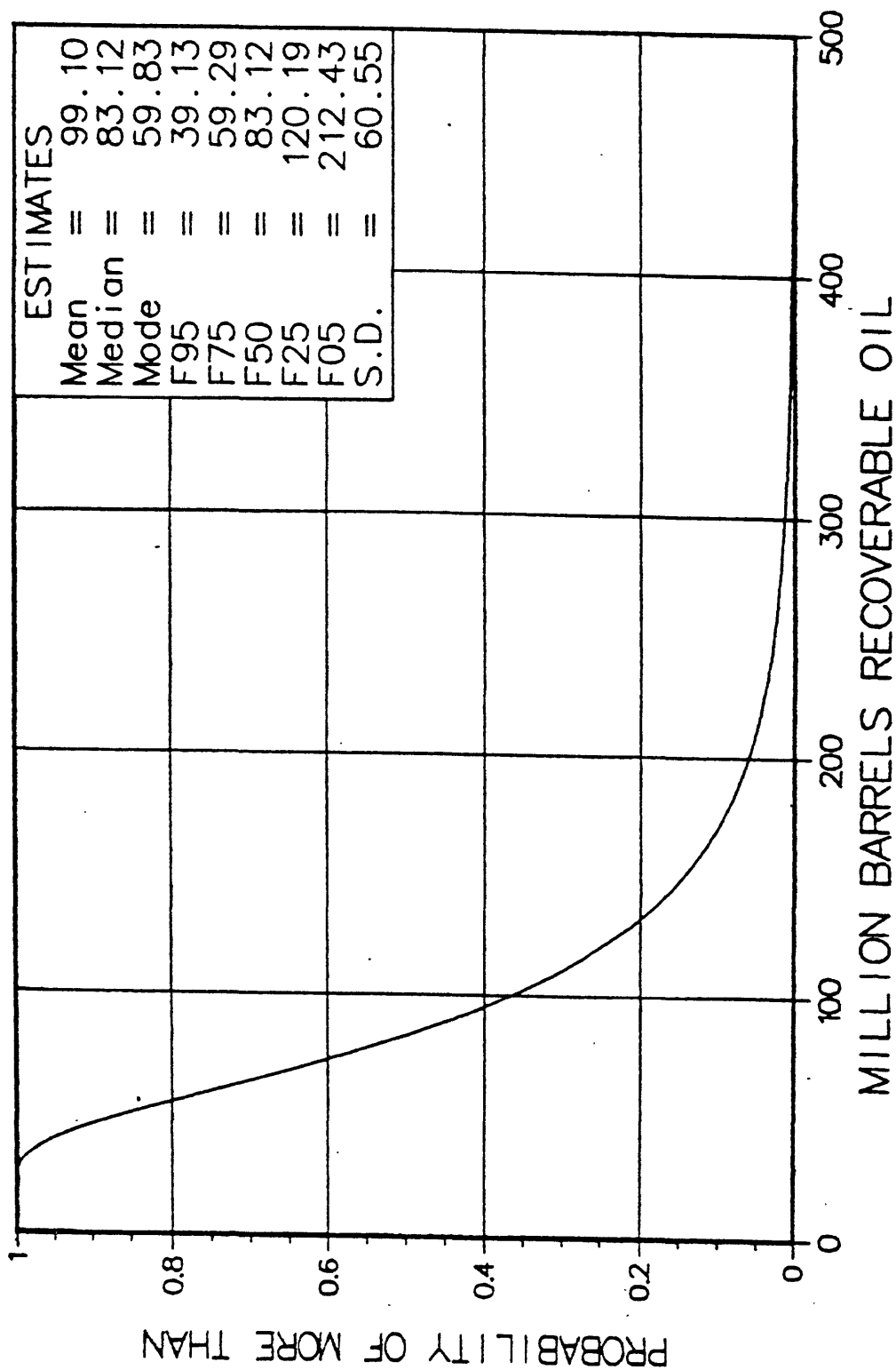


Figure 12A.--Total undiscovered recoverable oil resources in Designated Wilderness Lands in 11 Western States.

PROPOSED WILDERNESS LANDS -- Oil -- Total

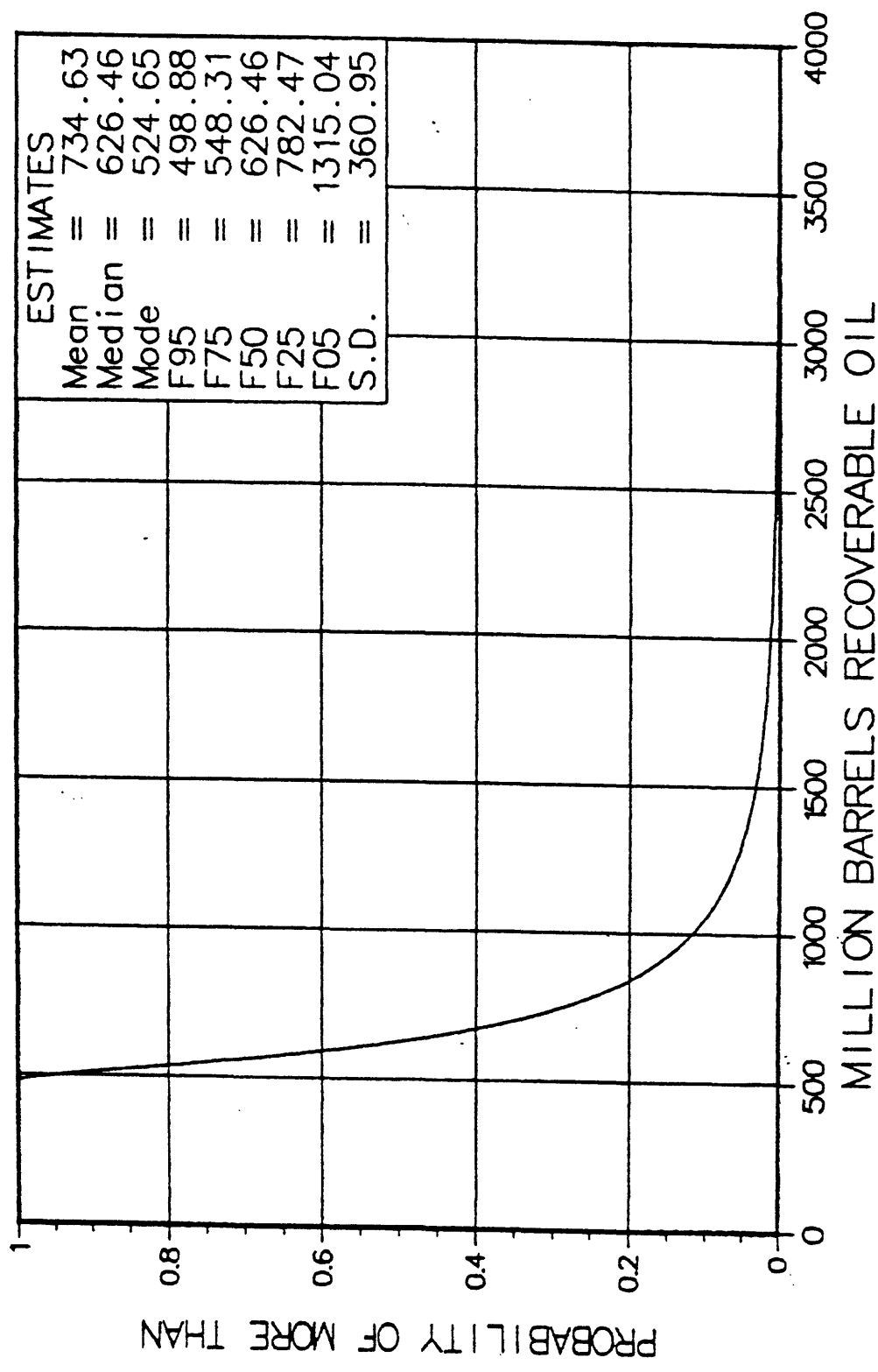


Figure 12B.--Total undiscovered recoverable oil resources in Proposed Wilderness Lands in 11 Western States.

DESIGNATED WILDERNESS LANDS - Gas - Total

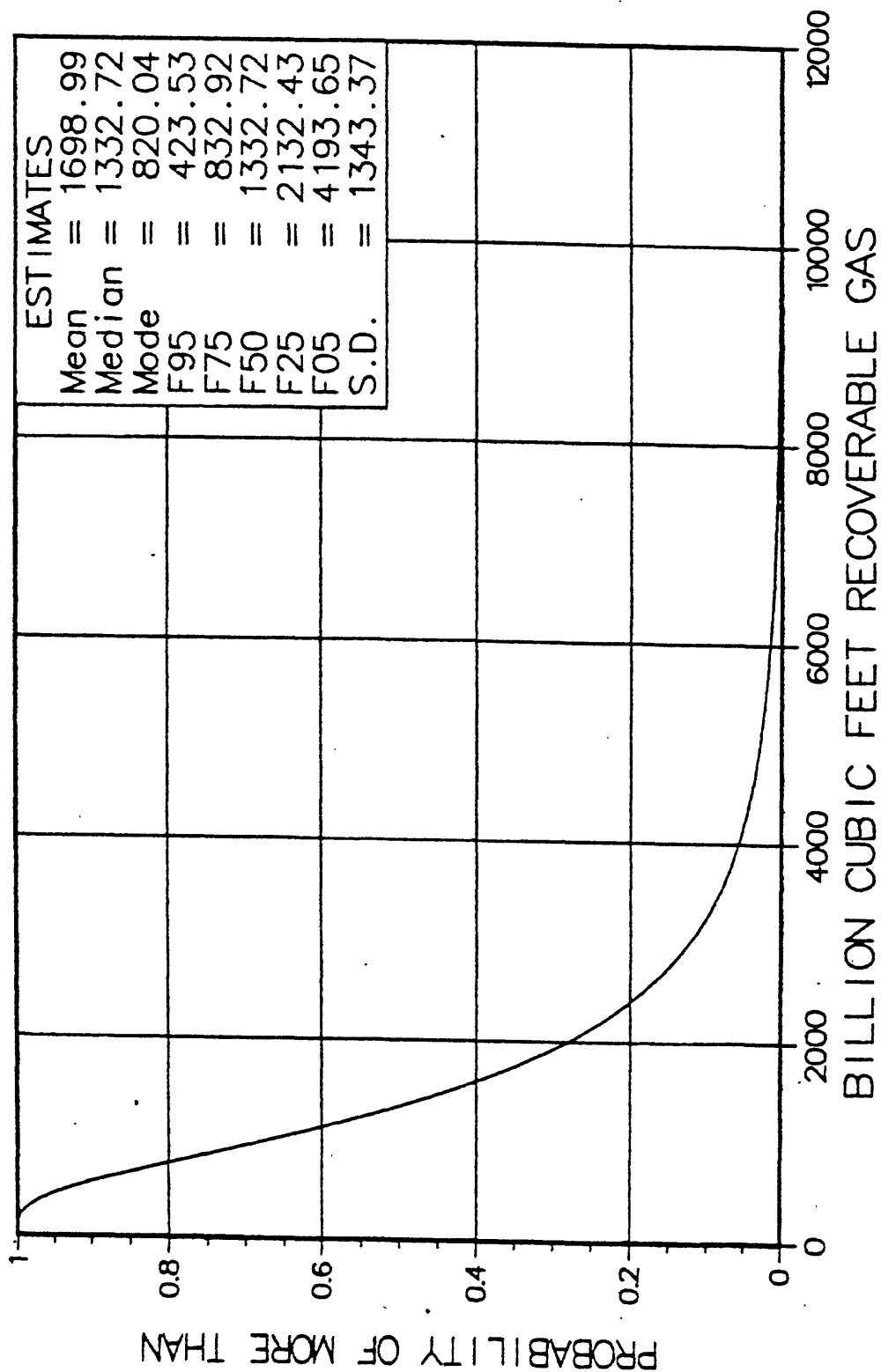


Figure 12C.--Total undiscovered recoverable gas resources in Designated Wilderness Lands in 11 Western States.

PROPOSED WILDERNESS LANDS - Gas - Total

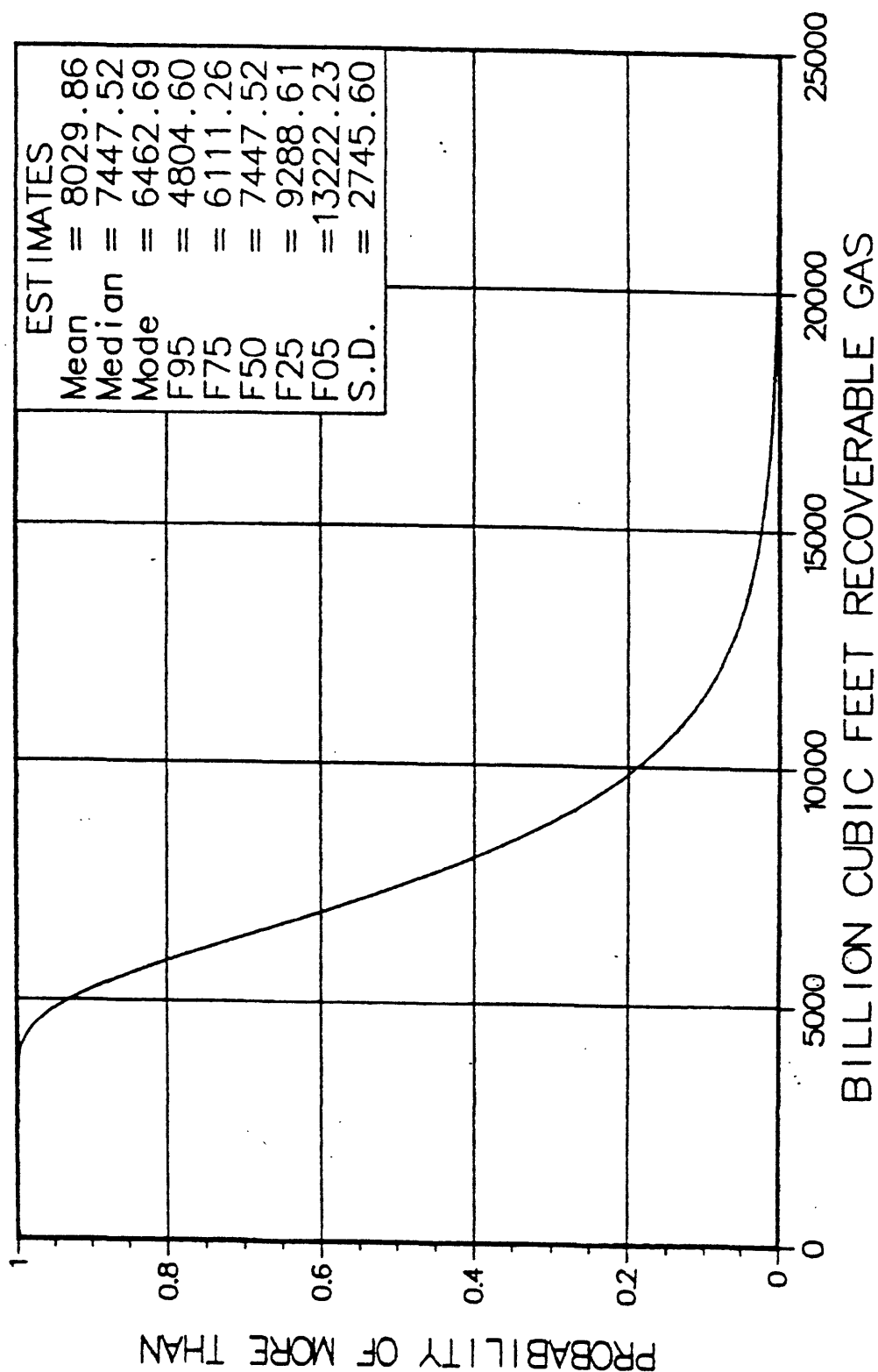


Figure 12D.---Total undiscovered recoverable gas resources in Proposed Wilderness Lands in 11 Western States.

TABLE 1.--Petroleum potential of Designated versus Proposed Wilderness Lands by State in Western United States.

State	Undiscovered recoverable oil (million barrels)			Undiscovered recoverable gas (billion cubic feet)		
	Low ¹ F ₉₅	High F ₅	Mean	Low F ₉₅	High F ₅	Mean
Arizona						
Designated	0.00	1.07	0.28	0.01	2.71	0.70
Proposed	0.05	10.16	2.63	0.15	28.66	7.41
California						
Designated	0.36	4.19	1.59	0.06	0.83	0.30
Proposed	2.33	25.93	10.01	1.30	12.81	5.07
Colorado						
Designated	0.12	4.69	1.40	1.34	43.97	13.48
Proposed	3.15	20.62	7.76	31.48	272.32	114.80
Idaho						
Designated	0.00	0.00	0.00	0.00	0.00	0.00
Proposed	77.56	427.38	206.79	850.15	3,351.45	1,841.25
Montana						
Designated	0.99	60.43	16.88	358.08	4,047.88	1,579.78
Proposed	0.72	45.55	12.67	269.73	3,992.89	1,451.44
Nevada						
Designated	0.02	1.06	0.30	0.65	7.65	2.95
Proposed	3.01	348.11	91.81	16.01	1,413.99	380.40
New Mexico						
Designated	1.18	8.16	3.51	20.18	110.19	53.32
Proposed	1.04	11.94	4.09	30.07	161.12	68.81
Oregon						
Designated	0.00	1.00	0.26	0.72	34.98	10.07
Proposed	0.04	12.18	3.16	4.29	207.27	59.72
Utah						
Designated	0.00	0.00	0.00	0.00	0.00	0.00
Proposed	12.45	391.14	120.83	34.66	829.84	270.22
Washington						
Designated	0.00	0.26	0.07	0.04	7.75	2.00
Proposed	0.04	4.43	1.16	1.46	62.84	18.42
Wyoming						
Designated	22.98	170.18	74.81	5.73	105.53	36.39
Proposed	94.18	584.61	273.71	1,506.21	7,580.67	3,812.30
Total						
Designated	39.13	212.43	99.10	423.53	4,193.65	1,698.99
Proposed	498.88	1,315.04	734.63	4,804.60	13,222.23	8,029.86

¹F₉₅ denotes the 95th fractile; the probability of more than the amount F₉₅ is 95 percent. F₅ is defined similarly. Fractile values are not additive.

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