TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

PART I: Slim Tube MMP Determination With Separator Gas

Reservoir fluid was prepared by Core Laboratory of Aberdeem and shipped to PRI for the tests. The separator gas to be used as injection gas was supplied by Statoil. Four slim tube tests had been conducted at 110 ^{o}C using the reservoir fluid and separator gas. The displacement pressures of the four tests were 360, 390, 450 and 463 bars. Plot of oil recovery versus displacement pressure gave a minimum miscibility pressure of 430 bars. Visual observations of the phase behavior of the gas oil transition zone during the slim tube tests support this conclusion.

1.0 DETERMINATION OF MMP BY SLIM TUBE DISPLACEMENT

1.10 Experimental Procedures

1.11 Preparation of Recombined Reservoir Fluid

The reservoir fluid used for the slim tube tests was supplied by CoreLab of Aberdeen . It was prepared by recombination of the separator oil and separator gas obtained from DST 2B of 15/9-19A.

1.12 Preparation of Injection gas

The injection gas was supplied by statoil oil in a 12 liter gas cylinder (15/9-19A, Bottle No. 31.10.97, bottle type : x-ample 50247). The gas composition is shown in Table 2
The liquid carbon dioxide used for the CO2 slim tube test were supplied by Praxair of Calgary .

1.13 Slim Tube Specification

The slim tube was constructed glass beads packed in (40’ x 0.24 inch) stainless steel tube. The pore volume of the tube was approximately 67 cc. A capillary glass tube was attached to the outlet of the slim tube for visual observation of the effluent during the experiments. A video camera was used to record the observation on video tape. A back pressure regulator

was used to maintain the system pressure during the course of the displacement. The injection gas was placed in a pistoned cylinder which was housed in the same constant temperature oven as the slim tube. Hydraulic fluid was injected, by means of a Ruska positive displacement pump, into the floating pistoned cylinder containing the injection gas, displacing the gas into the slim tube.

Before the test started, the slim tube was first cleaned with toluene and dried. The pore volume at the specified displacement pressure was measured by filling the slim tube with toluene at system temperature and pressure. The toluene was then miscibly displaced with reservoir fluid until constant gas to oil ratio was obtained (a minimum of 1.5 pore volume of reservoir fluid was usually needed). The formation volume factor of the live oil was also measured at this stage. The slim tube tests were performed at a displacement rate of 5 cc/hour. The weight of the produced stock tank oil was recorded with an electronic balance. The volume of produced gas was measured by means of a wet test meter which was modified to transmit the gas volume to the computer electronically. The injection and production pressures were monitored continuously throughout the test by means of Heise pressure transducers. A personal computer equipped with a data acquisition soft-ware, LabTech^{TM} notebook, was employed to sample the data at specified intervals during the slim tube runs. The data collected included (1) weight of the dead oil, (2) produced gas volume measured by the wet-test meter, (3) pressure of both the injection and production ends of the slim tube, and (4) oven temperature. Strip chart recorders were also used to provide backup for the data acquisition.

2.0 Results and Discussions

PART I

2.1 Slim Tube Tests with reservoir fluid and separator gas

Four slim tests were conducted at a temperature of 110 ^{o}C and pressures of 360, 390, 450 and 463 bars. The major results are summarized in Table 1 and Figure 1-2. Details of each of the slim tube displacement results are summarized in Tables 3-6 and Figure 3-6.

Figure 1 shows a plot of the oil recovery at 1.2 pore volume gas injected versus displacement pressures of the four tests. It indicates that the multiple contact minimum miscibility pressure of the reservoir fluid and the specified injection gas was around 430 bars. Figure 2 shows a plot of oil recovery at gas breakthrough versus displacement pressure. The results also suggest a MMP value of around 430 bars.

Photographs (# - #) in the attachment was reproduced from the video taken during the experiment conducted at a pressure of 390 bars. The photograph clearly indicate the presence of a gas phase after injection of 0.6 pore volume of separator gas. The observation support the conclusion that the MMP is above 390 bars.

During the slim tube test at pressures of 450 and 463 bars, gas breakthrough occurred after more than 0.9 pore volume of gas had been injected. The interface was not obvious. The quality of the pictures taken during the high pressure tests were affected by the small diameter Pyrex tube employed used for the sight glass.

2.21 Slim Tube Test No. 1 (Displacement pressure = 360 bars)

Results of this test are summarized in Table 3 and Figure 3A-3B. The oil recovery of this test was 37.7 ml or 56.3 % of original oil in place (OOIP) after injection of 1.2 pore volume of gas. Breakthrough recovery was 27.7 ml or 40.9% of OOIP. Break-through occurred at a fairly early stage of the test, approximately after 40% pore volume of gas had been injected.

Unfortunately, due to malfunctioning of the wet-test meter during this test, the volume of produced gas was not properly recorded.

2.22 Slim Tube Test No. 2 (Displacement pressure = 390 bars)

Results from this test are summarized in Table 4 and Figure 4A-4B. Breakthrough occurred after 0.6 pore volume of gas was injected. The oil recovery at 1.2 pore volume injected was 47.9 ml or 71.5% of OOIP. Oil recovery at gas break through was 40.6 ml or 60.6% of OOIP.

2.23 Slim Tube Test No. 3 (Displacement pressure = 450 bars)

Results from this test are summarized in Table 5 and Figure 5A-5B. As indicated in Fig.5A, gas breakthrough occurred after 0.9 pore volume of gas had been injected. The oil recovery at 1.2 pore volume injected is 65.4 ml or 97.6 % of original oil in place. The oil recovery at gas breakthrough was 62.5 ml or 93.3 % of OOIP.

2.24 Slim Tube Test No. 4 (Displacement pressure = 463 bars)

Results from this test are summarized in Table 6 and Figure 9-10. Breakthrough occurred after 0.95 pore volume of gas had been injected. The oil recovery at 1.2 pore volume injected is 67.7 ml or (101 %). The oil recovery at gas breakthrough was 65.1 ml or 97.2 % of original oil in place.

Table 1: Summary of Slim Tube Test with Separator Gas				
Displacement Pressure (bars)	Oil Recovery at gas breakthrough		Oil Recovery at 1.2 PV injected	
	(ml)	(%OOIP)	(ml)	(%OOIP)
360	27.4	40.9	37.7	56.3
390	40.6	60.6	47.9	71.5
450	62.5	93.3	65.4	97.6
463	65.1	97.2	67.7	1.01

Table 2: Composition of Separator Gas	
	MOLE %
N2	1.27
CO2	3.07
C1	81.77
C2	7.55
C3	3.97
I-C4	0.43
n-C4	1.10
N-C5 and I-C5	0.44
c6+	0.40

TABLE 3: SLIM TUBE DISPLACEMENT WITH SEPARATOR GAS AT 360 BARS						
TIME	PV	DP	GAS PRODUCED	OIL PRODUCED	LIVE OIL PRODUCED	INJ PRESSURE
SEC		BARS	CUBIC METERS	GM	ML	BARS
0	0	0	40	0.00	0	INJ PRE
900	0.019	25.9	40	0.01	0.01	bars
1800	0.037	8.0	60	0.00	0.00	361.2
2700	0.056	12.2	60	0.00	0.00	361.9
3600	0.075	24.1	60	0.16	0.25	363.3
4500	0.093	20.7	60	1.31	2.08	364.0
5400	0.112	17.1	60	2.49	3.95	364.0
6300	0.131	15.2	60	3.42	5.45	364.7
7200	0.149	14.9	60	4.26	6.77	363.3
8100	0.168	14.6	60	5.10	8.12	364.0
9000	0.187	12.7	80	5.96	9.48	364.0
9900	0.205	12.1	80	6.76	10.76	364.0
10800	0.224	10.1	60	7.53	11.99	364.0
11700	0.243	8.8	60	8.27	13.15	363.3
12600	0.261	8.4	60	9.01	14.33	364.0
13500	0.280	6.8	60	9.84	15.66	364.0
14400	0.299	4.7	60	10.66	16.95	364.0
15300	0.317	5.7	60	11.55	18.37	364.0
16200	0.336	4.8	60	12.58	20.01	364.7
17100	0.354	4.5	60	13.54	21.55	364.0
18000	0.373	5.4	60	14.52	23.10	364.0
18900	0.392	7.5	80	15.71	25.00	364.0
19800	0.410	1.4	60	16.35	26.02	364.0
20700	0.429	5.1	60	17.02	27.08	363.3
21600	0.448	1.2	80	17.36	27.62	364.0
22500	0.466	5.7	60	17.46	27.78	361.9
23400	0.485	1.0	60	17.90	28.47	363.3
24300	0.504	7.9	60	18.12	28.84	363.3
25200	0.522	3.9	60	18.62	29.63	363.3
26100	0.541	3.2	80	18.99	30.21	361.9
27000	0.560	3.2	60	19.27	30.66	361.2
27900	0.578	2.6	60	19.52	31.06	360.5
28800	0.597	2.7	60	19.74	31.41	361.2
29700	0.616	2.6	60	19.96	31.75	361.2
30600	0.634	3.4	80	20.14	32.04	361.2
31500	0.653	3.4	60	20.41	32.48	361.9
32400	0.672	3.0	60	20.65	32.86	362.6
33300	0.690	3.0	60	20.89	33.24	361.9
34200	0.709	2.9	60	21.12	33.60	361.2
35100	0.728	2.6	60	21.32	33.93	361.2
36000	0.746	2.6	60	21.50	34.21	360.5
36900	0.765	2.6	60	21.67	34.48	360.5

37800	0.784	2.3	60	21.83	34.73	360.5
38700	0.802	2.5	80	21.95	34.92	359.8
39600	0.821	2.4	60	22.07	35.11	359.8
40500	0.840	2.4	80	22.19	35.31	360.5
41400	0.858	2.3	60	22.30	35.48	360.5
42300	0.877	2.1	60	22.40	35.64	360.5
43200	0.896	2.4	60	22.49	35.78	360.5
44100	0.914	2.2	80	22.59	35.94	361.2
45000	0.933	2.3	60	22.67	36.07	361.2
45900	0.951	2.1	60	22.75	36.20	362.6
46800	0.970	2.3	60	22.83	36.33	361.2
47700	0.989	2.1	80	22.90	36.44	361.2
48600	1.007	2.0	60	22.98	36.56	361.2
49500	1.026	2.0	60	23.05	36.67	361.2
50400	1.045	2.2	60	23.11	36.77	361.2
51300	1.063	2.1	60	23.18	36.88	362.6
52200	1.082	2.0	60	23.26	37.00	361.2
53100	1.101	2.3	80	23.32	37.11	361.2
54000	1.119	2.5	60	23.39	37.22	362.6
54900	1.138	2.3	60	23.49	37.37	362.6
55800	1.157	2.3	80	23.56	37.48	361.9
56700	1.175	2.1	80	23.62	37.59	361.2
57600	1.194	2.0	60	23.68	37.68	361.2
58500	1.213	2.3	60	23.73	37.76	361.2
59400	1.231	2.2	60	23.79	37.85	361.2
60300	1.250	2.6	60	23.85	37.94	361.9
61200	1.269	2.3	60	23.92	38.05	361.9
62100	1.287	2.1	80	23.97	38.13	361.9
63000	1.306	2.1	60	24.01	38.21	361.2
63900	1.325	2.1	60	24.05	38.27	361.2
64800	1.343	2.2	60	24.10	38.34	361.2
65700	1.362	2.3	60	24.15	38.42	360.5
66600	1.381	2.2	60	24.20	38.50	360.5
67500	1.399	2.1	60	24.25	38.58	361.2
68400	1.418	2.1	60	24.30	38.66	360.5
69300	1.437	2.2	80	24.34	38.73	360.5
70200	1.455	2.0	80	24.40	38.82	360.5
71100	1.474	2.1	60	24.44	38.89	359.8
72000	1.493	1.9	60	24.48	38.95	360.5
72900	1.511	1.9	60	24.51	39.00	359.8
73800	1.530	1.8	60	24.54	39.05	360.5

TABLE 4: SLIM TUBE DISPLACEMENT WITH SEPARATOR GAS AT 390 BARS						
TIME	PV	DP	GAS PRODUCED	OIL PRODUCED	LIVE OIL PRODUCED	INJ PRESSURE
SEC		BARS	CUBIC METERS	GM	ML	BARS
0	0.000	0.2	0.02	0.00	0.00	390.3
900	0.019	14.1	0.14	0.00	0.00	393.1
1800	0.037	28.9	0.28	0.14	0.21	393.8
2700	0.056	25.8	0.42	0.79	1.25	393.8
3600	0.075	22.1	0.58	1.80	2.84	394.5
4500	0.093	21.9	0.74	2.80	4.42	394.5
5400	0.112	18.0	0.92	3.67	5.79	394.5
6300	0.131	13.9	1.12	4.53	7.16	393.8
7200	0.149	15.5	1.46	5.82	9.20	392.4
8100	0.168	5.0	1.56	6.59	10.41	394.5
9000	0.187	3.4	1.74	7.58	11.97	393.8
9900	0.205	3.7	1.86	8.11	12.81	393.8
10800	0.224	2.8	2.08	9.08	14.34	392.4
11700	0.243	48.8	2.14	9.27	14.65	393.1
12600	0.261	6.1	2.36	10.48	16.56	393.1
13500	0.280	11.6	2.44	11.18	17.67	393.8
14400	0.299	9.3	2.54	11.92	18.84	394.5
15300	0.317	17.5	2.66	12.96	20.48	395.2
16200	0.336	2.1	2.76	13.64	21.56	395.2
17100	0.354	7.4	2.90	14.68	23.19	395.9
18000	0.373	6.3	3.02	15.68	24.77	395.2
18900	0.392	5.5	3.14	16.77	26.50	394.5
19800	0.410	5.1	3.24	17.67	27.92	395.2
20700	0.429	4.2	3.38	18.85	29.78	394.5
21600	0.448	3.0	3.44	19.76	31.22	396.6
22500	0.466	3.2	3.78	20.66	32.65	394.5
23400	0.485	3.4	3.68	21.40	33.81	395.9
24300	0.504	2.9	3.72	22.06	34.86	395.2
25200	0.522	3.0	3.84	22.94	36.24	395.2
26100	0.541	3.0	4.02	23.86	37.70	394.5
27000	0.560	2.3	4.14	24.65	38.95	395.2
27900	0.578	2.6	4.52	25.27	39.92	394.5
28800	0.597	3.8	4.90	25.61	40.46	393.8
29700	0.616	2.6	5.26	25.98	41.05	393.1
30600	0.634	2.8	5.66	26.27	41.51	393.1
31500	0.653	2.1	5.96	26.53	41.91	393.1
32400	0.672	2.6	6.50	26.81	42.36	392.4
33300	0.690	2.8	6.84	27.04	42.72	393.1
34200	0.709	3.0	7.44	27.34	43.20	391.7
35100	0.728	2.7	8.00	27.64	43.67	390.3
36000	0.746	2.9	8.56	27.90	44.09	389.7
36900	0.765	2.3	8.96	28.11	44.42	389.0
37800	0.784	2.0	9.30	28.26	44.66	390.3

38700	0.802	2.6	10.06	28.37	44.82	391.0
39600	0.821	2.5	10.26	28.51	45.05	391.0
40500	0.840	2.5	10.58	28.65	45.26	390.3
41400	0.858	2.6	11.22	28.76	45.44	391.0
42300	0.877	2.3	11.38	28.87	45.62	391.0
43200	0.896	2.0	12.86	29.00	45.82	391.0
44100	0.914	2.3	12.50	29.11	45.99	390.3
45000	0.933	2.1	13.04	29.21	46.16	390.3
45900	0.951	2.3	12.94	29.33	46.34	390.3
46800	0.970	2.1	14.68	29.44	46.51	389.7
47700	0.989	1.9	15.00	29.52	46.65	390.3
48600	1.007	2.1	14.78	29.61	46.78	389.7
49500	1.026	2.0	15.32	29.68	46.90	390.3
50400	1.045	2.3	15.90	29.75	47.01	390.3
51300	1.063	2.3	16.38	29.84	47.15	389.7
52200	1.082	2.3	16.76	29.92	47.27	391.7
53100	1.101	2.2	17.32	29.98	47.37	390.3
54000	1.119	2.2	17.76	30.05	47.48	389.7
54900	1.138	2.1	18.16	30.12	47.60	389.0
55800	1.157	2.2	19.66	30.19	47.69	388.3
56700	1.175	1.4	18.78	30.23	47.76	390.3
57600	1.194	1.0	19.26	30.27	47.82	389.0
58500	1.213	2.5	18.88	30.34	47.94	388.3

TABLE 5: SLIM TUBE DISPLACEMENT WITH SEPARATOR GAS AT 450 BARS						
TIME	PV	DP	GAS PRODUCED	OIL PRODUCED	LIVE OIL PRODUCED	INJ PRESSURE
SEC		BARS	CUBIC METERS	GM	ML	BARS
0	0.000	0.1	0.1	0.00	0.00	451.7
900	0.019	13.2	0.1	0.06	0.10	453.8
1800	0.037	18.9	0.1	0.45	0.71	453.8
2700	0.056	26.8	0.2	1.25	1.96	451.7
3600	0.075	24.4	0.4	2.47	3.86	451.0
4500	0.093	14.8	0.5	3.43	5.38	449.7
5400	0.112	21.2	0.7	4.19	6.56	449.0
6300	0.131	13.4	0.9	5.03	7.88	449.0
7200	0.149	7.5	0.9	5.68	8.91	451.0
8100	0.168	19.0	0.9	5.99	9.39	453.1
9000	0.187	19.6	1.0	6.90	10.82	451.7
9900	0.205	14.1	1.2	8.01	12.56	451.7
10800	0.224	17.2	1.3	8.78	13.77	451.7
11700	0.243	11.0	1.6	9.81	15.38	450.3
12600	0.261	13.5	1.7	10.55	16.54	451.0
13500	0.280	12.4	1.9	11.44	17.94	450.3
14400	0.299	11.4	2.0	12.32	19.32	450.3
15300	0.317	10.7	2.1	13.16	20.63	450.3
16200	0.336	10.5	2.2	13.97	21.91	450.3
17100	0.354	9.9	2.2	14.80	23.20	451.0
18000	0.373	9.9	2.3	15.56	24.39	451.7
18900	0.392	9.4	2.4	16.31	25.57	451.0
19800	0.410	9.0	2.5	17.11	26.82	451.0
20700	0.429	9.6	2.5	17.90	28.06	451.0
21600	0.448	9.2	2.6	18.78	29.44	450.3
22500	0.466	8.6	2.7	19.67	30.84	451.0
23400	0.485	8.6	2.8	20.59	32.29	449.7
24300	0.504	7.6	2.9	21.48	33.68	450.3
25200	0.522	7.0	3.0	22.34	35.02	450.3
26100	0.541	7.0	3.1	23.29	36.51	450.3
27000	0.560	6.4	3.2	24.27	38.04	449.7
27900	0.578	5.7	3.3	25.23	39.55	449.0
28800	0.597	5.2	3.3	26.10	40.92	449.0
29700	0.616	4.3	3.4	26.99	42.32	450.3
30600	0.634	3.9	3.5	27.80	43.59	449.7
31500	0.653	3.8	3.6	28.62	44.87	449.7
32400	0.672	2.9	3.7	29.62	46.44	449.0
33300	0.690	2.2	3.8	30.49	47.80	450.3
34200	0.709	1.9	3.9	31.37	49.17	449.7
35100	0.728	1.6	4.0	32.24	50.54	449.7
36000	0.746	1.4	4.1	33.11	51.92	449.7
36900	0.765	1.1	4.1	34.14	53.52	449.7
37800	0.784	1.2	4.1	34.78	54.53	449.7

38700	0.802	1.4	4.2	35.75	56.05	449.0
39600	0.821	0.4	4.3	36.72	57.56	449.0
40500	0.840	0.5	4.4	37.83	59.30	448.3
41400	0.858	0.9	4.5	38.32	60.08	449.0
42300	0.877	0.7	4.6	39.01	61.16	448.3
43200	0.896	0.8	4.8	39.55	62.01	449.0
44100	0.914	0.8	4.8	39.91	62.57	448.3
45000	0.933	1.3	5.3	40.25	63.10	446.2
45900	0.951	1.0	5.3	40.57	63.60	444.1
46800	0.970	1.0	5.4	40.75	63.88	443.4
47700	0.989	0.9	5.6	40.91	64.13	442.8
48600	1.007	1.0	5.7	41.01	64.29	442.8
49500	1.026	0.8	5.9	41.11	64.45	443.4
50400	1.045	0.7	6.2	41.19	64.58	444.1
51300	1.063	1.0	6.5	41.25	64.67	445.5
52200	1.082	1.0	6.8	41.33	64.79	444.8
53100	1.101	0.6	7.2	41.41	64.92	444.8
54000	1.119	1.0	7.6	41.47	65.02	444.1
54900	1.138	1.0	7.9	41.54	65.12	445.5
55800	1.157	1.0	8.3	41.60	65.21	444.8
56700	1.175	0.9	8.6	41.65	65.30	444.1
57600	1.194	1.1	9.0	41.70	65.37	444.8
58500	1.213	1.0	9.4	41.69	65.35	444.1
59400	1.231	0.8	9.9	41.68	65.34	443.4
60300	1.250	0.8	10.3	41.67	65.33	442.8
61200	1.269	0.8	10.7	41.69	65.36	442.1
62100	1.287	0.6	11.0	41.73	65.42	442.8
63000	1.306	0.3	11.4	41.78	65.51	442.8
63900	1.325	0.4	11.7	41.86	65.63	442.8
64800	1.343	0.3	12.5	42.35	66.39	439.3
65700	1.362	0.3	12.5	42.41	66.49	441.4
66600	1.381	0.3	13.1	42.41	66.49	437.9
67500	1.399	0.3	13.1	42.48	66.60	441.4
68400	1.418	0.3	13.8	42.57	66.74	437.9
69300	1.437	0.3	13.8	42.63	66.83	440.7
70200	1.455	0.3	14.5	42.81	67.12	438.6
71100	1.474	2.6	14.5	42.81	67.12	440.7
72000	1.493	0.5	14.8	42.94	67.31	440.7
72900	1.511	0.3	15.2	42.97	67.37	439.3
73800	1.530	0.3	15.7	43.04	67.48	438.6
74700	1.549	0.4	15.8	43.05	67.49	439.3
75600	1.567	0.7	16.0	43.09	67.56	440.7
76500	1.586	0.7	16.3	43.13	67.62	439.3
77400	1.604	0.8	16.7	43.15	67.66	440.0

TABLE 6: SLIM TUBE DISPLACEMENT WITH SEPARATOR GAS AT 463 BARS						
TIME	PV	DP	GAS PRODUCED	OIL PRODUCED	LIVE OIL PRODUCED	INJ PRESSURE
SEC		BARS	CUBIC METERS	GM	ML	BARS
0	0.000	0.1	0.1	0.00	0.00	462.8
900	0.019	3.0	0.1	0.02	0.03	464.8
1800	0.037	4.8	0.1	0.00	0.00	466.9
2700	0.056	16.4	0.2	0.08	0.13	467.6
3600	0.075	7.1	0.3	0.50	0.77	468.3
4500	0.093	36.8	0.5	1.47	2.30	465.5
5400	0.112	26.0	0.8	3.12	4.87	463.4
6300	0.131	17.0	1.0	3.94	6.16	462.8
7200	0.149	2.9	1.0	4.52	7.07	464.8
8100	0.168	5.4	1.0	4.64	7.25	467.6
9000	0.187	13.1	1.1	4.89	7.64	468.3
9900	0.205	20.6	1.3	5.75	8.99	466.9
10800	0.224	7.1	1.4	6.49	10.15	468.3
11700	0.243	18.7	1.7	8.08	12.63	464.1
12600	0.261	22.3	1.8	8.78	13.72	464.1
13500	0.280	14.9	2.0	9.94	15.53	463.4
14400	0.299	11.9	2.1	10.88	17.01	462.8
15300	0.317	11.4	2.2	11.74	18.35	462.8
16200	0.336	10.9	2.3	12.52	19.58	462.8
17100	0.354	9.9	2.3	13.25	20.71	462.8
18000	0.373	9.6	2.4	13.97	21.84	464.1
18900	0.392	9.9	2.5	14.74	23.05	462.8
19800	0.410	9.8	2.6	15.44	24.13	462.8
20700	0.429	9.5	2.6	16.26	25.41	463.4
21600	0.448	8.6	2.7	17.07	26.68	463.4
22500	0.466	10.0	2.8	18.07	28.25	464.1
23400	0.485	9.7	2.9	19.04	29.77	462.8
24300	0.504	8.8	3.0	19.90	31.10	464.1
25200	0.522	8.5	3.1	20.83	32.56	463.4
26100	0.541	8.1	3.2	21.60	33.77	463.4
27000	0.560	7.8	3.3	22.44	35.09	463.4
27900	0.578	7.2	3.4	23.29	36.41	463.4
28800	0.597	7.4	3.4	24.21	37.85	463.4
29700	0.616	6.3	3.5	25.06	39.18	463.4
30600	0.634	6.3	3.6	26.02	40.68	462.8
31500	0.653	5.0	3.7	26.87	42.01	463.4
32400	0.672	5.8	3.8	27.62	43.18	462.8
33300	0.690	5.0	3.9	28.60	44.72	463.4
34200	0.709	4.4	4.0	29.52	46.15	464.1
35100	0.728	3.7	4.1	30.48	47.64	462.8
36000	0.746	3.1	4.2	31.33	48.97	462.8
36900	0.765	1.4	4.2	32.10	50.18	462.8
37800	0.784	1.6	4.2	32.44	50.71	464.8
38700	0.802	3.3	4.3	33.19	51.89	464.1

39600	0.821	0.5	4.4	33.79	52.83	464.8
40500	0.840	0.4	4.5	35.11	54.89	464.8
41400	0.858	0.3	4.6	35.96	56.22	464.8
42300	0.877	0.3	4.7	36.67	57.32	464.8
43200	0.896	1.1	4.9	38.09	59.55	463.4
44100	0.914	0.3	4.9	39.14	61.19	463.4
45000	0.933	1.0	5.4	41.18	64.37	458.6
45900	0.951	0.5	5.4	41.57	64.98	460.7
46800	0.970	1.7	5.5	41.72	65.22	461.4
47700	0.989	1.0	6.1	42.23	66.02	460.7
48600	1.007	1.0	6.4	42.48	66.42	461.4
49500	1.026	1.1	6.8	42.63	66.64	461.4
50400	1.045	0.9	7.2	42.79	66.89	461.4
51300	1.063	0.8	7.5	42.88	67.04	462.1
52200	1.082	1.2	8.1	42.99	67.20	460.7
53100	1.101	0.8	8.3	43.09	67.37	461.4
54000	1.119	0.7	8.7	43.12	67.42	462.1
54900	1.138	1.0	9.2	43.19	67.51	461.4
55800	1.157	1.0	9.6	43.24	67.60	461.4
56700	1.175	0.8	9.9	43.28	67.67	461.4
57600	1.194	1.0	10.3	43.32	67.72	461.4
58500	1.213	0.8	10.7	43.35	67.78	460.7
59400	1.231	0.8	11.1	43.39	67.83	460.7
60300	1.250	1.1	11.5	43.41	67.87	460.7
61200	1.269	1.0	11.8	43.43	67.90	460.0
62100	1.287	0.9	12.2	43.46	67.94	460.7
63000	1.306	0.9	12.6	43.48	67.97	460.7
63900	1.325	1.2	13.1	43.49	67.99	459.3
64800	1.343	0.3	13.5	43.50	68.00	460.0
65700	1.362	0.3	13.5	43.51	68.03	461.4
66600	1.381	0.4	13.8	43.58	68.12	462.1
67500	1.399	1.0	13.8	43.60	68.16	463.4
68400	1.418	0.6	15.6	43.64	68.23	454.5
69300	1.437	0.3	15.7	43.65	68.25	457.2
70200	1.455	0.3	15.6	43.76	68.41	460.0
71100	1.474	0.3	15.8	43.80	68.47	460.7
72000	1.493	0.3	16.2	43.81	68.49	460.0
72900	1.511	0.3	16.6	43.83	68.52	460.7

Fig.1: Plot of Oil Recovery at 1.2 PV versus Displacement Pressure

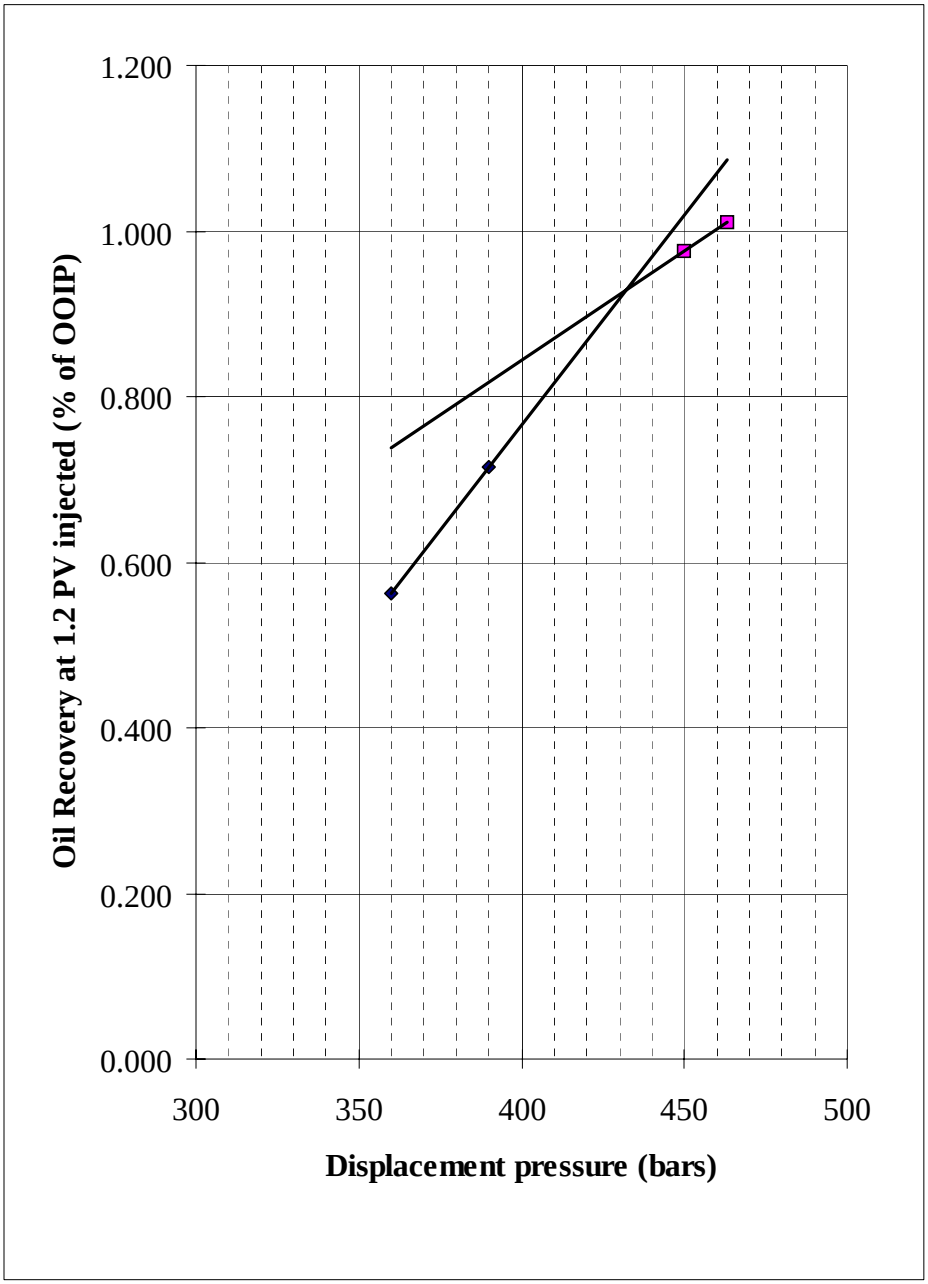

Fig.2: Plot of Oil Recovery at gas breakthrough versus Displacement Pressure

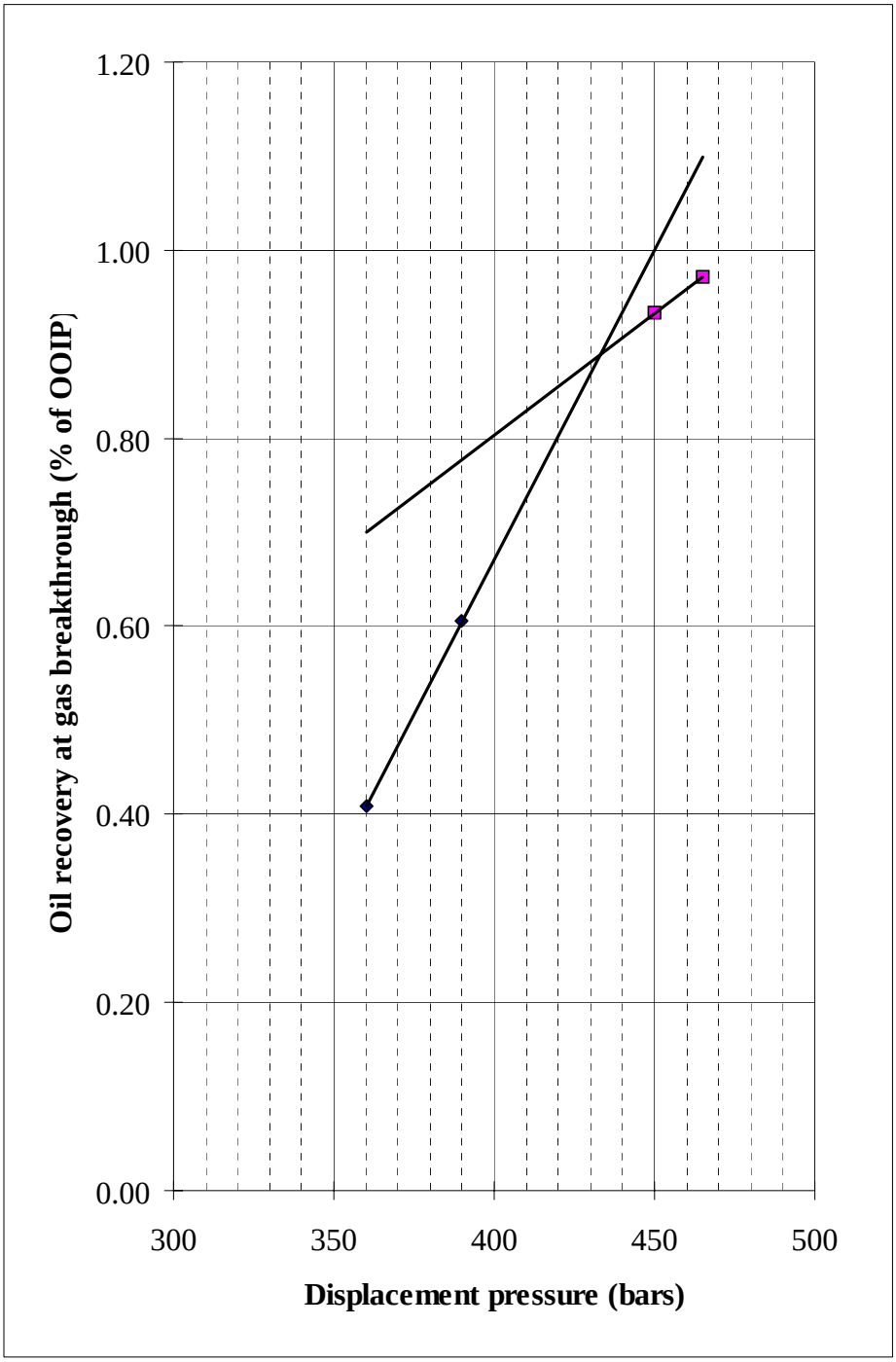

Fig.3A: Slim Tube Test at 360 bars

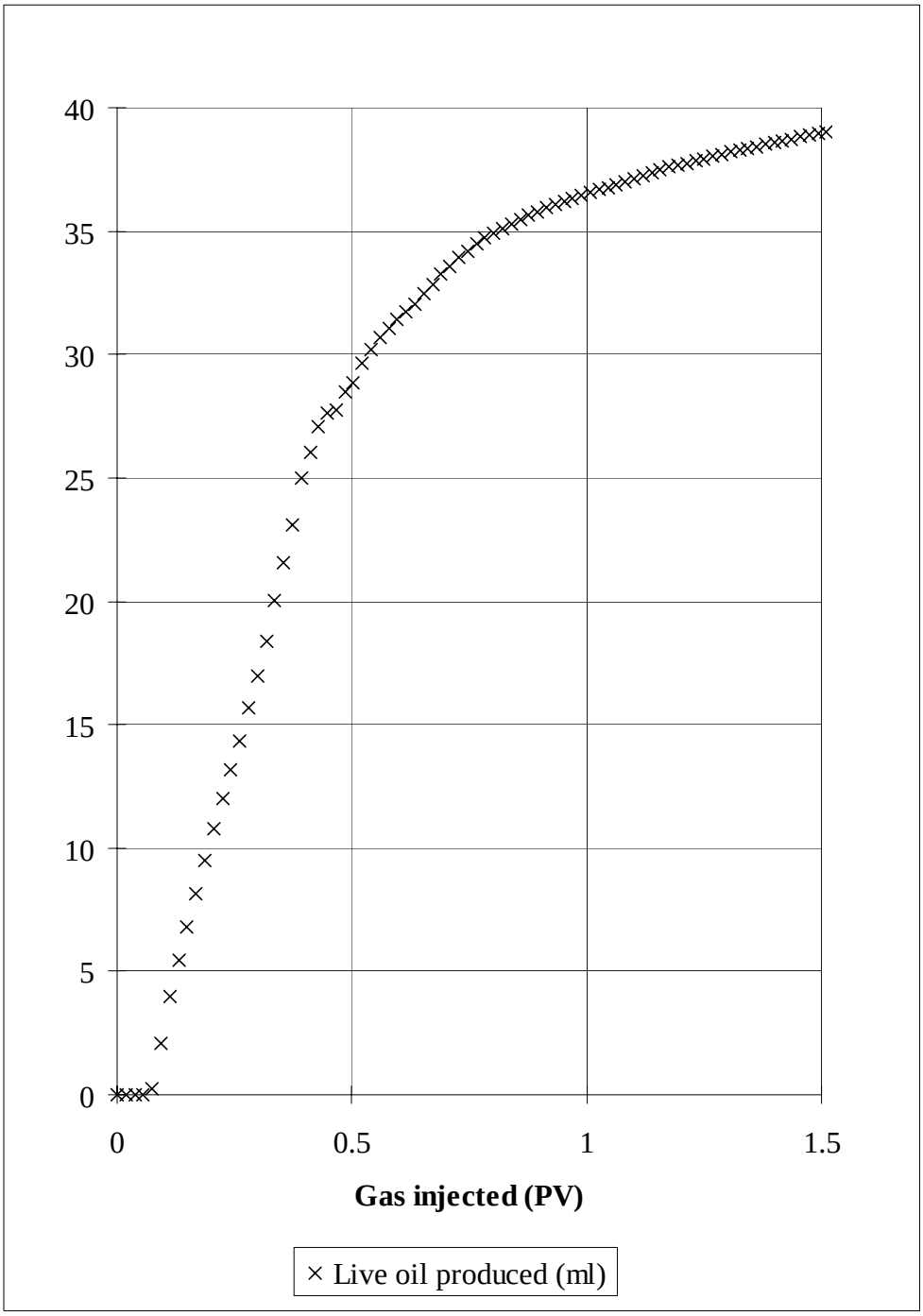

Fig. 3B: Slim Tube Test at 360 bars

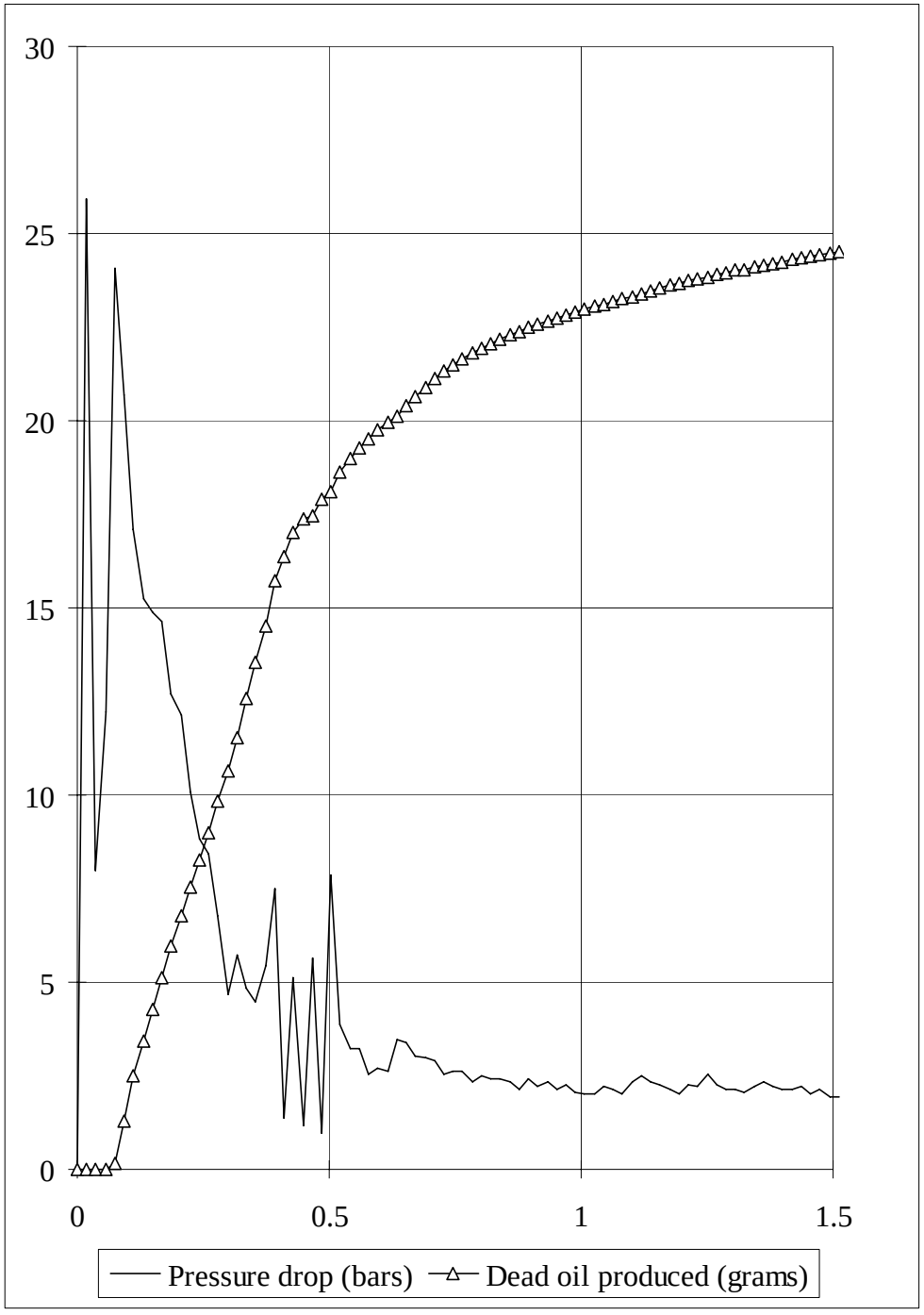

Fig. 4A: Slim tube Tests at 390 bars

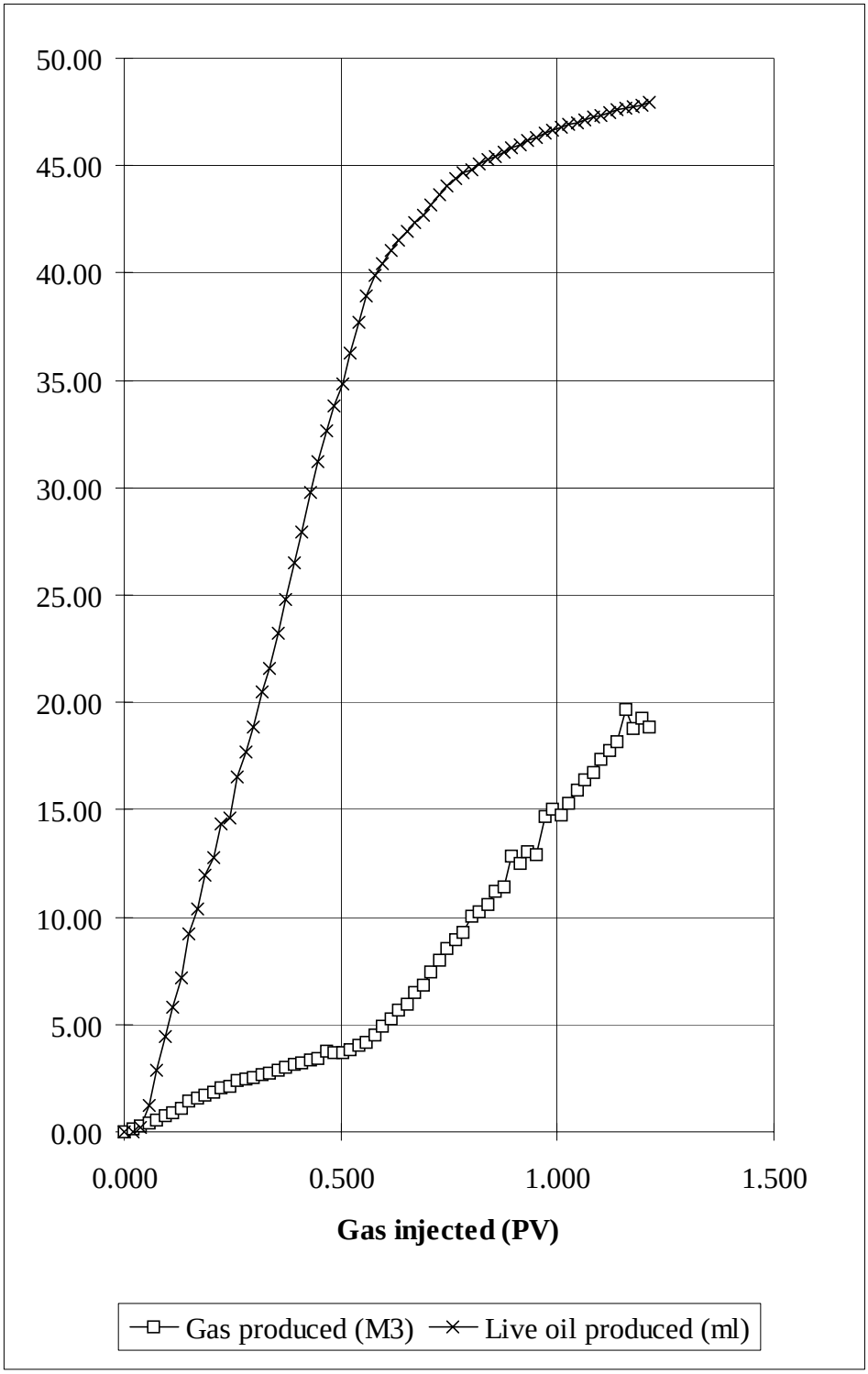

Fig. 4B: Slim tube Tests at 390 bars

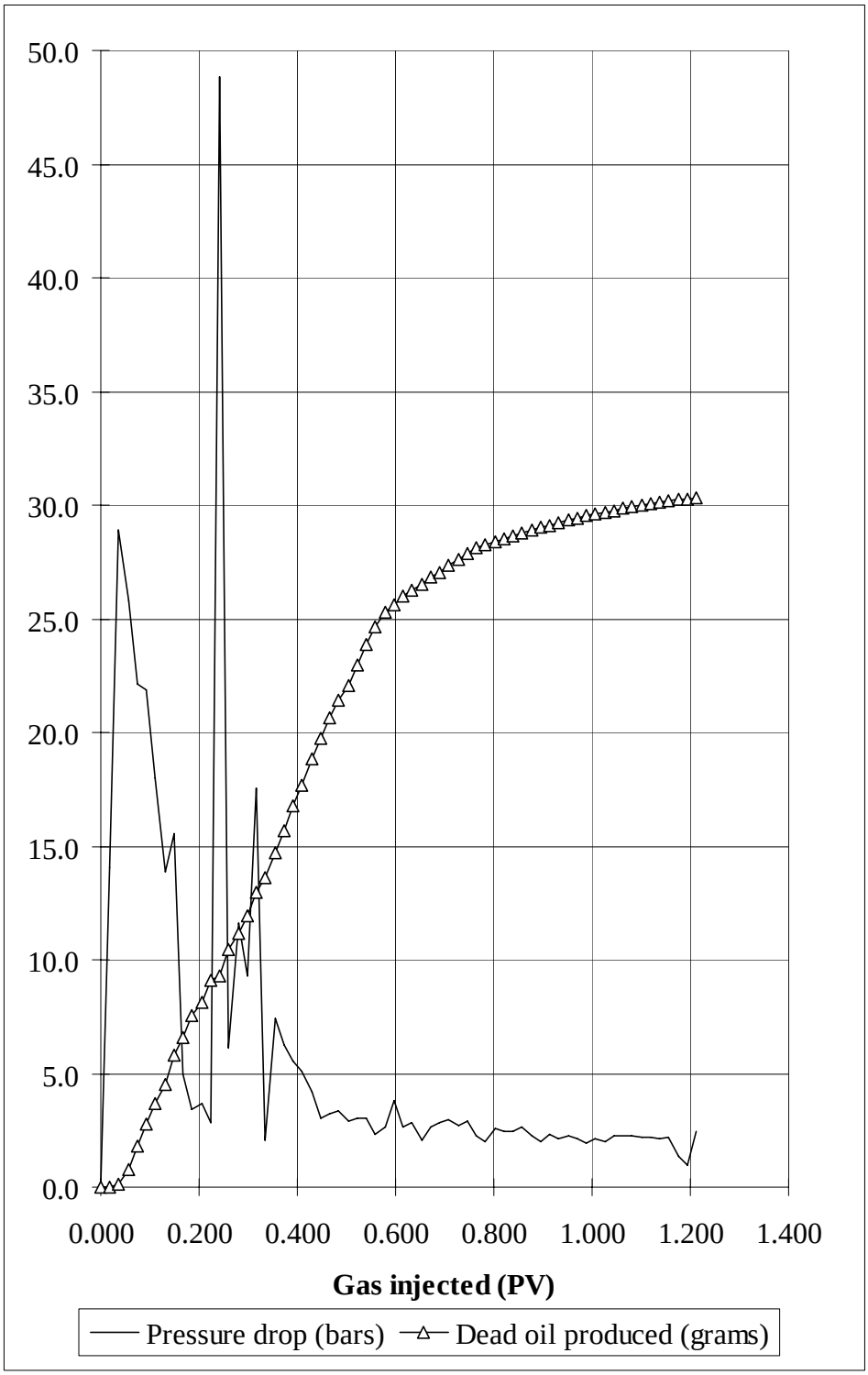

Fig 5A: Slim Tube Tests at 450 bars

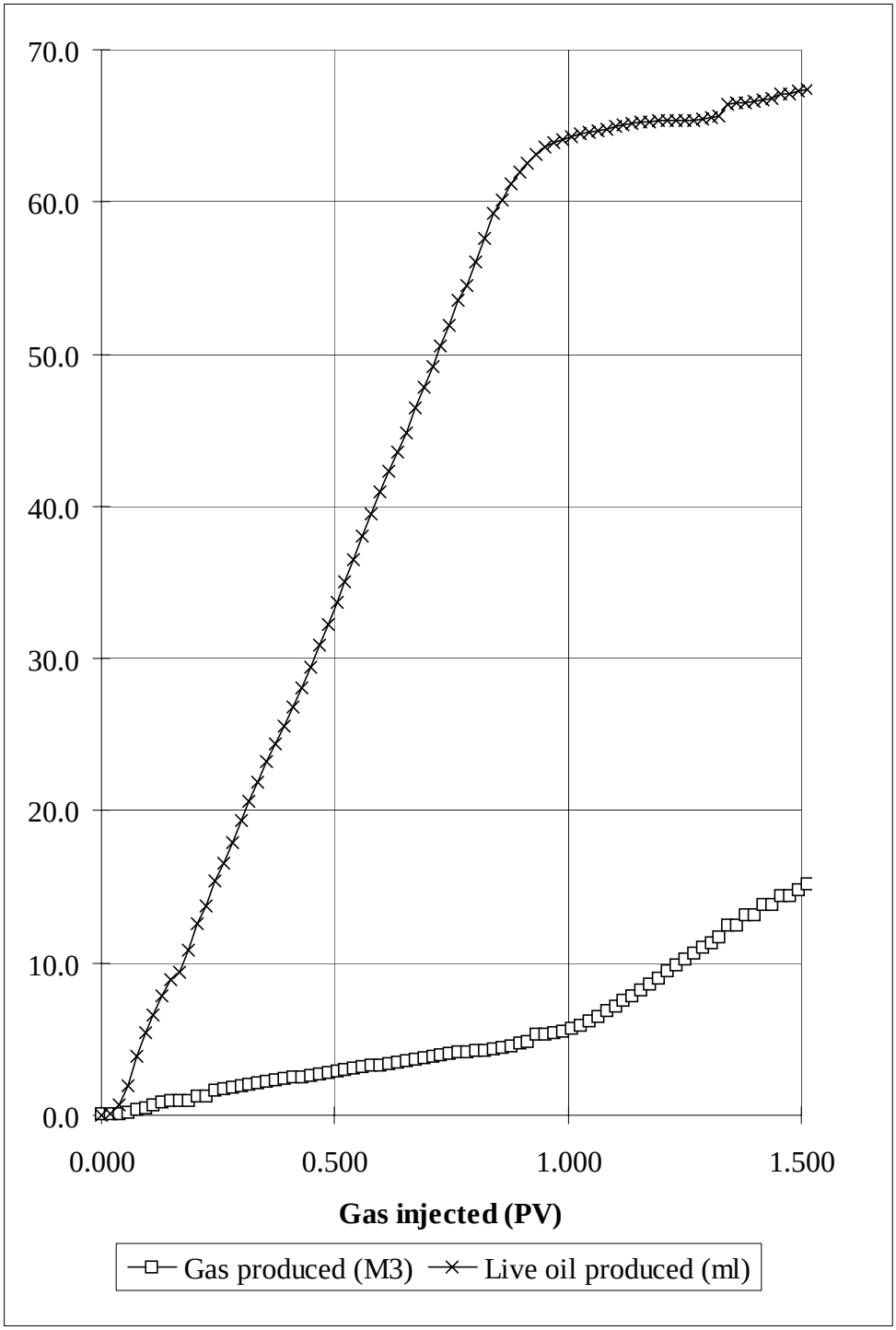

Fig.5B Slim Tube at 450 bars

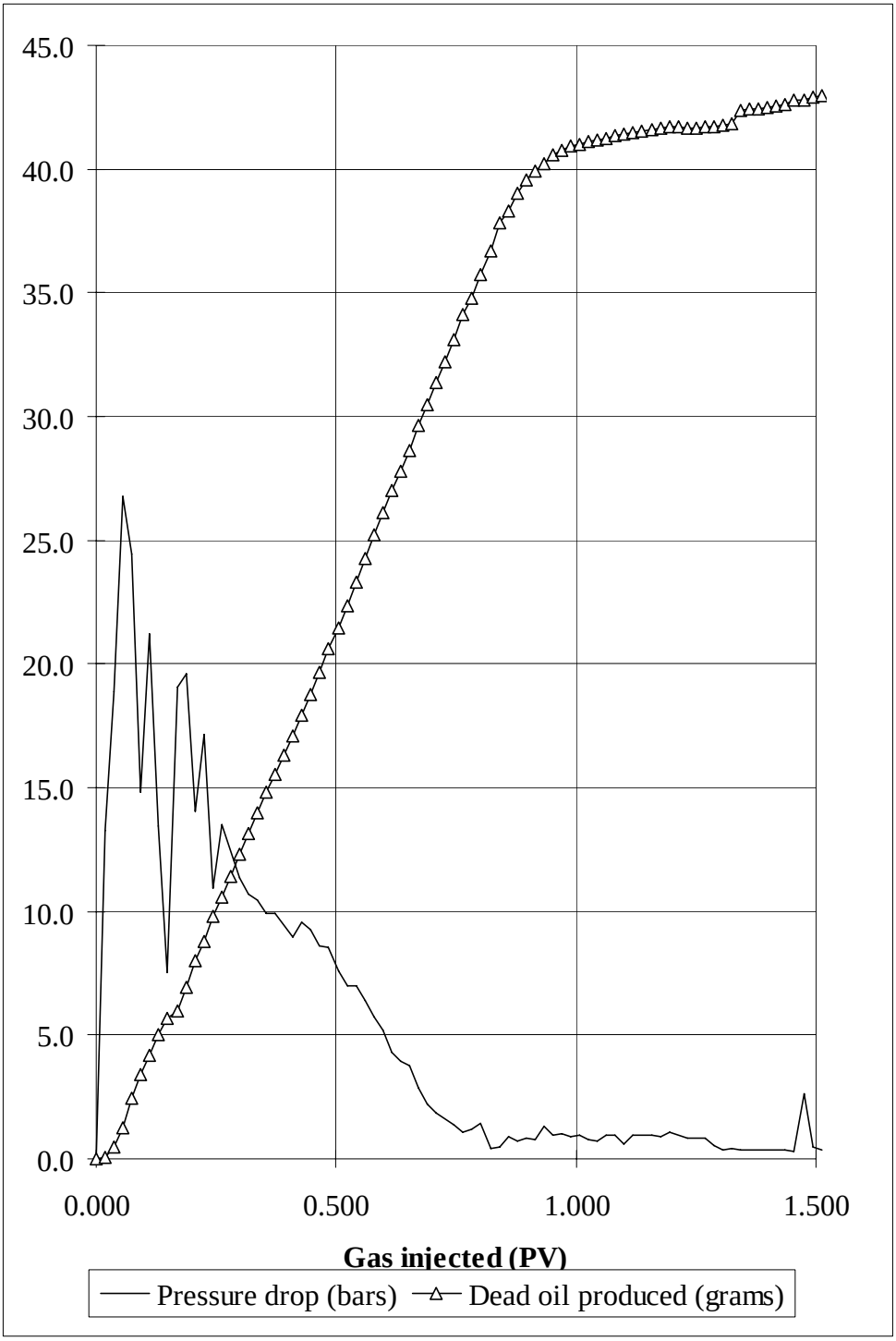

Fig. 6A Slim Tube Test at 463 bars

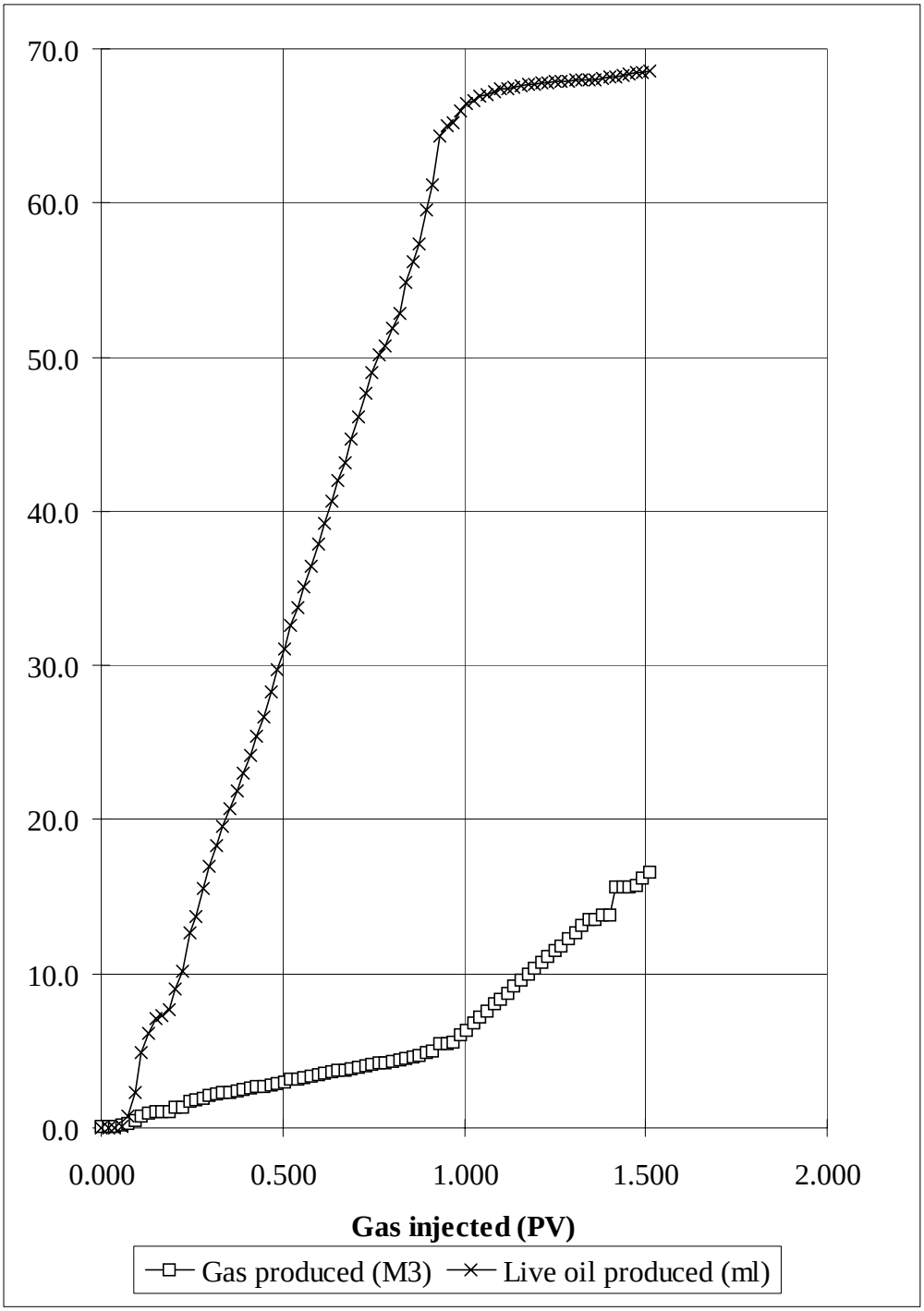

Fig. 6B slim Tube Test at 463 bars