

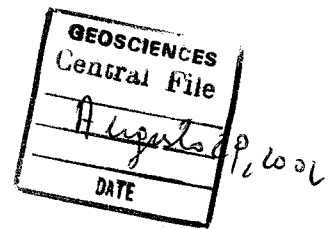
Soliman Don
provisiones

COPETSA

Compañía Petrolera Talara S.A.C.

Well: LO16-26

Lobitos Offshore



24 hrs Buildup pressure & Flowing Gradient Test

August 21th-22th, 2002

Report elaborated by: Luis Manrique Carrillo

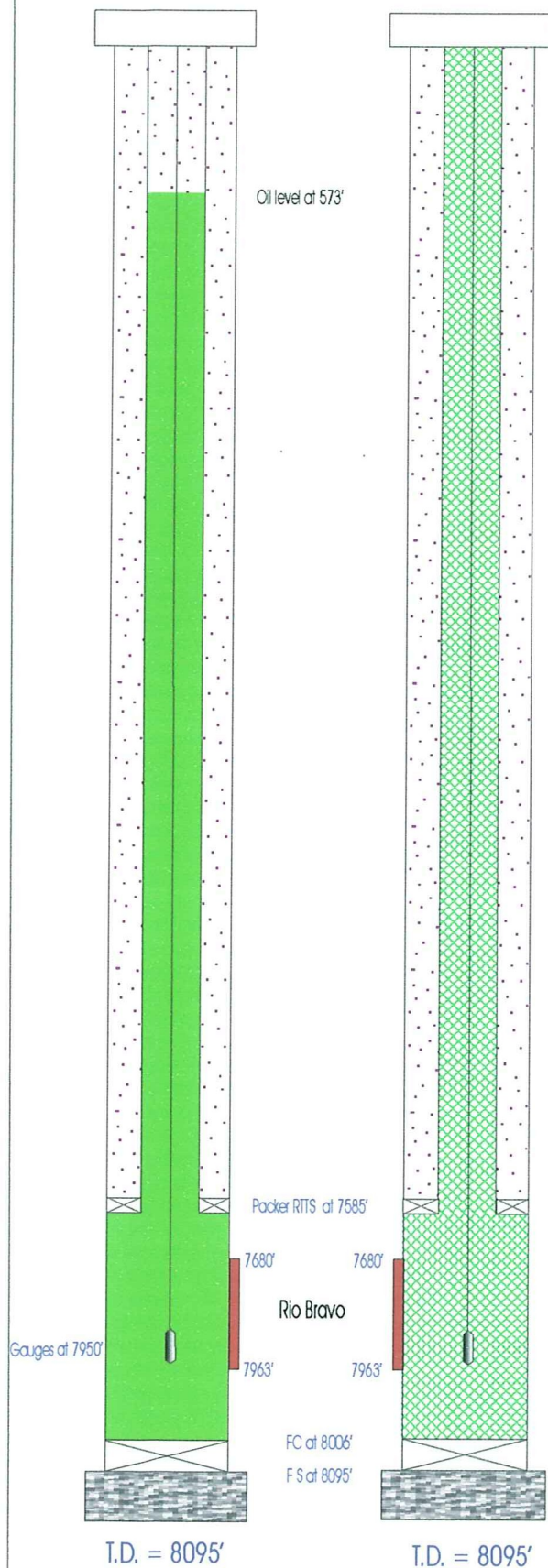
COPETSA

TYPE OF TEST : 24 Hrs Buildup Pressure & Flowing gradient
WELL : LO16-26

SAND : Río Bravo (7963'-7680')
Field : Lobitos Offshore

At static condition
WHP = 900 psig

At flowing condition
WHP = 20 psig



Status: Flowing
Qo=100 BPD
Well just drilled

August 22th, 2002

13:00 Arriving Location
14:00 Rig up
16:00 RIH 2 5/16' cup at 7583' (packer RTTS)
16:24 Activate Memory Gauge s/n 5272, 87013
17:02 Lubricator pressurized
WHP=20 psig, Pressure(ann)=40 psig
17:05 RIH gauges
17:26 Gauges at 7950' for 15 min at flowing condition
17:41 Shut in well for 24 hrs to take buildup test
WHP=20 psig, Pressure(ann)= 80 psig
22:00 WHP=450 psig, Pressure(ann)= 80 psig

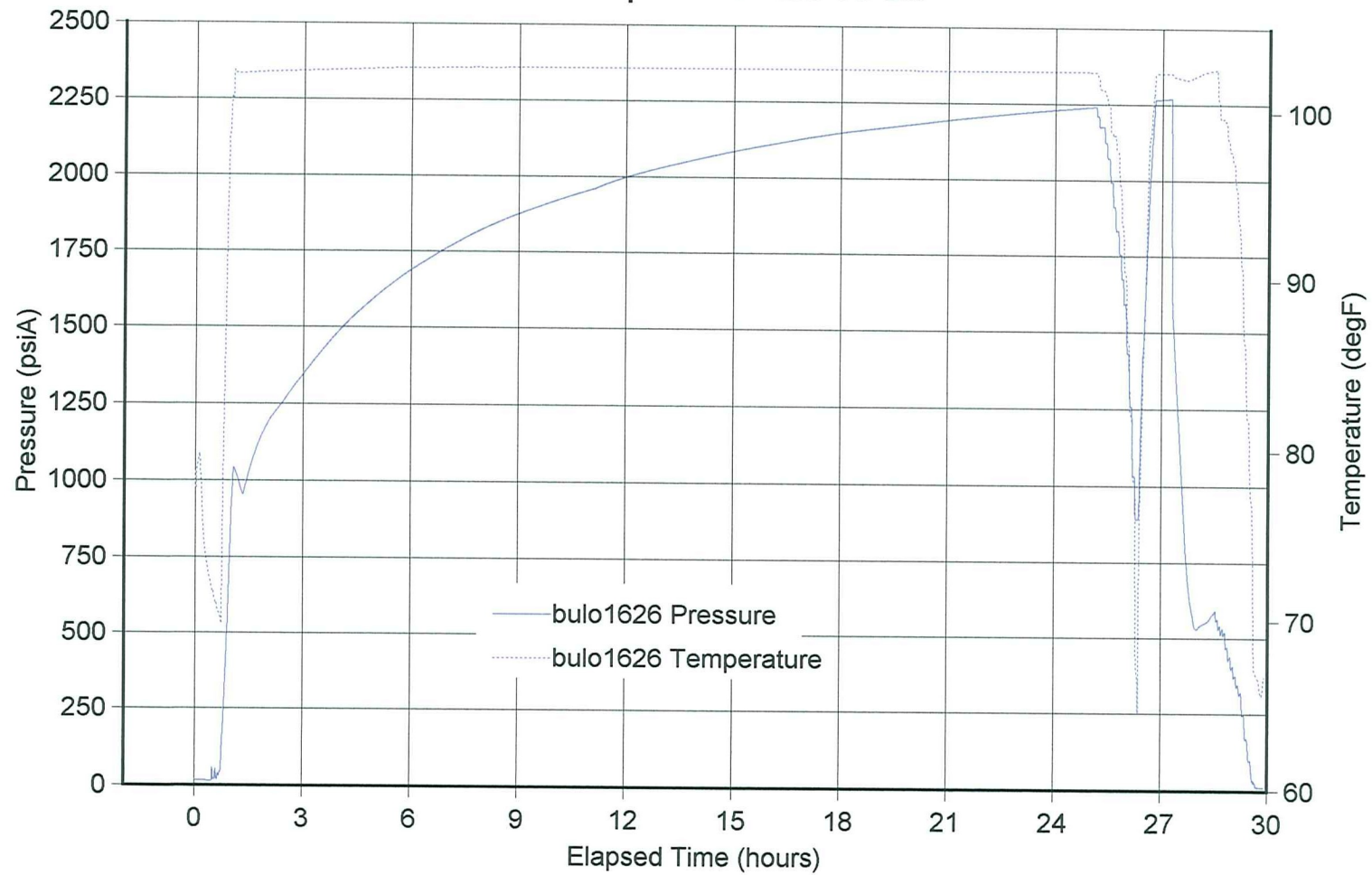
August 23th, 2002

06:00 WHP= 550 psig
14:00 WHP= 750 psig
17:00 WHP= 900 psig
17:32 POOH Gauges with 3 min. Steps as follows
7950' 7000' 5000' 2000'
7800' 6500' 4500' 1000'
7600' 6000' 4000' 0'
7300' 5500' 3000'
18:41 Gauges at 0'
18:44 RIH Gauges
19:10 Gauges at 7950'
19:38 Bleed off well to separator x 1.25 hrs.
20:55 POOH Gauges with 4 min.steps as follows
7950' 7000' 5000' 2000'
7800' 6500' 4500' 1000'
7600' 6000' 4000' 0'
7300' 5500' 3000'
Produced Oil=41 Bbls
WHP=20 psig,
22:00 Gauges on Surface
22:15 Desactivate Memory Gauge
23:00 Rig Down.

PETRO-TECH PERUANA S.A.
WELL : LO16-26
FIELD : LOBITOS OFFSHORE
TYPE OF TEST: 24 hrs Buildup pressure & Flowing gradient

EMS 2000
GAUGE SERIAL NUMBER: 5272
DATE: AUGUST 21th-22th, 2002

Data Graph: Well LO16-26



Summary of Results

Date of Test	August 22th-23th, 2002	
Formation	Río Bravo (7963'-7680')	
Depth of gauges	7,950	M.D. ft
	4,623	V.D. ft

24 hrs at Static Condition

Well Head Pressure	900	psig (manometer)
Static Pressure at 7950' MD	2243.36	psia (Memory)
Static Temperature at 7950' MD	102.43	°F
Gradient at 7950' MD	0.4853	psi/ft
Gas gradient	0.2815	psi/ft
Oil gradient	0.3331	psi/ft
Oil level	573	ft. MD
	573	ft. VD

1.25 hrs flowing condition

Well Head Pressure	20	psig (manometer)
Flowing Pressure at 7950' MD	592.1	psia (Memory)
Static Temperature at 7950' MD	102.61	°F
Gradient at 7950' MD	0.1281	psi/ft
Ligth Oil gradient	0.1215	psi/ft

- PRU again produced 162 bbl of oil.

Fluid level at 573' MD (573' VD)

PMP ——— 7822' MD (4546' VD) = 2217 Psia.

Gauge ——— 7950' MD (4623' VD) = 2243 psia $\Delta 0.1 \text{ GPM} = 0.3331$

With Static Press. $FG = \frac{2217}{4546} = 0.488 \text{ psi/ft}$

Extn Press $FG = \frac{2243}{4546}$

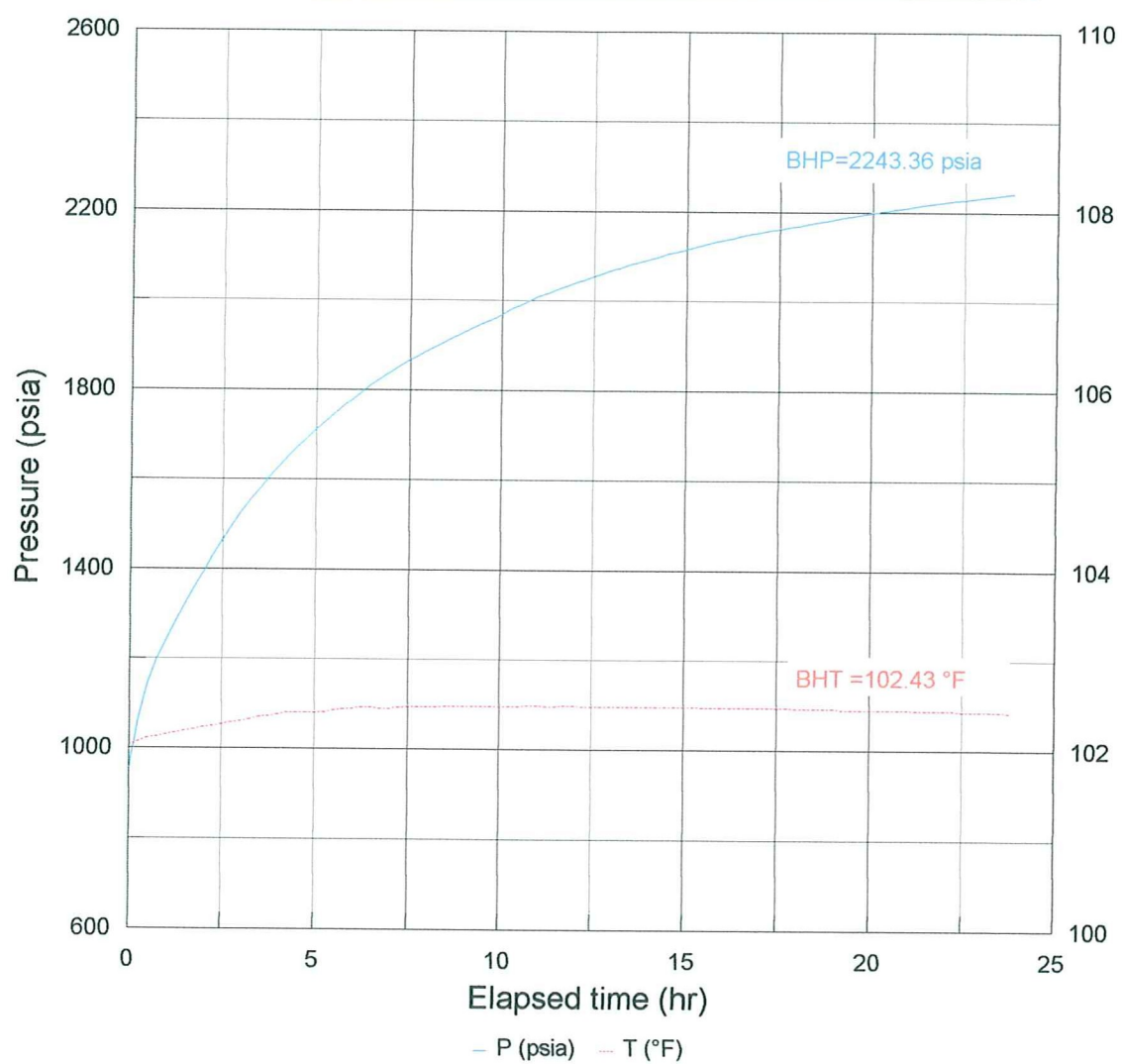
Gauges at 7950' MD for 24 hrs at static condition

Date	Time	Elapsed Time (hr)	Pressure (psia)	Temperature (°F)
22/08/2002	17:42:10	0.00	956.42	102.04
22/08/2002	17:57:10	0.25	1064.89	102.08
22/08/2002	18:12:10	0.50	1144.9	102.12
22/08/2002	18:27:10	0.75	1202.1	102.14
22/08/2002	18:42:10	1.00	1240.86	102.16
22/08/2002	18:57:10	1.25	1281.87	102.18
22/08/2002	19:12:10	1.50	1321.61	102.2
22/08/2002	19:27:10	1.75	1358.59	102.22
22/08/2002	19:42:10	2.00	1395.84	102.24
22/08/2002	19:57:10	2.25	1432.02	102.26
22/08/2002	20:12:10	2.50	1466.34	102.28
22/08/2002	20:27:10	2.75	1497.94	102.3
22/08/2002	20:42:10	3.00	1527.51	102.31
22/08/2002	20:57:10	3.25	1555.54	102.33
22/08/2002	21:12:10	3.50	1581.18	102.36
22/08/2002	21:27:10	3.75	1605.76	102.37
22/08/2002	21:42:10	4.00	1629.56	102.39
22/08/2002	21:57:10	4.25	1652.36	102.41
22/08/2002	22:12:10	4.50	1673.67	102.41
22/08/2002	22:27:10	4.75	1693.76	102.41
22/08/2002	22:42:10	5.00	1712.98	102.41
22/08/2002	22:57:10	5.25	1731.37	102.42
22/08/2002	23:12:10	5.50	1749.58	102.44
22/08/2002	23:27:10	5.75	1766.93	102.45
22/08/2002	23:42:10	6.00	1783.76	102.46
22/08/2002	23:57:10	6.25	1800.16	102.47
23/08/2002	00:12:10	6.50	1815.11	102.47
23/08/2002	00:27:10	6.75	1829.34	102.46
23/08/2002	00:42:10	7.00	1842.73	102.46
23/08/2002	00:57:10	7.25	1856.03	102.47
23/08/2002	01:12:10	7.50	1868.29	102.48
23/08/2002	01:27:10	7.75	1879.68	102.48
23/08/2002	01:42:10	8.00	1890.67	102.48
23/08/2002	01:57:10	8.25	1901.29	102.48
23/08/2002	02:12:10	8.50	1911.95	102.49
23/08/2002	02:27:10	8.75	1922.33	102.49
23/08/2002	02:42:10	9.00	1932.12	102.49
23/08/2002	02:57:10	9.25	1941.65	102.49
23/08/2002	03:12:10	9.50	1951.06	102.49
23/08/2002	03:27:10	9.75	1959.83	102.49
23/08/2002	03:42:10	10.00	1971.73	102.49
23/08/2002	03:57:10	10.25	1982.97	102.49
23/08/2002	04:12:10	10.50	1992.89	102.49
23/08/2002	04:27:10	10.75	2002.29	102.5
23/08/2002	04:42:10	11.00	2011.17	102.5
23/08/2002	04:57:10	11.25	2019.26	102.49
23/08/2002	05:12:10	11.50	2027.28	102.49
23/08/2002	05:27:10	11.75	2034.91	102.5
23/08/2002	05:42:10	12.00	2042.25	102.5
23/08/2002	05:57:10	12.25	2049.32	102.49
23/08/2002	06:12:10	12.50	2056.54	102.49
23/08/2002	06:27:10	12.75	2063.32	102.49
23/08/2002	06:42:10	13.00	2069.99	102.49
23/08/2002	06:57:10	13.25	2076.65	102.49
23/08/2002	07:12:10	13.50	2083.11	102.49
23/08/2002	07:27:10	13.75	2089.26	102.49
23/08/2002	07:42:10	14.00	2095.07	102.49
23/08/2002	07:57:10	14.25	2100.74	102.49
23/08/2002	08:12:10	14.50	2106.38	102.49
23/08/2002	08:27:10	14.75	2111.69	102.49

Well: LO16-26

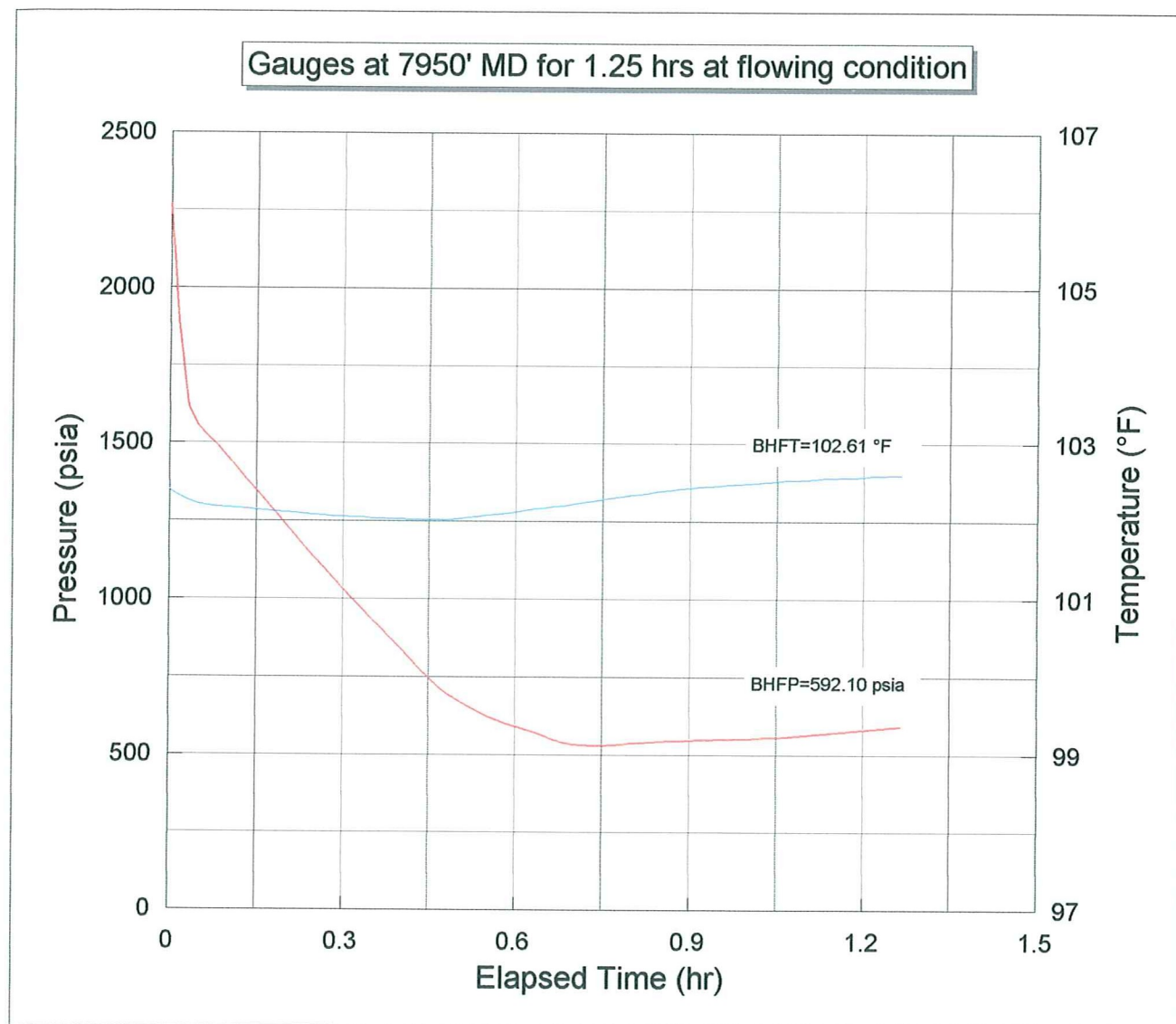
23/08/2002	08:42:10	15.00	2117.04	102.49
23/08/2002	08:57:10	15.25	2122.47	102.49
23/08/2002	09:12:10	15.50	2127.95	102.48
23/08/2002	09:27:10	15.75	2133.23	102.48
23/08/2002	09:42:10	16.00	2138.26	102.48
23/08/2002	09:57:10	16.25	2142.89	102.48
23/08/2002	10:12:10	16.50	2147.65	102.48
23/08/2002	10:27:10	16.75	2152.23	102.48
23/08/2002	10:42:10	17.00	2156.37	102.48
23/08/2002	10:57:10	17.25	2159.84	102.48
23/08/2002	11:12:10	17.50	2163.58	102.48
23/08/2002	11:27:10	17.75	2167.19	102.48
23/08/2002	11:42:10	18.00	2170.8	102.47
23/08/2002	11:57:10	18.25	2174.4	102.47
23/08/2002	12:12:10	18.50	2178.35	102.47
23/08/2002	12:27:10	18.75	2181.81	102.47
23/08/2002	12:42:10	19.00	2185.72	102.47
23/08/2002	12:57:10	19.25	2189.49	102.46
23/08/2002	13:12:10	19.50	2193.28	102.46
23/08/2002	13:27:10	19.75	2196.96	102.46
23/08/2002	13:42:10	20.00	2200.51	102.46
23/08/2002	13:57:10	20.25	2203.65	102.46
23/08/2002	14:12:10	20.50	2206.97	102.46
23/08/2002	14:27:10	20.75	2210.15	102.46
23/08/2002	14:42:10	21.00	2213.23	102.46
23/08/2002	14:57:10	21.25	2216.25	102.45
23/08/2002	15:12:10	21.50	2219.31	102.45
23/08/2002	15:27:10	21.75	2222.31	102.45
23/08/2002	15:42:10	22.00	2225.05	102.45
23/08/2002	15:57:10	22.25	2227.83	102.45
23/08/2002	16:12:10	22.50	2230.31	102.44
23/08/2002	16:27:10	22.75	2232.88	102.44
23/08/2002	16:42:10	23.00	2235.22	102.44
23/08/2002	16:57:10	23.25	2237.66	102.44
23/08/2002	17:12:10	23.50	2240.27	102.44
23/08/2002	17:27:10	23.75	2242.77	102.43
23/08/2002	17:32:10	23.83	2243.36	102.43

Gauges at 7950' MD for 24 hrs at static condition



Gauges at 7950' MD for 1.25 hrs at flowing condition

Date	Time	Elapsed Time (hr)	Pressure (psia)	Temperature (°F)
23/08/2002	19:38:40	0.0000	2,271.17	102.40
23/08/2002	19:39:40	0.0167	1,871.79	102.33
23/08/2002	19:40:40	0.0333	1,618.52	102.27
23/08/2002	19:41:40	0.0500	1,554.51	102.22
23/08/2002	19:42:40	0.0667	1,520.42	102.20
23/08/2002	19:43:40	0.0833	1,493.36	102.19
23/08/2002	19:44:40	0.1000	1,457.11	102.18
23/08/2002	19:45:40	0.1167	1,420.17	102.17
23/08/2002	19:46:40	0.1333	1,383.75	102.16
23/08/2002	19:47:40	0.1500	1,348.41	102.15
23/08/2002	19:48:40	0.1667	1,312.97	102.14
23/08/2002	19:49:40	0.1833	1,276.82	102.13
23/08/2002	19:50:40	0.2000	1,240.06	102.12
23/08/2002	19:51:40	0.2167	1,203.72	102.11
23/08/2002	19:52:40	0.2333	1,168.60	102.10
23/08/2002	19:53:40	0.2500	1,133.90	102.09
23/08/2002	19:54:40	0.2667	1,099.77	102.08
23/08/2002	19:55:40	0.2833	1,065.70	102.07
23/08/2002	19:56:40	0.3000	1,032.40	102.07
23/08/2002	19:57:40	0.3167	1,000.18	102.06
23/08/2002	19:58:40	0.3333	968.21	102.06
23/08/2002	19:59:40	0.3500	937.04	102.05
23/08/2002	20:00:40	0.3667	905.97	102.05
23/08/2002	20:01:40	0.3833	874.24	102.04
23/08/2002	20:02:40	0.4000	841.80	102.04
23/08/2002	20:03:40	0.4167	808.52	102.03
23/08/2002	20:04:40	0.4333	775.45	102.03
23/08/2002	20:05:40	0.4500	747.19	102.03
23/08/2002	20:06:40	0.4667	718.36	102.03
23/08/2002	20:07:40	0.4833	694.35	102.03
23/08/2002	20:08:40	0.5000	676.30	102.04
23/08/2002	20:09:40	0.5167	658.16	102.06
23/08/2002	20:10:40	0.5333	641.17	102.07
23/08/2002	20:11:40	0.5500	625.60	102.09
23/08/2002	20:12:40	0.5667	612.62	102.10
23/08/2002	20:13:40	0.5833	601.10	102.11
23/08/2002	20:14:40	0.6000	590.99	102.13
23/08/2002	20:15:40	0.6167	582.32	102.15
23/08/2002	20:16:40	0.6333	573.45	102.17
23/08/2002	20:17:40	0.6500	561.17	102.18
23/08/2002	20:18:40	0.6667	549.19	102.20
23/08/2002	20:19:40	0.6833	540.32	102.21
23/08/2002	20:20:40	0.7000	534.99	102.23
23/08/2002	20:21:40	0.7167	532.00	102.25
23/08/2002	20:22:40	0.7333	531.06	102.27
23/08/2002	20:23:40	0.7500	531.46	102.29
23/08/2002	20:24:40	0.7667	532.65	102.31
23/08/2002	20:25:40	0.7833	535.00	102.33
23/08/2002	20:26:40	0.8000	537.88	102.35
23/08/2002	20:27:40	0.8167	540.25	102.36
23/08/2002	20:28:40	0.8333	541.92	102.38
23/08/2002	20:29:40	0.8500	543.48	102.40
23/08/2002	20:30:40	0.8667	545.00	102.41
23/08/2002	20:31:40	0.8833	546.32	102.43
23/08/2002	20:32:40	0.9000	547.40	102.44
23/08/2002	20:33:40	0.9167	548.53	102.45
23/08/2002	20:34:40	0.9333	549.44	102.46
23/08/2002	20:35:40	0.9500	550.27	102.47
23/08/2002	20:36:40	0.9667	551.51	102.48
23/08/2002	20:37:40	0.9833	552.43	102.49
23/08/2002	20:38:40	1.0000	553.60	102.50
23/08/2002	20:39:40	1.0167	554.64	102.51
23/08/2002	20:40:40	1.0333	555.80	102.52
23/08/2002	20:41:40	1.0500	557.41	102.53
23/08/2002	20:42:40	1.0667	559.28	102.54
23/08/2002	20:43:40	1.0833	561.33	102.54
23/08/2002	20:44:40	1.1000	563.87	102.55
23/08/2002	20:45:40	1.1167	566.71	102.56
23/08/2002	20:46:40	1.1333	569.80	102.57
23/08/2002	20:47:40	1.1500	572.93	102.57
23/08/2002	20:48:40	1.1667	575.86	102.58
23/08/2002	20:49:40	1.1833	578.29	102.58
23/08/2002	20:50:40	1.2000	580.85	102.59
23/08/2002	20:51:40	1.2167	583.66	102.60
23/08/2002	20:52:40	1.2333	586.37	102.60
23/08/2002	20:53:40	1.2500	589.33	102.61
23/08/2002	20:54:40	1.2667	592.10	102.61



Fluid Level at Static Condition

Measured depth (ft)	Vertical depth (ft)	Pressure (psia)	Gradient (psi/ft)
0	0.00	892.69	
1000	991.06	1033.72	0.1423
2000	1659.80	1260.56	0.3392
3000	2153.06	1432.22	0.3480
4000	2623.57	1593.49	0.3427
4500	2862.43	1673.71	0.3358
5000	3102.94	1754.38	0.3354
5500	3342.83	1833.72	0.3307
6000	3586.23	1913.59	0.3281
6500	3834.18	1994.09	0.3247
7000	4084.51	2074.09	0.3196
7300	4244.82	2124.48	0.3143
7600	4414.91	2178.06	0.3150
7800	4532.90	2212.88	0.2951
7950	4623.07	2243.36	0.3380

Levels & Gradients

	Static levels		Gradient (psi/ft)
	Measured (ft)	Vertical (ft)	
Gas=	0	0	0.2815
Oil =	573	573	0.3331
Gauges =	7950	4623	0.4853

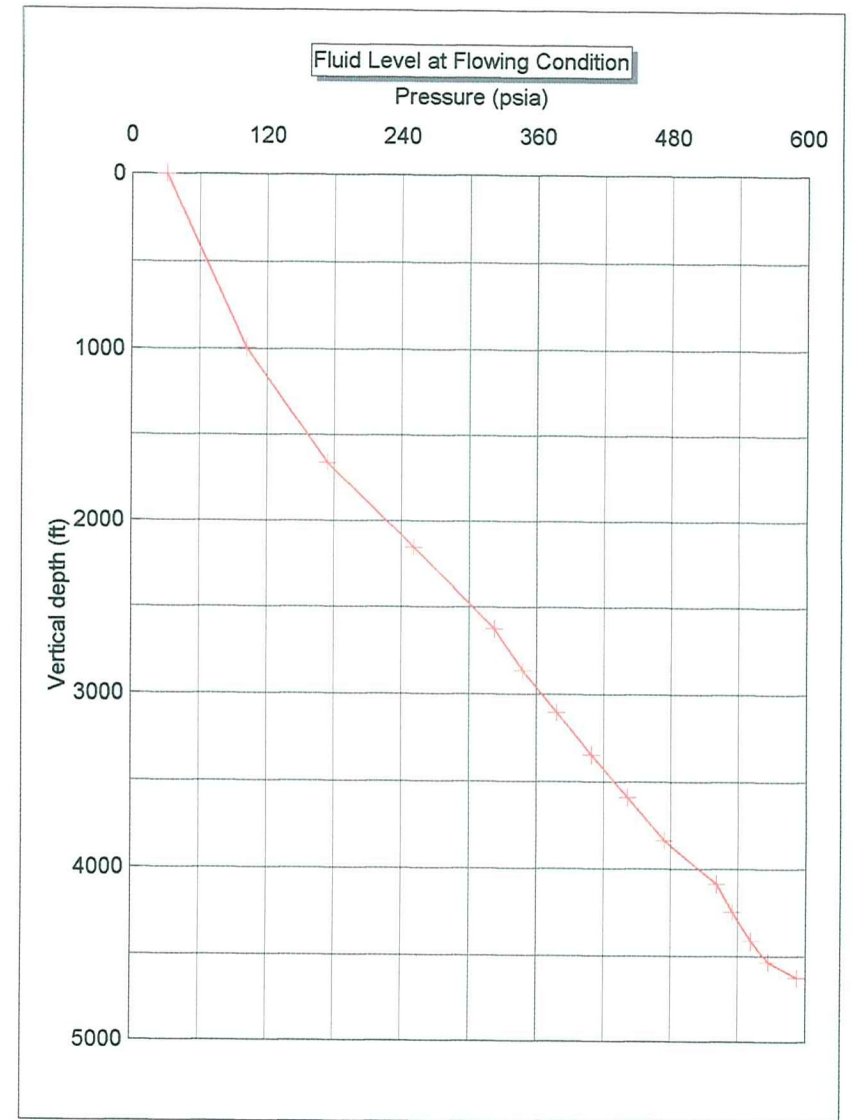
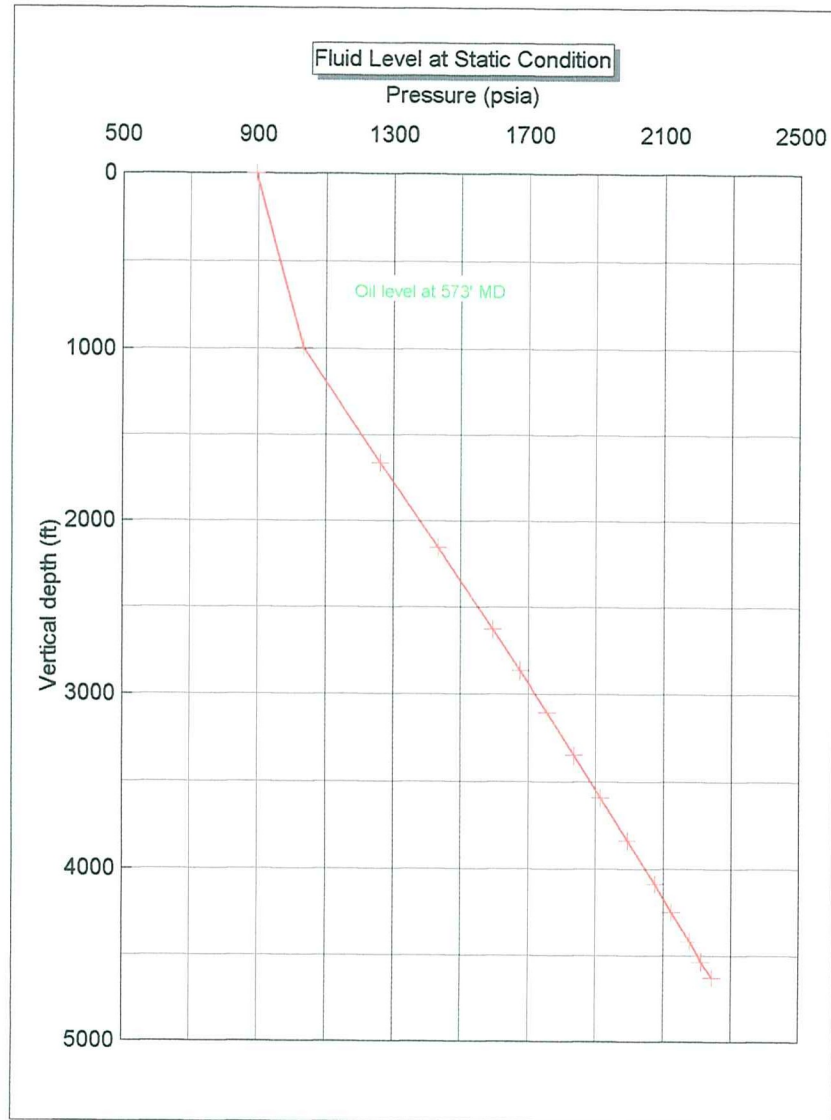
Fluid Level at Flowing Condition

Measured depth (ft)	Vertical depth (ft)	Pressure (psia)	Gradient (psi/ft)
0	0.00	30.44	
1000	991.06	101.41	0.0716
2000	1659.80	173.90	0.1084
3000	2153.06	250.66	0.1556
4000	2623.57	322.24	0.1521
4500	2862.43	347.69	0.1065
5000	3102.94	377.64	0.1245
5500	3342.83	408.93	0.1304
6000	3586.23	440.72	0.1306
6500	3834.18	473.80	0.1334
7000	4084.51	520.60	0.1870
7300	4244.82	534.73	0.0881
7600	4414.91	550.95	0.0954
7800	4532.90	566.71	0.1336
7950	4623.07	592.10	0.2816

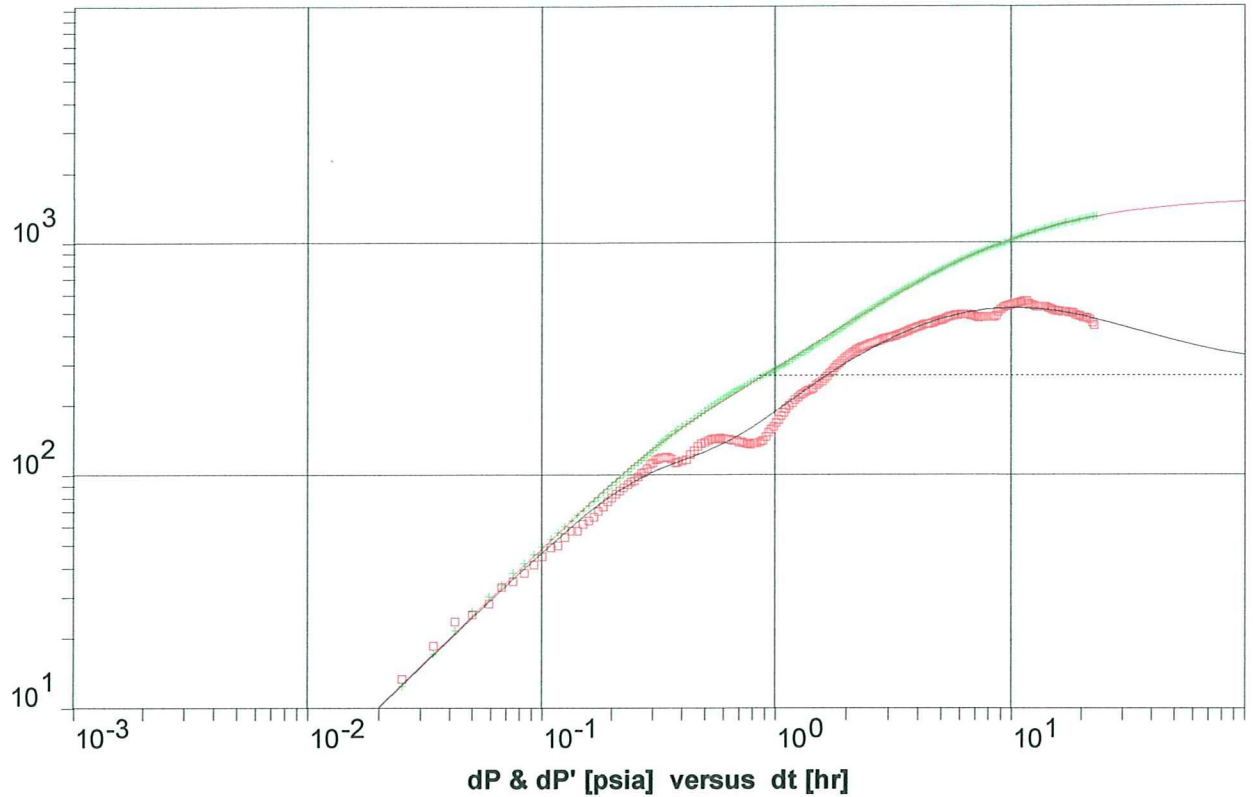
Levels & Gradients

	Flowing levels		Gradient (psi/ft)
	Measured (ft)	Vertical (ft)	
Ligth Oil =	0	0	0.1215
Gauges =	7950	4623	0.1281

Well: LO16-26



Log-Log				LO1	
Company	PETRO-TECH			Test	SHORT-PBU
Field	LOBITOS			Date	AUG-22-02
Well	LO16-26			Gauge	MEMORY



Flow Period # 2
 Rate 0 STB/day
 Rate Change 80 STB/day
 P at dt=0 962.7 psia
 Smoothing 0.1
 Pi 2497.47 psia

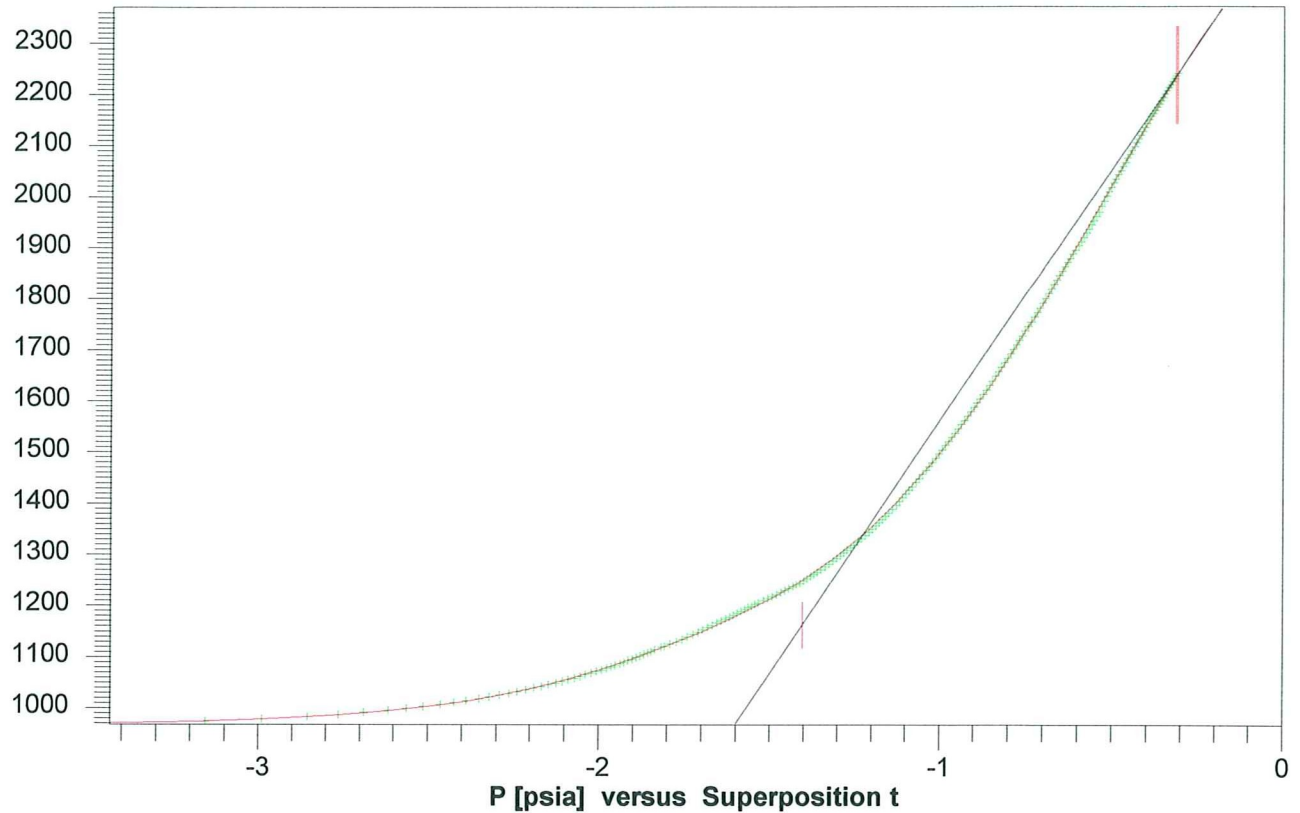
 Time Match 0.59 (hr)-1
 Pressure Match 0.0019 (psia)-1

RESERVOIR Homogeneous
 BOUNDARY Infinite
 WELL Storage & Skin
 Storage C 0.0134 STB/psi
 Ci/Cf 0.614923
 Alpha 509
 Skin factor -2.41
 Delta P Skin -1268.94 psia

kh 48.8 md.ft
 k 0.81 md
 Mobility k/mu 0.45
 Investig. R 109 ft

*Nota: Tomar pressão extração como
 referência. Não se alterar zona
 de fluxo radial*

Semi-Log				LO1
Company	PETRO-TECH	Test	SHORT-PBU	
Field	LOBITOS	Date	AUG-22-02	
Well	LO16-26	Gauge	MEMORY	



Flow Period #	2	RESERVOIR	Homogeneous
Rate	0 STB/day	BOUNDARY	Infinite
Rate Change	80 STB/day	WELL	Storage & Skin
P at dt=0	962.7 psia	Storage C	0.0134 STB/psi
Pi	2497.47 psia	Ci/Cf	0.614923
		Alpha	509
STRAIGHT	LINE	Skin factor	-2.41
		Delta P Skin	-1268.94 psia
From	22.6 hr	kh	48.8 md.ft
To	23.2 hr	k	0.81 md
Slope	987 psia	Mobility k/mu	0.45
Intercept	2544.62 psia		
value at dt=1hr	1159.31 psia		
-> p*	2544.62 psia		
-> PMatch	0.00117 (psia)-1		
-> k.h	30 md.ft		
-> k	0.5 md		
-> Skin	-3.53		
Time Match	0.59 (hr)-1		
Pressure Match	0.0019 (psia)-1		

2545 psia del reservoir