

PETRO-TECH PERUANA S.A.
LO16 <not named>, LO16-23
LOBITOS, Offshore Peru

SURVEY LISTING Page 1
Your ref : Anadrill MWD Surveys
Last revised : 22-Dec-97

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert. Depth	RECTANGULAR COORDINATES		Dogleg Deg/100Ft	Vert Sect
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	0.00
715.00	1.20	228.70	714.95	4.94 S	5.62 W	0.17	7.35
1364.00	1.10	260.90	1363.82	10.41 S	16.88 W	0.10	19.83
1513.00	1.40	267.20	1512.79	10.73 S	20.11 W	0.22	22.77
1545.00	1.70	266.90	1544.78	10.77 S	20.98 W	0.94	23.54
1671.00	4.40	253.10	1670.59	12.28 S	27.47 W	2.21	29.90
1703.00	5.30	240.40	1702.47	13.37 S	29.93 W	4.36	32.58
1734.00	6.50	232.00	1733.31	15.15 S	32.56 W	4.76	35.75
1766.00	7.70	226.30	1765.06	17.75 S	35.53 W	4.34	39.63
1829.00	10.20	243.70	1827.30	23.14 S	43.59 W	5.81	49.30
1892.00	13.60	245.70	1888.94	28.66 S	55.34 W	5.44	62.24
1955.00	17.10	244.10	1949.68	35.76 S	70.43 W	5.60	78.84
2019.00	20.20	242.30	2010.32	45.00 S	88.68 W	4.93	99.26
2082.00	23.20	243.00	2068.85	55.70 S	109.37 W	4.78	122.52
2145.00	26.80	242.70	2125.93	67.85 S	133.06 W	5.72	149.10
2208.00	30.10	241.30	2181.32	81.95 S	159.54 W	5.34	179.08
2303.00	34.80	239.10	2261.46	107.33 S	203.73 W	5.10	230.03
2367.00	36.70	237.60	2313.40	126.96 S	235.55 W	3.27	267.41
2462.00	41.90	236.90	2386.89	159.51 S	286.13 W	5.49	327.51
2625.00	45.40	236.90	2504.82	220.95 S	380.36 W	2.15	439.87
2783.00	45.20	238.30	2615.96	281.12 S	475.18 W	0.64	552.11
2939.00	44.70	238.70	2726.36	338.71 S	569.15 W	0.37	662.30
3128.00	43.80	238.30	2861.74	407.61 S	681.60 W	0.50	794.16
3286.00	43.80	239.00	2975.78	464.51 S	774.99 W	0.31	903.50
3445.00	43.80	239.10	3090.54	521.11 S	869.37 W	0.04	1013.54
3613.00	43.60	238.90	3212.00	580.89 S	968.86 W	0.14	1129.61
3772.00	43.20	239.00	3327.52	637.23 S	1062.46 W	0.26	1238.85
3931.00	42.70	239.00	3443.90	693.03 S	1155.32 W	0.31	1347.18
4089.00	41.30	239.20	3561.32	747.32 S	1246.03 W	0.89	1452.89
4247.00	40.00	239.80	3681.19	799.57 S	1334.71 W	0.86	1555.82
4404.00	39.10	240.50	3802.25	849.33 S	1421.41 W	0.64	1655.78
4561.00	39.20	240.70	3924.00	897.99 S	1507.77 W	0.10	1754.89
4688.00	38.50	239.80	4022.91	937.52 S	1576.93 W	0.71	1834.54
4866.00	37.30	239.10	4163.36	993.08 S	1671.10 W	0.72	1943.88
5030.00	37.10	239.80	4293.99	1043.48 S	1756.49 W	0.29	2043.03
5124.00	38.60	240.40	4368.22	1072.23 S	1806.49 W	1.64	2100.71
5283.00	40.90	241.00	4490.45	1121.97 S	1895.15 W	1.47	2202.35
5440.00	43.10	241.90	4607.12	1172.16 S	1987.43 W	1.45	2307.34
5599.00	46.00	242.80	4720.42	1223.90 S	2086.24 W	1.87	2418.74
5752.00	46.60	243.70	4826.13	1273.68 S	2185.01 W	0.58	2529.12
5846.00	46.50	244.60	4890.77	1303.43 S	2246.42 W	0.70	2597.15
5942.00	46.20	244.70	4957.04	1333.17 S	2309.20 W	0.32	2666.34
6037.00	46.00	245.10	5022.91	1362.21 S	2371.18 W	0.37	2734.50
6132.00	46.00	244.20	5088.90	1391.47 S	2432.94 W	0.68	2802.57
6227.00	45.80	245.40	5155.02	1420.52 S	2494.67 W	0.93	2870.51
6356.00	45.60	241.40	5245.13	1461.83 S	2577.19 W	2.22	2962.59
6389.00	45.70	239.90	5268.20	1473.40 S	2597.76 W	3.26	2986.18
6420.00	45.10	240.40	5289.97	1484.39 S	2616.90 W	2.25	3008.25
6452.00	43.70	238.70	5312.83	1495.73 S	2636.20 W	5.74	3030.64
6488.00	42.50	239.10	5339.11	1508.43 S	2657.26 W	3.42	3055.24
6520.00	42.30	237.60	5362.75	1519.75 S	2675.63 W	3.22	3076.81

All data is in feet unless otherwise stated
Coordinates are from slot #23 and TVDs are from wellhead.
Vertical section is from wellhead on azimuth 239.59 degrees.
Calculation uses the minimum curvature method.

PETRO-TECH PERUANA S.A.

Structure: LO16

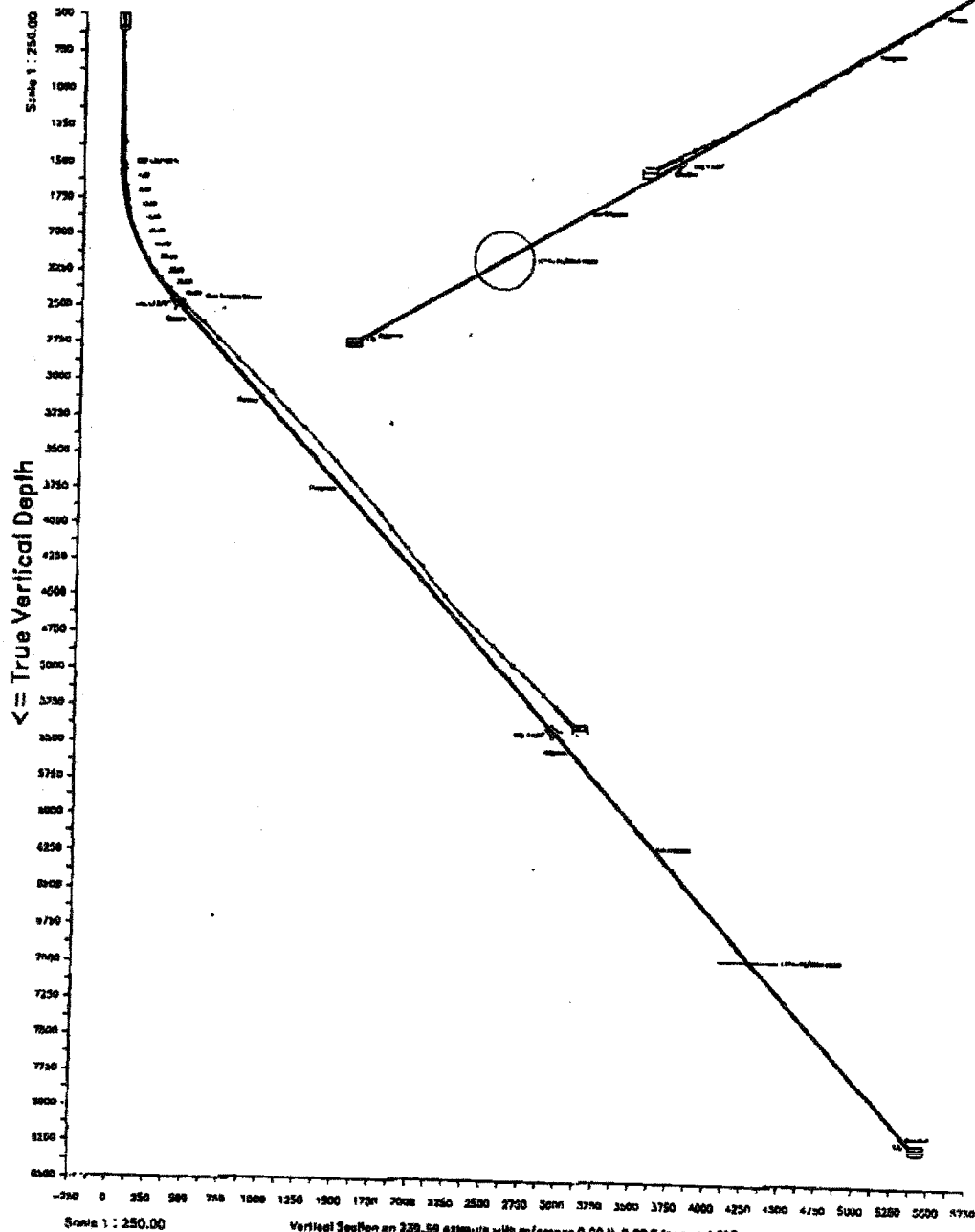
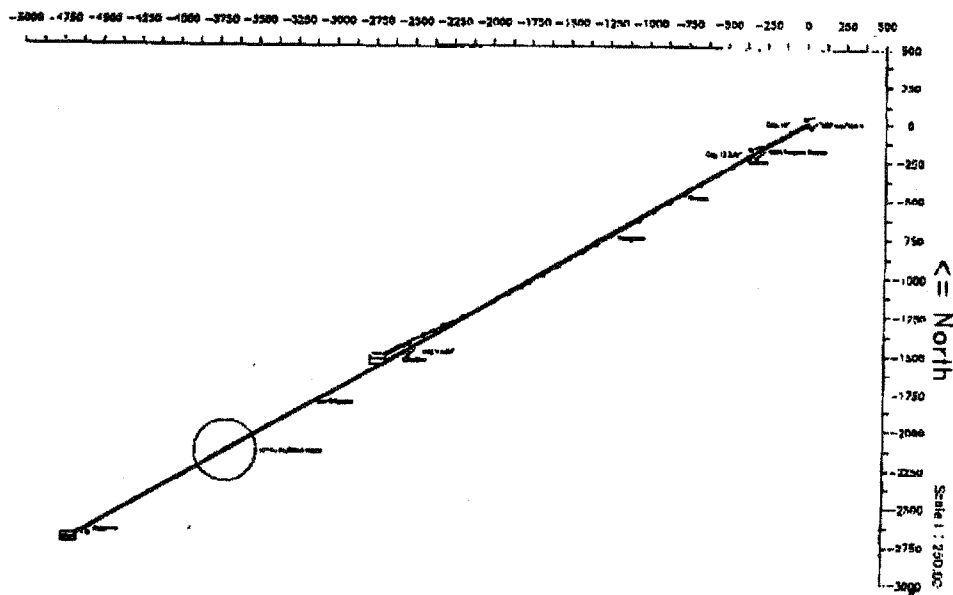
Well: LO16-23

Field: LOBITOS

Location: Offshore Peru

Scale 1 : 250.00

East =>



Vertical Section an 229.58 estimate with reference 0.00 N, 0.00 E from spot #23

FECHA DATE	Dec-22-97	Nº DE PAGINAS/ # OF PAGES	2
DE/FROM	M. Morales	COMPANIA/CO.	
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PETRO-TECH PERUANA S.A.
LO16 <not named>, LO16-23
LOBITOS, Offshore Peru

SURVEY LISTING Page 1
Your ref : Anadrill MWD Surveys
Last revised : 23-Dec-97

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert. Depth	RECTANGULAR COORDINATES		Dogleg Deg/100Ft	Vert Sect
2625.00	45.40	236.90	2504.82	220.95 S	380.36 W	0.00	439.87
2783.00	45.20	238.30	2615.96	281.12 S	475.18 W	0.64	552.11
2939.00	44.70	238.70	2726.36	338.71 S	569.15 W	0.37	662.30
3128.00	43.80	238.30	2861.74	407.61 S	681.60 W	0.50	794.16
3286.00	43.80	239.00	2975.78	464.51 S	774.99 W	0.31	903.50
-3445.00	43.80	239.10	3090.54	521.11 S	869.37 W	0.04	1013.54
3613.00	43.60	238.90	3212.00	580.89 S	968.86 W	0.14	1129.61
3772.00	43.20	239.00	3327.52	637.23 S	1062.46 W	0.26	1238.85
3931.00	42.70	239.00	3443.90	693.03 S	1155.32 W	0.31	1347.18
-4089.00	41.30	239.20	3561.32	747.32 S	1246.03 W	0.89	1452.89
4247.00	40.00	239.80	3681.19	799.57 S	1334.71 W	0.86	1555.82
4404.00	39.10	240.50	3802.25	849.33 S	1421.41 W	0.64	1655.78
-4561.00	39.20	240.70	3924.00	897.99 S	1507.77 W	0.10	1754.89
4688.00	38.50	239.80	4022.91	937.52 S	1576.93 W	0.71	1834.54
4866.00	37.30	239.10	4163.36	993.08 S	1671.10 W	0.72	1943.88
-5030.00	37.10	239.80	4293.99	1043.48 S	1756.49 W	0.29	2043.03
5124.00	38.60	240.40	4368.22	1072.23 S	1806.49 W	1.64	2100.71
5283.00	40.90	241.00	4490.45	1121.97 S	1895.15 W	1.47	2202.35
5440.00	43.10	241.90	4607.12	1172.16 S	1987.43 W	1.45	2307.34
-5599.00	46.00	242.80	4720.42	1223.90 S	2086.24 W	1.87	2418.74
5752.00	46.60	243.70	4826.13	1273.68 S	2185.01 W	0.58	2529.12
5846.00	46.50	244.60	4890.77	1303.43 S	2246.42 W	0.70	2597.15
5942.00	46.20	244.70	4957.04	1333.17 S	2309.20 W	0.32	2666.34
-6037.00	46.00	245.10	5022.91	1362.21 S	2371.18 W	0.37	2734.50
6132.00	46.00	244.20	5088.90	1391.47 S	2432.94 W	0.68	2802.57
6227.00	45.80	245.40	5155.02	1420.52 S	2494.67 W	0.93	2870.51
6356.00	45.60	241.40	5245.13	1461.83 S	2577.19 W	2.22	2962.59
6389.00	45.70	239.90	5268.20	1473.40 S	2597.76 W	3.26	2986.18
6420.00	45.10	240.40	5289.97	1484.39 S	2616.90 W	2.25	3008.25
6452.00	43.70	238.70	5312.83	1495.73 S	2636.20 W	5.74	3030.64
-6488.00	42.50	239.10	5339.11	1508.43 S	2657.26 W	3.42	3055.24
6520.00	42.30	237.60	5362.75	1519.75 S	2675.63 W	3.22	3076.81
6584.00	41.80	237.60	5410.27	1542.72 S	2711.82 W	0.78	3119.65
6679.00	41.40	238.50	5481.31	1576.10 S	2765.34 W	0.76	3182.70
-6838.00	40.30	238.10	5601.58	1630.75 S	2853.82 W	0.71	3286.67
6996.00	39.80	238.10	5722.53	1684.47 S	2940.13 W	0.32	3388.30
7155.00	40.20	238.30	5844.33	1738.33 S	3027.00 W	0.26	3490.47
-7313.00	39.20	238.40	5965.89	1791.28 S	3112.91 W	0.63	3591.37

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FAX	FAX		

All data is in feet unless otherwise stated
Coordinates are from slot #23 and TVDs are from wellhead.
Vertical section is from wellhead on azimuth 239.59 degrees.
Calculation uses the minimum curvature method.

PETRO-TECH PERUANA S.A.

L016-23

PETREX RIG #3

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ANADRILL / SCHLUMBERGER

Report of Survey

Minimum Curvature Method

MEASURED DEPTH	INCL.	DIRECTION	VERTICAL DEPTH	VERTICAL SECTION	RECTANGULAR COORDINATES	DLS Deg/100'
6520.00	42.30	S 57.60 W	5362.71	3076.85	1520.48 S 2675.25 W	
6584.00	41.80	S 57.60 W	5410.23	3119.69	1543.45 S 2711.45 W	.78
6679.00	41.40	S 58.50 W	5481.27	3182.74	1576.83 S 2764.96 W	.76
6838.00	40.30	S 58.10 W	5601.54	3286.71	1631.47 S 2853.45 W	.71
6996.00	39.80	S 58.10 W	5722.49	3388.34	1685.20 S 2939.76 W	.32
7155.00	40.20	S 58.30 W	5844.29	3490.51	1739.05 S 3026.62 W	.26
7313.00	39.20	S 58.40 W	5965.85	3591.41	1792.01 S 3112.53 W	.63
7472.00	38.40	S 58.50 W	6089.77	3691.02	1844.14 S 3197.43 W	.50
7630.00	37.80	S 58.20 W	6214.10	3788.49	1895.30 S 3280.43 W	.40
7787.00	36.80	S 57.60 W	6338.99	3883.59	1945.85 S 3361.02 W	.68
7945.00	36.20	S 56.30 W	6466.00	3977.46	1997.09 S 3439.80 W	.62
8103.00	34.60	S 56.10 W	6594.79	4068.83	2048.00 S 3515.85 W	1.01
8261.00	33.90	S 56.60 W	6725.39	4157.61	2097.28 S 3589.67 W	.48

Final location: 4157.62 feet at S 59.71 W
 Plane of Vertical Section: 238.59 degrees

9871 24.50 S 51.16 W

9965 24.00 S 52.3 W

10004 23.90 S 51.9 W

7680' MD

VD (6254) -

(6199.55)

S: 2644.00
 W: 4146.00

S: 1911

W: 3306

HD: 3819

Pano - M. Dugue

DE - C. MORALES

