

**PETRO-TECH
DRILLING**

FINAL INFORMATION

WELL No. : **106-21R**
AFE No. : 9622102
RIG No. : P - 114
CONTRAT. : PETREX

WELL DATA

TYPE OF WELL :	DEVELOPMENT SLIM HOLE
WATER DEPTH :	335'
SPUD IN DATE :	MAR-17-96
DATE T.D. REACH.:	MAR-31-96
DRLG. DAYS :	17
T.D. (MD) :	6932'
T.D. (TVD) :	5813'
FINAL ANGLE :	54.7°
MAX ANGLE :	60.4°
DIRECTION :	S-17.0°-E
OBJETIVE FORMAT.:	BASAL SALINA
TOTAL COST (\$) :	546,665
FT. COST (\$) :	115.06

PETRO-TECH PERUANA S.A.
GERENCIAL GENERAL

23 SET. 1996

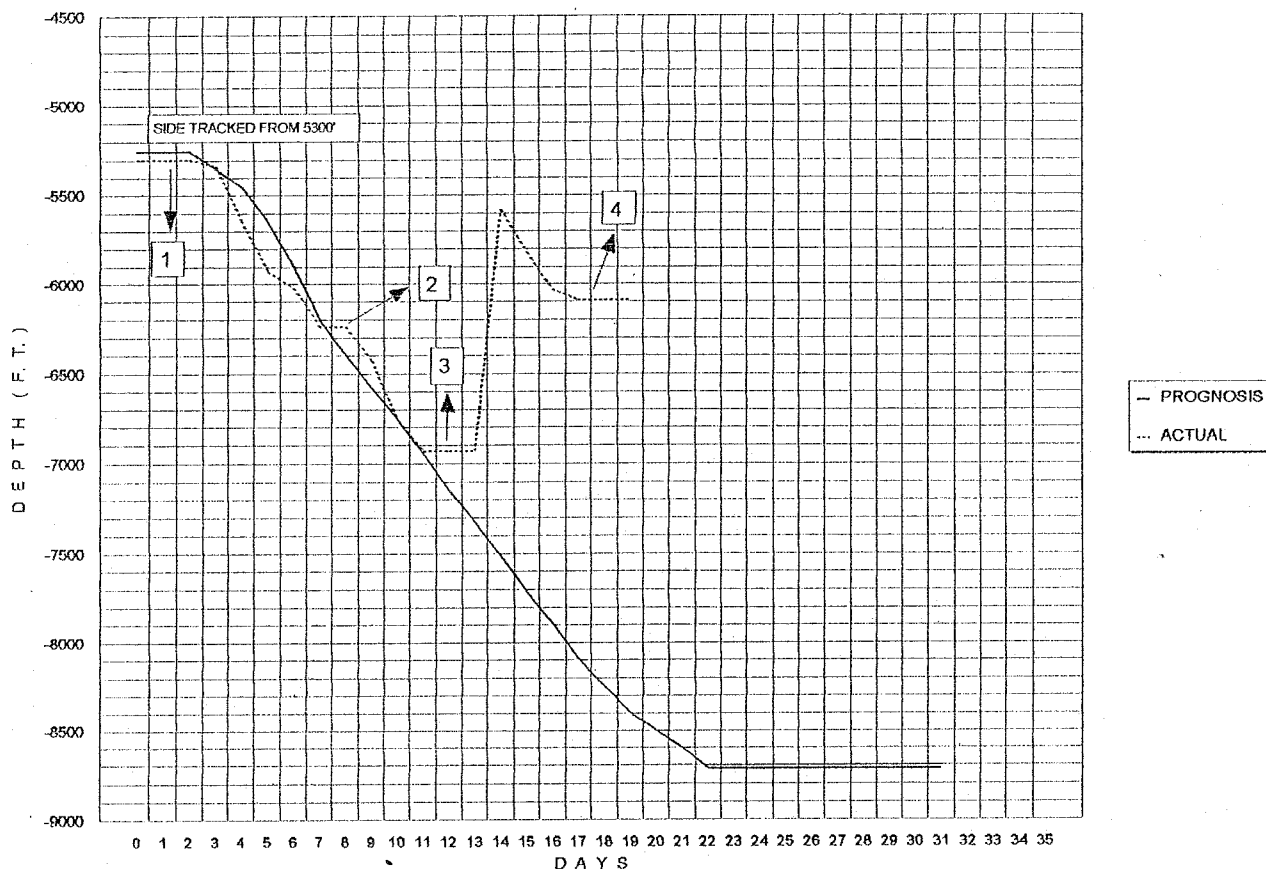
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DRILLING TIME PROGNOSIS

WELL: LO6-21R	RIG: P-114	CONTRACTOR: PETREX	LOCATION: LOBITOS OFFSHORE
OBJETIVE: BAS. SALINA	EST. DEPTH: 8720'	DAYS: ESTIM.: 20	REAL: 17
SPUD DATE: MAR-17-96	DATE TD. REACH.: MAR-31-96	T.D.: 6932'	RELEASED: APR-02-96

DEVELOPM. SLIM HOLE



- 1.-N.U. & TEST BOP'S - RIH W/ BIT TO 5200' - DRILLED OUT CMT. & FLOAT COLLAR TO 5226' - DISPLACE WATER BY MUD - DRILLED GUIDE SHOE AND CEMENT - UNDERREAMED RAT HOLE FROM 5257' TO 5503' - POH - RIH W/ DIVERTER TOOL - SET CEMENT PLUG AT 5502' - RIH W/ BIT - DRILLED OUT CMT. FROM 4979' TO 5300' - SIDE TRACKED WELL.
- 2.-AT 6240' RIH W/ PDC BIT - REAMED - POH - RIH W/ NEW PDC - REAMED FROM 5479' TO 6240'
- 3.-AT 6932' TOTAL LOSS CIRCUL - PUMPED MUD W/ LCM - CIRC. - RIH W/ RTTS AT 3800' - TEST CSG. - SET RTTS AT 5170' - TEST CSG. W/ 500 PSI - OK - MADE LEAK OFF TEST - POH - RIH - WORKED AND ATTEMPTED TO REAM TIGHT HOLE - NO PASS AT 5557' - ATTEMPT TO RE-ENTER WELL BORE - POH - RIH - ATTEMPT TO CIRC. - NO SUCCESS - REAM - POH - CHECKED SLIM 1 (NO SIGNALS) - RIH - MADE AN INVOLUNTARY SIDE TRACK FROM 5569'
- 4.-AT 6092' ATTEMPTED TO REAM - NO PASS AT 5546' - CHANGED STAB. - REAMED FROM 5541' TO 5584' - NO PROGRESS - POH RIH W/ TBG. & DIVERTER TOOL - SET TWO ABANDONE CEMENT PLUGS AT 5350' & 435'.

TIME BREAKDOWN

MOVING	ROTATE	TRIPS	REL. DRLG	FISH	COMPL.	M & R	DOWNTIME
20.50	177.50	140.00	134.00	--	--	0.50	--

BIT RECORD & FOOT COST (U.S.\$)

WELL : LO6-21R

MUD TYPE : FLO-PRO
MAX ANGLE : 60.4°

[illegible]

21053	35.71
	(AVG)

PETRO-TECH Peruana S.A
Drilling Engineering

Drill Stem:	PIPE		TOOL JOINT		WEIGHT
	O.D	I.D	O.D	I.D	lbs/ft
Drill tubing "H-90"	2.875	2.156	3.875	2.125	10.4
Heavy Weight	3.063	2.063	3.875	2.063	16.8
Dc's	3.875	2.250			

HYDRAULIC ANALYSIS

WELL: L06 - 21R (SLIM HOLE)

TYPE BIT	DEPTH		NOZZLES					FLOW gpm	PRESSURE (psi)		VELOCITY (fpm)			HSI hp/ in2	IMPACT force	ROP ft / hr	ECD lbs/gl	TYPE MOTOR	BHA
	IN	OUT	J-1	J-2	J-3	J-4	J-5		bit	System	D.pipe	H.w	critical						
ATJ-22	5300	5957	12	12	12			150	174	2311	257	279	576	0.86	109	13.5	11.5	P.P	1
ATJ-22	5957	6240	12	12	12			150	179	2450	257	279	575	0.88	112	10.1	11.8	P.P	1
DS74-A7HF+J	6240	6430	10	10	10	10	10	171	175	2767	293	318	551	0.99	127	14.6	12.3		2
DS74-A7HF+J (rr)	6430	6932	10	10	10	10	10	172	177	3018	295	320	572	1.00	129	14.6	12.4		3

B.H.A

B / PP / UBHO / 2Mon / Xo / 8Dc's / 14Hw's / F.J / Jar / P.J / 5Hw's (1)

B / Nstb / SDc / Stb / Xo / UBHO / Mon / SMon / Xo / Stb / 8DC's / 14Hw's / F.J / Jar / Pup. j / 5Dc's. (2)

B / Nb / SDc / Xo / UBHO / SMon / Stb / Xo / UBHO / Mon / Stb / Mon / Xo / 8Dc's / 14Hw's / F. J / Jar / Pup. j / 5Hw's. (3)

DOWN HOLE MOTOR CONTROL

WELL :
SPUD IN DATE
T.D. REACHED

LO6-21R

MAR-17-96

MAR-31-96

RIG #

P-114

T.D.:

6932'

SLIM 1 HRS.

326.5

WELL TYPE :

DEVELOP. SLIM HOLE .

[illegible]

DRILLING MUD RECAP

WELL: LO6 - 21R

RIG: PETREX 114

DATE	DEPTH ft	W. T lb/gl	FUN. VISC Sec/gt API	PLAST. VISC CPS	YIELD POINT lb/100R2	GELS 10" / 10" lb/100R2	FILTR. API cc	CAKE 1 / 32	SOLIDS %by vol	SAND %by vol	MBT lbs/bl	PH	ALKALINITY			CHLORIDE M mg / lts	CALCIUM mg / lts	POTASIU mg / lts	REMARKS
14-Mar	5185	10.2	50	19	28	7 / 16	6	1	10	TR		9.2	0.6	2 / .8		45	480		Clean cement: 5185' - 5226'
15-Mar	5503	10.2	52	20	30	7 / 16	5.5	1	10	0.25		9	1.1	.18 / .8		47	380		
16-Mar	5503	10.2	53	20	32	6 / 18	5.4	1	10	0.25		9	1	.18 / .8		47	380		Cement plug
17-Mar	5503	10.2	53	20	33	6 / 16	6	1	10	0.25		11.5	5	1 / 1.5		65	360		W.O.C
18-Mar	5640	10.2	52	21	33	7 / 18	4.6	1	11	0.25		11.5	3.8	1 / 1.8		85	180	11650	
19-Mar	5925	10.2	55	28	36	6 / 19	4	1	12	0.25		9.8	2	4 / .85		105	200	12250	
20-Mar	6015	10.5	56	30	35	6 / 11	4	1	13	0.25		9.5	1.8	.21 / .8		118	220	12250	
21-Mar	6240	10.5	56	29	36	6 / 18	4.2	1	13	0.25	3	9.5	1.2	.2 / .6		130	200	12000	
22-Mar	6240	10.6	54	29	33	4 / 12	4	1	13	0.25	3	9.2	1	.1 / .5		115	300	12350	Reamed: 5267' - 5830'
23-Mar	6430	10.6	56	28	34	5 / 14	4	1	14	0.25	4	9.2	1.4	.2 / .55		132	200	12300	
24-Mar	6760	10.6	56	31	33	6 / 16	4	1	14	0.25	3	9.4	1.2	.2 / .6		145	140	12400	
25-Mar	6932	10.6	56	31	35	6 / 12	4	1	14	0.25	3	9.4	1.1	.2 / .6		143	160	12400	Loss circulation
26-Mar	6932	10.5	56	28	31	6 / 16	4	1	14	0.25	3	9.3	0.6	.2 / .6		155	240		Test csg w/RTTS
27-Mar	6932	11.0	57	28	36	6 / 16	4	1	15	0.25	3	9.4	0.7	.21 / .6		150	360		Reamed: 5537' - 5557'
28-Mar	6932	11.2	56	29	31	6 / 14	4	1	16	0.25	3	9.4	0.7	.25 / .65		147	280	16800	Run motor
29-Mar	6932	11.2	56	29	32	5 / 14	4	1	18	0.25	5.5	9.4	1	.2 / .6		175	100	17200	Sliding @5580'
30-Mar	6030	11.2	53	31	34	5 / 15	4	1	18	0.25	9.5	9.5	0.9	.25 / .65		168	100	17200	
31-Mar	6092	11.6	58	34	38	6 / 20	4	1	21	0.3	8.5	9.5	1	.25 / .6		166	100	17200	
01-Apr	6092	12.0	61	32	38	8 / 16	4	1	23	0.3	8.5	9.5	0.9	.25 / .5		168	100	17200	cement plug abandoned.

PRODUCTS USED SUMMARY

1799 Bbls of mud built.

	Quantity	Unit cost	COST
Barit. Nac.	1105	6.4	7,072.00
Caustic Potash	43	25.34	1,089.62
Flovis	64	277.88	17,784.32
Pac Plus Reg	26	130.45	3,391.70
Pac Plus Ul.	38	130.45	4,957.10
Kla-Gard	11	1035.8	11,393.36
Lube 100	8	488.45	3,907.60
Potassm Chloride	223	17.46	3,893.58
Soda Ash	7	12.73	89.11
Shale-Chek	23	40.63	934.49
Watesal "A"	318	18.4	5,851.20
Sodium Chloride	1000	6.4	6,400.00
Mix II	15	29.85	447.75
Kwik seal fine	11	14.1	155.10
Soltex K+	32	60.54	1,937.28
Total Product Cost		\$	69,304.21

Cost per foot \$/ft 53.64

Cost Per Bbl. \$/Bbl. 38.52

CASING AND CEMENTING POINTS
 WELL : LO6-21R

CASING SIZE O.D	DESCRIPTION	POINT FT	CENTRALI- ZERS	SLURRY	DATE	RETURN (Bbls)
13 3/8"	J-55, 61 #/ft	F. C 686' Shoe 727'		500 sx.cement (4% Gel)+0.5gl/Mgal D-air II. (14.1 ppg) 300 sx net cement + 2% CaCl2 + 0.5gl/Mgal D-air II (15.6 ppg)	24. Aug. 84	
9 5/8"	J-55, 40 #/ft	F.C. 1764' Shoe 1805'		600 sx cement-4 %bent. (14.1 ppg) 150 sx net cement (15.6 ppg)	28. Aug 84	
5 1/2"	J-55, 17 #/ft	F.C. 5212' Shoe 5250'		380 sx cmt (4%bent) + 0.5gl/Mgl D-Air II (14.1 ppg) 350 sx net cement. + 0.5gl/Mgl D-Air (15.6 ppg)	05 Set 84	Top:2500'
	Isote of Perforating					
	Squeeze w / RTTS - stages	5100' - 4841' 4506' - 4314' 4136' - 3976'		10 bbls injectrol +86 sx cmt (2% CaCl2) -15.6 ppg 10 bbls injectrol +120 sx cmt (2% CaCl2)+140 sx net cmt (15.6 ppg) 30 sx net cement (15.6 ppg)	19 Jan. 96	
	Whipstock Plug	5503' -4950'		140 sx cmt class "H"+11 lbs Versaset + 0.5 gl/Mgl D-Air II (17.0 ppg)	16 Mar 96	
	Set Abandone Cement Plug	5350' 435'		35 sx net cement + 0.5 gl/Mgl D-Air II (15.6 ppg) 25 sx net cement + 0.5 gl/Mgl D-Air II (15.6 ppg)	02 Apr. 96	

PETRO-TECH
PERUANA S.A.

DRILLING RECORD DRILLED WELL SUMMARY

CONTRACTOR: PETREX	WELL #: LO6-21R	RIG #: P-114	LOCAT.: LOBITOS OFFSH.	API #: 9622102
WELL TYPE: DEVELOPM. SLIM HOLE	ESTIMAT. DEPTH.: 8720'	EST. DAYS: 20	OBJETIVE: BASAL SALINA	ESTIM. COST: \$ 754,100
SPUD IN DATE: MAR-17-96	DATE TD. REACH.: MAR-31-96	COMPLET. DATE: —	ABAND. DATE: APR-02-96	ACTUAL COST: \$ 546,665
TOTAL DEPTH: 6932'	DAYS: 17	PENET. RATE (FT/HR): 12.1'	FT/DAY: 127'	DAYS AHEAD-(BHD): (10 1/2)

PHASE :

18" CONDUCT.

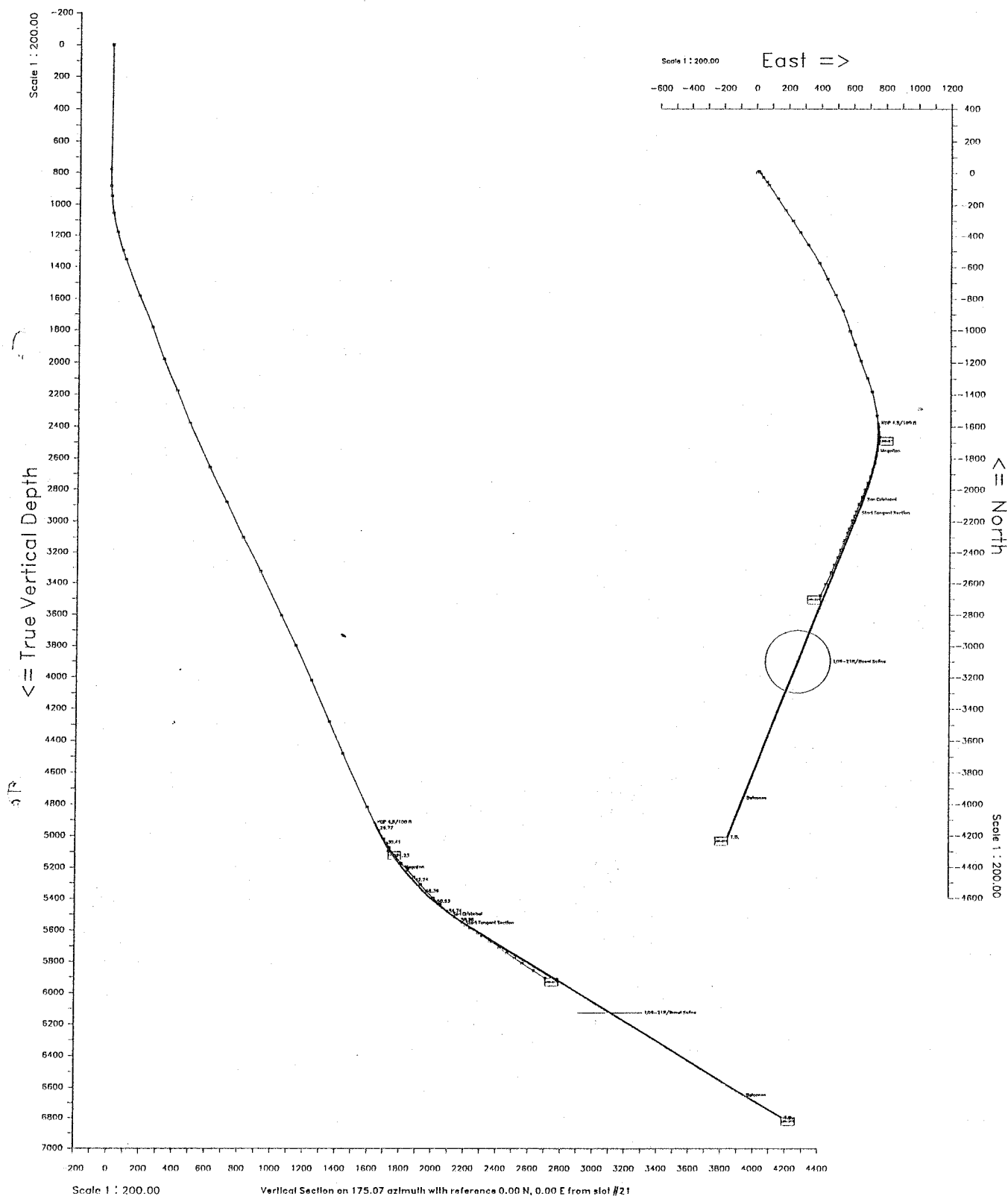
SURFACE (13 3/8")

INTERMED. (9 5/8")

PRODUCTION (3 1/2")

WELL DATA	SLIM DRILLING PROJECT	SIDE TRACKED WELL FROM 5300' TO 6932' AND 5569' TO 6092'			5250/8720' (2 S.TKS.)	5300/6092'
DEPTH- ESTIM/REAL					20	17
DAYS- ESTIM/REALS					2 PLUGS	
COND.TOP - GUIDE SHOE					173'	127'
AVERAGE FT/DAY: EST/REALS						
BITS USED - 17" N/RR						
BITS USED - 12 1/4" N/RR						
BITS USED - 4 3/4" N/RR						
GPM - PRESSURE - HSI INITIAL					5N - 1RR	
GPM - PRESSURE - HSI FINAL					150	2500
FORMATIONS					150	2850
MUD TYPE					PALEG.- S. CRIST.- B. SAL.- PAL.	
MUD COMP.					FLO-PRO	
MUD WT.- VISC - FILT (INIT./FINAL)					MI. DRLG. FLUIDS	
PL.V.- YP - PH (INIT./FINAL)					10.2 - 11.6	53 - 54
PM - PF - SOLIDS (INIT./FINAL)					20 - 34	33 - 38
TOTAL MUD COST					5.0 - 1.0	1.0 - 0.2
MUD COST BY FT.						10 - 21
ANGLE - DIRECT - DEPTH (INITIAL)					\$ 69,381	
ANGLE - DIRECT - DEPTH (FINAL)					32.19	
SIZE - TYPE & CSG. WT.					30.9°	N-4.80-E
CMT. SX- CENTRALIZ- RET. BBLs.					54.7°	S-17.0-E
					—	—
					2 PLUGS	—
TIME BREAKDOWN (HRS.)						
MOVING	RAN COND -	DRIVE COND			20.50	
ROTATING	TRIPS -	CIRC.			177.50	140.00
REAMING	RUN CSG.-	FISHING			53.00	20.50
CEMENT	NIPP.BOP'S -	WOC				
CUT CABLE	DIRECTION	LOGS				2.00
PLUGS	DRESS CMT.	STUCK PIPE			2.00	18.00
MILL CSG.	COMPLET.	OTHERS			7.00	14.00
REPAIRS	MAINTEN.	DOWNTIME				3.50
TOTAL HOURS:					0.50	
OTHERS						472.50
WORKING W/ DOWN HOLE MOTOR						163 HRS.
WORKING W/ SLIM 1						325.5 HRS.

Well : L06-21R
Location : Offshore Peru



PETRO-TECH PERUANA S.A.
LO6 <not named>, LO6-21R
LOBITOS, Offshore Peru

SURVEY LISTING Page 1
Your ref : Anadrill MWD Surveys LO6-21R
Last revised : 26-Mar-96

Measured Depth	Inclin. Degrees	Azimuth Degrees	True Vert. Depth	R E C T A N G U L A R C O O R D I N A T E S		Dogleg Deg/100Ft	Vert Sect
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	0.00
778.00	1.75	32.00	777.88	10.08 N	6.30 E	0.22	-9.50
885.00	2.50	146.00	884.84	9.53 N	8.47 E	3.35	-8.76
949.00	5.00	141.00	948.70	6.20 N	11.00 E	3.94	-5.23
1059.00	11.50	140.00	1057.50	5.94 S	21.08 E	5.91	7.73
1186.00	15.25	143.00	1181.03	28.98 S	39.28 E	3.00	32.25
1310.00	20.50	144.00	1299.01	59.59 S	61.87 E	4.24	64.69
1372.00	23.00	145.00	1356.59	78.30 S	75.20 E	4.08	84.48
1621.00	24.00	147.00	1584.94	160.62 S	130.68 E	0.51	171.26
1838.00	23.50	147.00	1783.56	233.92 S	178.28 E	0.23	248.38
2053.00	22.25	149.00	1981.65	304.77 S	222.60 E	0.68	322.77
2270.00	25.50	148.00	2180.06	379.61 S	268.52 E	1.51	401.29
2491.00	25.50	147.00	2379.53	459.85 S	319.64 E	0.19	485.62
2802.00	26.00	152.00	2659.68	576.20 S	388.11 E	0.72	607.42
3050.00	27.50	155.00	2881.14	676.10 S	437.83 E	0.81	711.22
3299.00	26.75	153.00	3102.76	778.13 S	487.57 E	0.47	817.16
3548.00	26.00	158.00	3325.86	878.68 S	533.46 E	0.94	921.28
3862.00	25.50	162.00	3608.70	1006.79 S	580.13 E	0.58	1052.92
4073.00	26.00	160.00	3798.75	1093.44 S	609.99 E	0.48	1141.82
4319.00	23.75	161.00	4021.92	1190.96 S	644.56 E	0.93	1241.95
4605.00	24.00	158.00	4283.46	1299.35 S	685.10 E	0.43	1353.42
4823.00	24.00	164.00	4482.64	1383.09 S	713.94 E	1.12	1439.32
5193.00	25.00	172.00	4819.41	1532.89 S	745.57 E	0.94	1591.29
5300.00	25.34	172.35	4916.25	1577.97 S	751.76 E	0.35	1636.74
5358.00	30.90	175.20	4967.39	1605.14 S	754.66 E	9.85	1664.06
5420.00	32.70	181.90	5020.10	1637.75 S	755.44 E	6.39	1696.62
5451.00	33.10	181.50	5046.12	1654.59 S	754.94 E	1.47	1713.34
5483.00	34.30	181.50	5072.75	1672.33 S	754.47 E	3.75	1730.99
5545.00	37.40	183.60	5123.00	1708.60 S	752.83 E	5.38	1766.98
5610.00	40.50	187.10	5173.55	1749.26 S	748.98 E	5.85	1807.16
5670.00	42.00	192.00	5218.67	1788.24 S	742.40 E	5.94	1845.43
5734.00	42.70	194.20	5265.97	1830.23 S	732.62 E	2.56	1886.42
5796.00	44.60	197.00	5310.83	1871.43 S	721.10 E	4.37	1926.48
5859.00	45.20	199.10	5355.46	1913.71 S	707.32 E	2.54	1967.41
5922.00	46.80	200.50	5399.22	1956.34 S	691.96 E	3.00	2008.57
5985.00	48.90	201.20	5441.50	1999.98 S	675.34 E	3.43	2050.62
6048.00	50.90	200.50	5482.08	2045.02 S	658.19 E	3.29	2094.02
6110.00	53.70	200.50	5519.99	2090.96 S	641.01 E	4.52	2138.31
6173.00	57.70	201.00	5555.48	2139.62 S	622.57 E	6.38	2185.21
6205.00	59.30	200.50	5572.20	2165.13 S	612.91 E	5.17	2209.80
6240.00	60.40	201.40	5589.78	2193.39 S	602.08 E	3.85	2237.02
6303.00	59.80	201.30	5621.19	2244.26 S	582.20 E	0.96	2285.99
6335.00	58.60	201.10	5637.57	2269.89 S	572.26 E	3.79	2310.67
6398.00	57.90	200.60	5670.72	2319.95 S	553.19 E	1.30	2358.91
6414.00	57.40	200.80	5679.28	2332.59 S	548.41 E	3.30	2371.10
6478.00	57.50	200.50	5713.72	2383.08 S	529.39 E	0.42	2419.75
6541.00	57.90	201.90	5747.38	2432.72 S	510.13 E	1.98	2467.56
6604.00	58.40	201.90	5780.63	2482.37 S	490.17 E	0.79	2515.31
6666.00	58.60	203.30	5813.02	2531.17 S	469.86 E	1.95	2562.19
6759.00	59.60	203.90	5860.78	2604.30 S	437.91 E	1.21	2632.30
6855.00	60.20	204.20	5908.93	2680.14 S	404.06 E	0.68	2704.95

All data is in feet unless otherwise stated
Coordinates are from slot #21 and TVDs are from wellhead.
Vertical section is from wellhead on azimuth 175.07 degrees.
Calculation uses the minimum curvature method.