

**PETRO-TECH
LO16-24
END OF WELL
REPORT**

Job Identification

PETRO-TECH PERUANA S.A.

PETRO-TECH PERUANA S.A.
GERENCIA DE PERFORACION
RECIBIDO

3 ABR. 1998

HORA

FOR

Project ID: PETRO-TECH PERUANA S.A.

Well ID: Z-2B-21-059-D-LO16 (LO16-24)

Operator: Petro-Tech Peruana S.A.

Address: Negritos, Peru

Drilling Mgr: Jerome H. Hagan

Company Reps: Ricardo Gilabert, Guillermo Ruesta
Franklin Cordova, Oswaldo Pachas

Contractor: PETREX

Rig ID: Rig #3

Toolpusher: Mike Darwent / Adolfo Rimac Bauby

Service Co: Anadrill Schlumberger

Anadrill Job #: 98-001

DD Eng: John Taylor

MWD Eng: Luis Tenorio, G. Soto, R. Bermudez

Start Date: 16 Jan 98 (Start Nudge 17 Jan)

End Date: 9-Feb-98

Total Days: 25

Schlumberger Anadrill

LO16-24
98-001

Well Identification

PETRO-TECH PERUANA S.A.

Well Name: Z-2B-21-059-D-LO16

Well Number: LO16-24

Target Zone: Basal Salina

Area: Lobitos

Country: Peru

Well Type: Development

AFE No.: 2210202

Land/Offshore: Offshore

Surface Location:

N-S Coord: N: 9'506,365.92 mts

E-W Coord: E: 459,711.14 mts

Target Bottom Hole Location:

N-S Coord: N: 9'505,741.08 mts.

E-W Coord: E: 457,943.30 mts.

Well Descriptions

PETRO-TECH PERUANA S.A.

Well Description:

The Z-2B-21-059-D-LO16 (LO16-24) well is a new directional well to be drilled conventionally to a projected TD of 10,900'. This well will be drilled into the Basil Salina formation at a target azimuth 250.53°. The geological top of the target pay is expected at 9750' MD (6950' TVD). The plan is to kick off in the 17" hole section at a depth of 1000' utilizing a steerable motor and build to 50.28° inclination at a measured depth of 2400'. The motor will be laid down at this point and stabilized rotary assemblies will be used to final TD of 10,900'. Special care will be taken when drilling the Mogollon formation since this sand is characterized by the presence of gas.

Well Objective:

The objective of this drilling project is to prove possible new production of the Basal Salina sand as well as extending the field development to the southwest of the LO16 platform.

ANADRILL Services Provided:

Directional supervision from kick-off point 10,206'.

Directional & drilling tools from spud point to T.D. (including jars, stbs, NMDC's, short DC's, float subs & valves, UBHO's,PDM's, x/o subs, etc.)

Slim -1 MWD from kick-off point to 10,206'.

Multishot @ T.D.

Well planning & plots.

Well Summary

PETRO-TECH PERUANA S.A.

BHA OBJECTIVES:

The build section is planned to be drilled with a 17" mill tooth bit in one run. A steerable assembly utilizing a 9 5/8" PowerPak motor with 5/6 rotor/stator will be used for this portion of the well. Build rates of 4.0°/100' will be attained by alternating slides w/ rotation in curve.

Hold section will be drilled with stabilized assemblies to produce desired hold/build/drop results required to keep hole trajectory on track to hit target. PDC bits to be utilized in 12 1/4" and 8 1/2" hold sections.

BHA RESULTS:

17" HOLE SECTION

BHA #1: Assy consisted of a 17" mill tooth bit, 9 5/8" PowerPak motor (16 3/4" bearing stb, 1.50 ABH), XO, Pony NMDC, UBHO, 2 x NMDC, 3 x 8" DC, Flex Joint, 7 3/4" EQ Jars, X/O, 9 x 6 1/2" DC, X/O, 21 HWDP. Ran in with assembly early (750' instead of 1000') to begin nudge for anti-collision purposes. Avoided other wells from platform with no problems. Initial hole direction was 180° (again, for anti-collision purposes). Hole was then slowly turned to planned hole direction. Some difficulty was experienced when we started trying to turn hole (poor slide reaction), but it turned fine after we got a trend started. Got behind in build when trying to turn hole, but caught up with no problems. Experienced same vibration problems with MWD between 6° and 12° that we had on last hole. Reduced GPM & WOB to reduce vibration and got HS toolfaces with no problem. Increased GPM & WOB after 12° with no adverse effects. POH @ 2470' to run 13 3/8" casing.

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12 1/4" HOLE SECTION

BHA #2: Assembly consisted of 12 1/4" PDC bit, 12 1/4" NB Stb, Pony DC, 11 3/4" Stb, UBHO, NMDC, 12 1/4" Stb, NMDC, 3 X 8" DC, Flex Joint, 7 3/4" EQ Jars, X/O, 9 x 6 1/2" DC, X/O, 21 HWDP. Intent of this assembly was to hold angle to 9 5/8" casing point. It was expected that this assembly might build slightly at first, then level out & hold angle. We still lead angle by 3.0° with motor assembly. Unfortunately, this assembly built angle at an average of .56°/100', so it was necessary to POH for drop assembly after approximately 1000'. Assembly started building at .7°/100', but tapered off to .5°/100' by end of run. I believe this assembly would have eventually held angle after initial build. We will take this all into account in future & finish curve at lower angle so can leave this assembly in hole longer. POH @ 3517' for drop assembly.

BHA #3: This assembly consisted of 12 1/4" PDC bit, 12 1/4" NB Stb, Pony DC, 12 1/4" Stb, UBHO, NMDC, 12 1/4" Stb, NMDC, 3 x 8" DC, Flex Joint, 7 3/4" EQ Jars, X/O, 9 x 6 1/2" DC, X/O, 21 HWDP. Intent of assembly was to drop angle @ .4° to .5°/100', which was initial drop rate. It then accelerated to the point that the average drop rate was .73°/100'. This is the first assembly this hole where we experienced a shift in the dip angle from the normal 14.8° to 16.5°. This shift kicked the azimuth over 2° to the right, which was not what we wanted. We eventually discarded the surveys taken with this assembly in favor of resurveying while RIH with the next assembly. Dip angle was correct with BHA #4 and the azimuth swung back to left. While drilling with this assembly, we were suddenly struck by high seas and the aft

Well Summary

PETRO-TECH PERUANA S.A.

end of the barge was awash and being struck by high waves. The SCR house is on the aft end of the barge, and was thus flooded. Power to rig was lost for approximately 10 hours and the bit sat on bottom for this length of time as we were drilling when power went down. After partial power was returned, we were fortunate not to be stuck. Trip out took 24 hours, but we got out. Hole tried to stick us several times during trip out. We lost power @ 1600 hrs on 25 January. By the time we were back on bottom drilling, it was 0800 on 29 January. POH to check bit and assembly @ 5952'.

BHA #4: Assembly was the same as BHA #2. Expected assembly to hold or build angle slowly. In reality, it dropped angle at a rate of .57°/100' and displayed a slight right hand walk. While drop trend from last assembly contributed to drop, my feelings that this assembly is eventually a holder after an initial build was reinforced by it's reaction during this run. POH @ 6807' to run 9 5/8" casing.

8 1/2" HOLE SECTION

BHA #5: Assembly consisted of 8 1/2" PDC Bit, 8 1/2" NB Stb, Float Sub, Pony DC, UBHO, NMDC, 8 1/2" Stb, NMDC, 8 1/2" Stb, X/O, 9 x 6 1/2" DC, X/O, 6 HWDP, Flex Joint, 6 1/2" EQ Jars, 15 HWDP. Purpose of assembly was to build angle @ 2° to 3°/100. Assembly averaged 2.4°/100' and held azimuth. Dip angle was again a problem when it came back at over 17° on surveys and swung azimuth 3° to the right. This was disastrous as we had opted for a conventional build assembly instead of a motor run. The 3° swing in azimuth took us out of target. Decided to drill ahead and resurvey hole on next trip in. Built to approximately 52° and POH @ 7366' for hold/slight drop assembly.

Well Summary

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8 1/2" HOLE SECTION (cont)

BHA #6: This assembly consisted of 8 1/2" PDC Bit, 8 1/2" NB Stb, Float Sub, 8 1/4" Stb, UBHO, NMDC, 8 1/2" Stb, NMDC, X/O, 9 x 6 1/2" DC, X/O, 6 HWDP, Flex Joint, 6 1/2" EQ Jars, 15 HWDP. Intent of this assembly was to hold or slowly drop angle. This was accomplished quite well as we averaged .29°/100' drop. In addition, assembly walked to left @ .29°/100', which was exactly what we needed. Hit target in both planes with no problem. But once again, the dip angle was out. We saw 16.5° this run after changing electronics and pulser this trip. This threw azimuth 2° to right. Went ahead and resurveyed hole made with last assembly and decided to take 2° off azimuth given by MWD to compensate for increase in dip angle. Basal Salina came in approximately 300' low. POH @ 10206' for ROP.

ANADRILL RELEASED AT THIS POINT

Well Summary

PETRO-TECH PERUANA S.A.

CONCLUSIONS

ROP for this well was better than LO16-23 when we were able to keep the bit on bottom. Obviously, downtime for rig repair was a significant problem this well. As far as Anadrill was concerned, lack of consistency in dip angle for different Slim 1 runs is a concern and could have had an affect on our ability to hit the target. Three degree swings in azimuth from one run to another is definitely a problem and needs to be dealt with. Also, the 12 1/4" hole section still presents a challenge as far as doing it in one run is concerned. The following discussion will deal with these two subjects. Drilling assembly first.

The new 11 3/4" stabilizer run on top of the pony DC was an attempt to help us do the 12 1/4" section in one run. We were above the line at the end of the curve and lead the planned inclination by 3°. Intention was to drill ahead with the 11 3/4" stabilizer assembly, possibly building a little angle at first, then level off to a hold assembly. This assembly actually built an average of almost .6°/100' in a 1000' run. It started out building at .7°/100' and had dropped build rate to .5°/100' by end of run. I am positive that build rate would have continued to drop if we had been able to leave the assembly in longer. Problem is, we had to trip for a drop assembly because angle was getting out of hand. For the next hole I propose being on the line at the end of curve and pulling the motor assembly 3° or 4° below planned inclination. This will let us build angle with the rotating assembly and allow us to keep it in the hole till it breaks over and starts to hold or slowly drop angle. We need to get a handle on what this assembly will do over a long run to be able to better plan the point at which to pull the motor assembly. This is the way to do it. Past experience shows us that a 12" stabilizer in the same position will hold angle for a short time, then drop like a rock. Because of this, we had to lead the planned inclination by as much as 6° or 7°, depending on the length of tangent

Well Summary

PETRO-TECH PERUANA S.A.

CONCLUSIONS

section on the next run. With the 4000'+ tangent sections in 12 1/4" hole that we have been running, this is impractical as we might have to lead the inclination by 10° or more. The 11 3/4" stabilizer is the way to go because it keeps the maximum angle we see down to a reasonable value. We just need to figure out how to run it in such a way that we can do the 12 1/4" section in one run and leave ourselves more or less set up for the 8 1/2" run.

As far as the errant dip angle is concerned, it is looking more and more like this phenomenon is a function of the almost due west direction of the hole. No problems have been found with the electronics that have been laid out. Minor changes in assembly have a bigger effect on dip angle as one approaches due west. We are hoping a multishot run with no stabilizers in the NMDC's and a Pony NMDC below the Slim NMDC will produce better azimuth results. Anadrill is continuing to investigate the problem.

PETRO-TECH PERUANA S.A.

LO16
slot #24
LOBITOS
Offshore Peru

P R O P O S A L L I S T I N G

Well name : LO16-24

Your ref : Revision #3
Our ref : prop327

Date printed : 1-Apr-98
Date created : 9-Jan-98
Last revised : 20-Feb-98

Field is centred on 463049.010,9508638.880
Structure is centred on 459705.340,9506366.580

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	
100.00	0.00	180.00	100.00	0.00 N	0.00 E	0.00	0.00	
200.00	0.00	180.00	200.00	0.00 N	0.00 E	0.00	0.00	
300.00	0.00	180.00	300.00	0.00 N	0.00 E	0.00	0.00	
400.00	0.00	180.00	400.00	0.00 N	0.00 E	0.00	0.00	
500.00	0.00	180.00	500.00	0.00 N	0.00 E	0.00	0.00	
600.00	0.00	180.00	600.00	0.00 N	0.00 E	0.00	0.00	
700.00	0.00	180.00	700.00	0.00 N	0.00 E	0.00	0.00	
800.00	0.00	180.00	800.00	0.00 N	0.00 E	0.00	0.00	
900.00	0.00	180.00	900.00	0.00 N	0.00 E	0.00	0.00	
1000.00	0.00	180.00	1000.00	0.00 N	0.00 E	0.00	0.00	KOP 4.0/100 ft
1100.00	4.00	180.00	1099.92	3.49 S	0.00 E	4.00	1.16	
1200.00	8.00	180.00	1199.35	13.94 S	0.00 E	4.00	4.65	
1250.00	10.00	180.00	1248.73	21.76 S	0.00 E	4.00	7.25	
1300.00	10.53	190.85	1297.94	30.59 S	0.86 W	4.00	11.00	
1400.00	12.50	208.42	1395.95	49.08 S	7.73 W	4.00	23.65	
1500.00	15.27	220.51	1493.04	68.62 S	21.44 W	4.00	43.08	
1600.00	18.49	228.72	1588.73	89.11 S	41.92 W	4.00	69.22	
1700.00	21.96	234.49	1682.56	110.44 S	69.07 W	4.00	101.93	
1800.00	25.58	238.73	1774.07	132.52 S	102.76 W	4.00	141.05	
1900.00	29.29	241.97	1862.81	155.23 S	142.83 W	4.00	186.39	
2000.00	33.07	244.53	1948.35	178.47 S	189.07 W	4.00	237.74	
2100.00	36.89	246.62	2030.27	202.12 S	241.27 W	4.00	294.84	
2200.00	40.73	248.36	2108.18	226.07 S	299.17 W	4.00	357.41	
2300.00	44.60	249.86	2181.70	250.20 S	362.49 W	4.00	425.15	
2400.00	48.49	251.16	2250.46	274.39 S	430.92 W	4.00	497.73	
2445.84	50.28	251.70	2280.30	285.47 S	463.90 W	4.00	532.52	Start Tangent Section
2500.00	50.28	251.70	2314.91	298.55 S	503.45 W	0.00	574.17	
2946.10	50.28	251.70	2600.00	406.28 S	829.23 W	0.00	917.22	Chacra
3000.00	50.28	251.70	2634.44	419.29 S	868.58 W	0.00	958.66	
3500.00	50.28	251.70	2953.98	540.03 S	1233.72 W	0.00	1343.16	
4000.00	50.28	251.70	3273.51	660.77 S	1598.85 W	0.00	1727.66	
4432.65	50.28	251.70	3550.00	765.25 S	1914.80 W	0.00	2060.36	Parinas
4500.00	50.28	251.70	3593.04	781.51 S	1963.98 W	0.00	2112.15	
4667.37	50.28	251.70	3700.00	821.93 S	2086.20 W	0.00	2240.86	Palegreda
5000.00	50.28	251.70	3912.57	902.25 S	2329.11 W	0.00	2496.65	
5500.00	50.28	251.70	4232.10	1022.99 S	2694.24 W	0.00	2881.15	
6000.00	50.28	251.70	4551.64	1143.73 S	3059.37 W	0.00	3265.64	
6500.00	50.28	251.70	4871.17	1264.47 S	3424.51 W	0.00	3650.14	
6936.31	50.28	251.70	5150.00	1369.84 S	3743.13 W	0.00	3985.66	Mogollon
7000.00	50.28	251.70	5190.70	1385.22 S	3789.64 W	0.00	4034.64	
7500.00	50.28	251.70	5510.23	1505.96 S	4154.77 W	0.00	4419.13	
8000.00	50.28	251.70	5829.76	1626.70 S	4519.90 W	0.00	4803.63	
8188.14	50.28	251.70	5950.00	1672.13 S	4657.29 W	0.00	4948.31	San Cristobal
8500.00	50.28	251.70	6149.30	1747.44 S	4885.03 W	0.00	5188.13	
9000.00	50.28	251.70	6468.83	1868.18 S	5250.16 W	0.00	5572.63	
9500.00	50.28	251.70	6788.36	1988.92 S	5615.29 W	0.00	5957.12	
9752.93	50.28	251.70	6950.00	2049.99 S	5800.00 W	0.00	6151.62	LO16-24/Basal Salina
10000.00	50.28	251.70	7107.89	2109.66 S	5980.43 W	0.00	6341.62	
10500.00	50.28	251.70	7427.43	2230.40 S	6345.56 W	0.00	6726.12	
10691.80	50.28	251.70	7550.00	2276.71 S	6485.62 W	0.00	6873.61	Balcones
10926.52	50.28	251.70	7700.00	2333.39 S	6657.03 W	0.00	7054.11	T.D.

All data is in feet unless otherwise stated
Coordinates are from slot #24 and TVDs are from wellhead.
Vertical section is from wellhead on azimuth 250.53 degrees.
Calculation uses the minimum curvature method.

Comments in wellpath
 =====

MD	TVD	Rectangular Coords.		Comment
1000.00	1000.00	0.00 N	0.00 E	KOP 4.0/100 ft
2445.84	2280.30	285.47 S	463.90 W	Start Tangent Section
2946.10	2600.00	406.28 S	829.23 W	Chacra
4432.65	3550.00	765.25 S	1914.80 W	Parinas
4667.37	3700.00	821.93 S	2086.20 W	Palegreda
6936.31	5150.00	1369.84 S	3743.13 W	Mogollon
8188.14	5950.00	1672.13 S	4657.29 W	San Cristobal
9752.93	6950.00	2049.99 S	5800.00 W	LO16-24/Basal Salina
10691.80	7550.00	2276.71 S	6485.62 W	Balcones
10926.52	7700.00	2333.39 S	6657.03 W	T.D.

Casing positions in string 'A'
 =====

Top MD	Top TVD	Rectangular Coords.		Bot MD	Bot TVD	Rectangular Coords.		Casing
0.00	0.00	0.00N	0.00E	2600.00	2378.82	322.70S	576.48W	Csg. 13 3/8"
0.00	0.00	0.00N	0.00E	6900.00	5126.80	1361.07S	3716.61W	Csg. 9 5/8"

Targets associated with this wellpath
 =====

Target name	Position	T.V.D. Local rectangular coords.			Date revised
LO16-24/Basal Salina	457943.300,9505741.080	6950.00	2049.99S	5800.00W	9-Jan-98

All data is in feet unless otherwise stated
 Coordinates are from slot #24 and TVDs are from wellhead.
 Vertical section is from wellhead on azimuth 250.53 degrees.
 Calculation uses the minimum curvature method.

PETRO-TECH PERUANA S.A.
LO16
slot #24
LOBITOS
Offshore Peru

S U R V E Y L I S T I N G

Well name : LO16-24

Your ref : Anadrill MWD Surveys 2
Our ref : svy842

Date printed : 1-Apr-98
Date created : 29-Jan-98
Last revised : 31-Mar-98

Field is centred on 463049.010,9508638.880

Structure is centred on 459705.340,9506366.580

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
632.00	1.20	137.60	631.95	4.89 S	4.46 E	0.19	-2.58
686.00	1.00	112.70	685.94	5.49 S	5.28 E	0.95	-3.15
747.00	1.20	135.10	746.93	6.14 S	6.22 E	0.77	-3.82
809.00	1.60	163.70	808.92	7.44 S	6.92 E	1.28	-4.05
871.00	2.80	167.60	870.87	9.74 S	7.49 E	1.95	-3.81
933.00	4.30	184.20	932.75	13.54 S	7.64 E	2.91	-2.69
995.00	5.50	181.30	994.52	18.83 S	7.41 E	1.98	-0.71
1057.00	7.70	178.60	1056.11	25.95 S	7.44 E	3.58	1.63
1120.00	9.40	178.50	1118.40	35.32 S	7.68 E	2.70	4.53
1183.00	11.10	179.50	1180.40	46.53 S	7.87 E	2.71	8.09
1247.00	12.90	180.20	1243.00	59.83 S	7.90 E	2.82	12.49
1310.00	15.40	184.50	1304.08	75.21 S	7.21 E	4.30	18.26
1372.00	18.50	187.90	1363.38	93.16 S	5.22 E	5.25	26.13
1467.00	22.30	193.70	1452.42	125.62 S	1.13 W	4.53	42.92
1530.00	24.00	199.80	1510.35	149.29 S	8.30 W	4.66	57.58
1594.00	25.20	206.80	1568.55	173.70 S	18.85 W	4.92	75.66
1657.00	25.60	213.90	1625.48	196.98 S	32.50 W	4.87	96.28
1720.00	24.50	220.90	1682.56	218.15 S	48.64 W	5.01	118.56
1781.00	24.40	226.90	1738.10	236.32 S	66.13 W	4.07	141.10
1845.00	25.80	231.60	1796.06	254.01 S	86.70 W	3.81	166.39
1907.00	27.30	236.60	1851.53	270.22 S	109.15 W	4.34	192.96
1971.00	29.40	240.00	1907.85	286.16 S	135.01 W	4.14	222.65
2035.00	32.10	242.90	1962.85	301.76 S	163.76 W	4.81	254.96
2098.00	34.70	245.30	2015.45	316.88 S	194.96 W	4.63	289.41
2161.00	37.70	247.10	2066.28	331.88 S	229.00 W	5.05	326.51
2225.00	41.50	248.20	2115.59	347.37 S	266.73 W	6.04	367.24
2289.00	44.80	248.90	2162.27	363.37 S	307.47 W	5.21	410.98
2352.00	48.30	249.30	2205.59	379.68 S	350.19 W	5.57	456.70
2548.00	53.80	251.70	2328.77	430.42 S	493.84 W	2.96	609.05
2674.00	54.20	251.50	2402.83	462.59 S	590.56 W	0.34	710.96
2832.00	55.20	250.60	2494.13	504.47 S	712.52 W	0.79	839.91
2990.00	56.30	251.30	2583.05	547.09 S	835.97 W	0.79	970.50
3149.00	57.30	251.80	2670.12	589.20 S	962.17 W	0.68	1103.52
3308.00	58.10	252.10	2755.08	630.84 S	1089.95 W	0.53	1237.88
3466.00	58.90	251.00	2837.63	673.48 S	1217.74 W	0.78	1372.57
3688.00	58.40	251.90	2953.13	733.79 S	1397.48 W	0.41	1562.13
4165.00	56.40	251.60	3210.11	859.62 S	1779.10 W	0.42	1963.87
4218.84	56.16	251.75	3240.00	873.70 S	1821.60 W	0.51	2008.64
4545.00	54.70	252.70	3425.07	955.69 S	2077.34 W	0.51	2277.08
5021.00	51.40	253.70	3711.17	1065.69 S	2441.43 W	0.71	2657.01
5065.00	51.12	253.81	3738.70	1075.29 S	2474.38 W	0.67	2691.28
5399.00	49.00	254.70	3953.12	1144.80 S	2720.83 W	0.67	2946.80
5935.00	44.10	255.60	4321.63	1244.62 S	3096.80 W	0.92	3334.55
6124.00	43.20	255.70	4458.38	1276.95 S	3223.18 W	0.48	3464.48
6314.00	42.10	255.80	4598.12	1308.64 S	3347.95 W	0.58	3592.68
6504.00	40.80	255.90	4740.53	1339.39 S	3469.90 W	0.69	3717.91
6693.00	39.80	256.40	4884.67	1368.65 S	3588.59 W	0.56	3839.56
6922.00	41.40	256.30	5058.54	1403.82 S	3733.40 W	0.70	3987.82
7110.00	45.80	256.80	5194.65	1433.95 S	3859.47 W	2.35	4116.72
7299.00	50.70	257.10	5320.47	1465.76 S	3996.79 W	2.60	4256.79
7300.00	50.71	257.10	5321.10	1465.94 S	3997.55 W	1.09	4257.56
7457.00	52.40	256.80	5418.71	1493.71 S	4117.33 W	1.09	4379.75
7615.00	52.50	255.70	5515.01	1523.48 S	4239.00 W	0.56	4504.39
7773.00	52.30	255.90	5611.41	1554.19 S	4360.36 W	0.16	4629.05
7931.00	52.10	255.60	5708.25	1584.92 S	4481.36 W	0.20	4753.37

Parinas

Palegreda

Mogollon

All data is in feet unless otherwise stated
 Coordinates are from slot #24 and TVDs are from wellhead.
 Vertical section is from wellhead on azimuth 250.53 degrees.
 Calculation uses the minimum curvature method.

PETRO-TECH PERUANA S.A.
 L016 <not named>, L016-24
 LOBITOS, Offshore Peru

SURVEY LISTING Page 2
 Your ref : Anadrill MWD Surveys 2
 Last revised : 31-Mar-98

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	
8121.00	51.90	254.80	5825.23	1623.16 S	4626.11 W	0.35	4902.60	
8311.00	51.50	254.50	5942.99	1662.63 S	4769.90 W	0.24	5051.32	
8502.00	51.50	254.50	6061.89	1702.58 S	4913.94 W	0.00	5200.44	
8692.00	51.40	254.10	6180.29	1742.79 S	5056.99 W	0.17	5348.71	
8725.00	51.28	253.96	6200.91	1749.88 S	5081.76 W	0.50	5374.43	San Cristobal
8881.00	50.70	253.30	6299.11	1784.04 S	5198.07 W	0.50	5495.47	
9072.00	49.80	253.10	6421.24	1826.48 S	5338.65 W	0.48	5642.16	
9262.00	48.70	252.40	6545.26	1869.15 S	5476.11 W	0.64	5785.98	
9451.00	47.50	251.30	6671.48	1912.96 S	5609.78 W	0.77	5926.61	
9640.00	46.80	250.80	6800.02	1957.95 S	5740.83 W	0.42	6065.17	
9830.00	45.80	250.10	6931.28	2003.91 S	5870.28 W	0.59	6202.53	
10020.00	45.00	249.50	7064.69	2050.62 S	5997.24 W	0.48	6337.80	
10084.00	44.80	249.30	7110.03	2066.51 S	6039.53 W	0.39	6382.96	Top of Fish
10147.00	44.60	249.10	7154.81	2082.25 S	6080.95 W	0.39	6427.27	

All data is in feet unless otherwise stated
 Coordinates are from slot #24 and TVDs are from wellhead.
 Vertical section is from wellhead on azimuth 250.53 degrees.
 Calculation uses the minimum curvature method.

PETRO-TECH PERUANA S.A.
 LO16 <not named>, LO16-24
 LOBITOS, Offshore Peru

SURVEY LISTING Page 3
 Your ref : Anadrill MWD Surveys 2
 Last revised : 31-Mar-98

Comments in wellpath
 =====

MD	TVD	Rectangular Coords.		Comment
4218.84	3240.00	873.70 S	1821.60 W	Parinas
5065.00	3738.70	1075.29 S	2474.38 W	Palegreda
7300.00	5321.10	1465.94 S	3997.55 W	Mogollon
8725.00	6200.91	1749.88 S	5081.76 W	San Cristobal
10084.00	7110.03	2066.51 S	6039.53 W	Top of Fish

Casing positions in string 'A'
 =====

Top MD	Top TVD	Rectangular Coords.		Bot MD	Bot TVD	Rectangular Coords.		Casing
0.00	0.00	0.00N	0.00E	2470.00	2281.51	410.47S	435.09W	Csg. 13 3/8"
0.00	0.00	0.00N	0.00E	6807.00	4971.75	1385.99S	3660.10W	Csg. 9 5/8"

Targets associated with this wellpath
 =====

Target name	Position	T.V.D.	Local rectangular coords.	Date revised
LO16-24/Basal Salina	457943.300, 9505741.080	6950.00	2049.99S 5800.00W	9-Jan-98

All data is in feet unless otherwise stated
 Coordinates are from slot #24 and TVDs are from wellhead.
 Vertical section is from wellhead on azimuth 250.53 degrees.
 Calculation uses the minimum curvature method.

PETRO-TECH PERUANA S.A.
LO16
slot #24
LOBITOS
Offshore Peru

S U R V E Y L I S T I N G

Well name : LO16-24

Your ref : Sidetrack #1
Our ref : svy843

Date printed : 1-Apr-98
Date created : 11-Mar-98
Last revised : 31-Mar-98

Field is centred on 463049.010,9508638.880

Structure is centred on 459705.340,9506366.580

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
632.00	1.20	137.60	631.95	4.89 S	4.46 E	0.19	-2.70
686.00	1.00	112.70	685.94	5.49 S	5.28 E	0.95	-3.29
747.00	1.20	135.10	746.93	6.14 S	6.22 E	0.77	-3.98
809.00	1.60	163.70	808.92	7.44 S	6.92 E	1.28	-4.24
871.00	2.80	167.60	870.87	9.74 S	7.49 E	1.95	-4.05
933.00	4.30	184.20	932.75	13.54 S	7.64 E	2.91	-3.01
995.00	5.50	181.30	994.52	18.83 S	7.41 E	1.98	-1.12
1057.00	7.70	178.60	1056.11	25.95 S	7.44 E	3.58	1.08
1120.00	9.40	178.50	1118.40	35.32 S	7.68 E	2.70	3.80
1183.00	11.10	179.50	1180.40	46.53 S	7.87 E	2.71	7.14
1247.00	12.90	180.20	1243.00	59.83 S	7.90 E	2.82	11.29
1310.00	15.40	184.50	1304.08	75.21 S	7.21 E	4.30	16.76
1372.00	18.50	187.90	1363.38	93.16 S	5.22 E	5.25	24.30
1467.00	22.30	193.70	1452.42	125.62 S	1.13 W	4.53	40.51
1530.00	24.00	199.80	1510.35	149.29 S	8.30 W	4.66	54.76
1594.00	25.20	206.80	1568.55	173.70 S	18.85 W	4.92	72.44
1657.00	25.60	213.90	1625.48	196.98 S	32.50 W	4.87	92.70
1720.00	24.50	220.90	1682.56	218.15 S	48.64 W	5.01	114.68
1781.00	24.40	226.90	1738.10	236.32 S	66.13 W	4.07	136.99
1845.00	25.80	231.60	1796.06	254.01 S	86.70 W	3.81	162.07
1907.00	27.30	236.60	1851.53	270.22 S	109.15 W	4.34	188.47
1971.00	29.40	240.00	1907.85	286.16 S	135.01 W	4.14	218.03
2035.00	32.10	242.90	1962.85	301.76 S	163.76 W	4.81	250.23
2098.00	34.70	245.30	2015.45	316.88 S	194.96 W	4.63	284.60
2161.00	37.70	247.10	2066.28	331.88 S	229.00 W	5.05	321.63
2225.00	41.50	248.20	2115.59	347.37 S	266.73 W	6.04	362.31
2289.00	44.80	248.90	2162.27	363.37 S	307.47 W	5.21	406.01
2352.00	48.30	249.30	2205.59	379.68 S	350.19 W	5.57	451.69
2548.00	53.80	251.70	2328.77	430.42 S	493.84 W	2.96	604.01
2674.00	54.20	251.50	2402.83	462.59 S	590.56 W	0.34	705.95
2832.00	55.20	250.60	2494.13	504.47 S	712.52 W	0.79	834.88
2990.00	56.30	251.30	2583.05	547.09 S	835.97 W	0.79	965.47
3149.00	57.30	251.80	2670.12	589.20 S	962.17 W	0.68	1098.51
3308.00	58.10	252.10	2755.08	630.84 S	1089.95 W	0.53	1232.91
3466.00	58.90	251.00	2837.63	673.48 S	1217.74 W	0.78	1367.62
3688.00	58.40	251.90	2953.13	733.79 S	1397.48 W	0.41	1557.20
4165.00	56.40	251.60	3210.11	859.62 S	1779.10 W	0.42	1959.03
4545.00	54.70	252.70	3425.07	955.69 S	2077.34 W	0.51	2272.36
5021.00	51.40	253.70	3711.17	1065.69 S	2441.43 W	0.71	2652.57
5399.00	49.00	254.70	3953.12	1144.80 S	2720.83 W	0.67	2942.68
5935.00	44.10	255.60	4321.63	1244.62 S	3096.80 W	0.92	3330.98
6124.00	43.20	255.70	4458.38	1276.95 S	3223.18 W	0.48	3461.12
6314.00	42.10	255.80	4598.12	1308.64 S	3347.95 W	0.58	3589.53
6504.00	40.80	255.90	4740.53	1339.39 S	3469.90 W	0.69	3714.97
6693.00	39.80	256.40	4884.67	1368.65 S	3588.59 W	0.56	3836.84 Tie-on Point
6876.00	39.20	255.20	5025.88	1397.20 S	3701.43 W	0.53	3952.94
6908.00	37.40	254.30	5051.00	1402.41 S	3720.56 W	5.89	3972.75
6940.00	35.30	252.70	5076.77	1407.79 S	3738.75 W	7.20	3991.70
6972.00	34.80	252.70	5102.96	1413.26 S	3756.30 W	1.56	4010.07
7035.00	36.50	253.50	5154.16	1423.92 S	3791.43 W	2.80	4046.78
7098.00	39.40	253.50	5203.83	1434.93 S	3828.57 W	4.60	4085.50
7162.00	42.50	253.70	5252.16	1446.77 S	3868.81 W	4.85	4127.42
7225.00	45.50	253.70	5297.47	1459.05 S	3910.81 W	4.76	4171.15
7288.00	47.40	247.50	5340.90	1474.24 S	3953.82 W	7.74	4216.76
7300.00	47.76	247.81	5349.00	1477.60 S	3962.01 W	3.54	4225.59 Mogollon

All data is in feet unless otherwise stated
Coordinates are from slot #24 and TVDs are from wellhead.
Vertical section is from N 0.00 W 0.00 on azimuth 251.70 degrees.
Calculation uses the minimum curvature method.

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	
7420.00	51.40	250.70	5426.80	1509.90 S	4047.44 W	3.54	4316.84	
7515.00	51.30	250.20	5486.13	1534.72 S	4117.35 W	0.42	4391.01	
7610.00	51.10	250.30	5545.66	1559.74 S	4187.03 W	0.23	4465.02	
7767.00	50.60	250.50	5644.78	1600.58 S	4301.73 W	0.33	4586.74	
7926.00	49.70	249.50	5746.67	1642.33 S	4416.44 W	0.74	4708.76	
8084.00	49.00	248.90	5849.59	1684.89 S	4528.50 W	0.53	4828.51	
8242.00	48.20	248.10	5954.08	1728.32 S	4638.77 W	0.63	4946.84	
8401.00	47.60	247.50	6060.68	1772.89 S	4748.00 W	0.47	5064.54	
8560.00	47.10	247.20	6168.40	1817.93 S	4855.92 W	0.34	5181.15	
8725.00	46.08	246.69	6281.79	1864.86 S	4966.22 W	0.65	5300.61	San Cristobal
8755.00	45.90	246.60	6302.63	1873.42 S	4986.03 W	0.65	5322.10	
8912.00	48.20	246.00	6409.60	1919.61 S	5091.24 W	1.49	5436.50	
9071.00	53.30	245.50	6510.17	1970.18 S	5203.46 W	3.22	5558.92	
9192.00	54.00	245.50	6581.88	2010.60 S	5292.14 W	0.58	5655.80	
9350.00	52.60	244.40	6676.31	2064.22 S	5406.90 W	1.05	5781.60	
9509.00	50.90	243.80	6774.74	2118.75 S	5519.22 W	1.11	5905.36	
9667.00	49.70	243.00	6875.67	2173.18 S	5627.92 W	0.85	6025.65	
9825.00	48.80	242.20	6978.80	2228.26 S	5734.19 W	0.69	6143.84	
9883.00	48.39	242.06	7017.16	2248.59 S	5772.65 W	0.74	6186.74	Upper Basal
9951.00	47.90	241.90	7062.54	2272.38 S	5817.36 W	0.74	6236.66	
10009.00	47.70	241.70	7101.50	2292.69 S	5855.22 W	0.43	6278.98	
10103.00	46.80	241.30	7165.30	2325.62 S	5915.88 W	1.01	6346.92	
10198.00	45.80	240.80	7230.94	2358.86 S	5975.98 W	1.12	6414.42	
10293.00	44.20	240.40	7298.11	2391.83 S	6034.51 W	1.71	6480.33	
10387.00	42.60	240.40	7366.41	2423.74 S	6090.66 W	1.70	6543.67	
10482.00	40.60	240.40	7437.44	2454.89 S	6145.50 W	2.11	6605.51	
10577.00	39.50	240.70	7510.16	2484.94 S	6198.73 W	1.18	6665.49	
10673.00	37.70	240.90	7585.19	2514.16 S	6251.01 W	1.88	6724.29	
10742.00	36.90	240.83	7640.07	2534.52 S	6287.53 W	1.16	6765.36	Lower Basal
10768.00	36.60	240.80	7660.91	2542.11 S	6301.11 W	1.16	6780.64	
10861.00	34.70	240.50	7736.47	2568.67 S	6348.36 W	2.05	6833.84	
10957.00	33.10	240.30	7816.15	2595.12 S	6394.91 W	1.67	6886.34	
11051.00	31.90	240.60	7895.43	2620.03 S	6438.85 W	1.29	6935.87	Last MWD Survey

All data is in feet unless otherwise stated
 Coordinates are from slot #24 and TVDs are from wellhead.
 Vertical section is from N 0.00 W 0.00 on azimuth 251.70 degrees.
 Calculation uses the minimum curvature method.

Comments in wellpath

=====

MD	TVD	Rectangular Coords.		Comment
6693.00	4884.67	1368.65 S	3588.59 W	Tie-on Point
7300.00	5349.00	1477.60 S	3962.01 W	Mogollon
8725.00	6281.79	1864.86 S	4966.22 W	San Cristobal
9883.00	7017.16	2248.59 S	5772.65 W	Upper Basal
10742.00	7640.07	2534.52 S	6287.53 W	Lower Basal
11051.00	7895.43	2620.03 S	6438.85 W	Last MWD Survey .

Casing positions in string 'A'

=====

Top MD	Top TVD	Rectangular Coords.		Bot MD	Bot TVD	Rectangular Coords.		Casing
0.00	0.00	0.00N	0.00E	2470.00	2281.51	410.47S	435.09W	Csg. 13 3/8"
0.00	0.00	0.00N	0.00E	6807.00	4972.50	1386.20S	3659.12W	Csg. 9 5/8"

All data is in feet unless otherwise stated
 Coordinates are from slot #24 and TVDs are from wellhead.
 Vertical section is from N 0.00 W 0.00 on azimuth 251.70 degrees.
 Calculation uses the minimum curvature method.

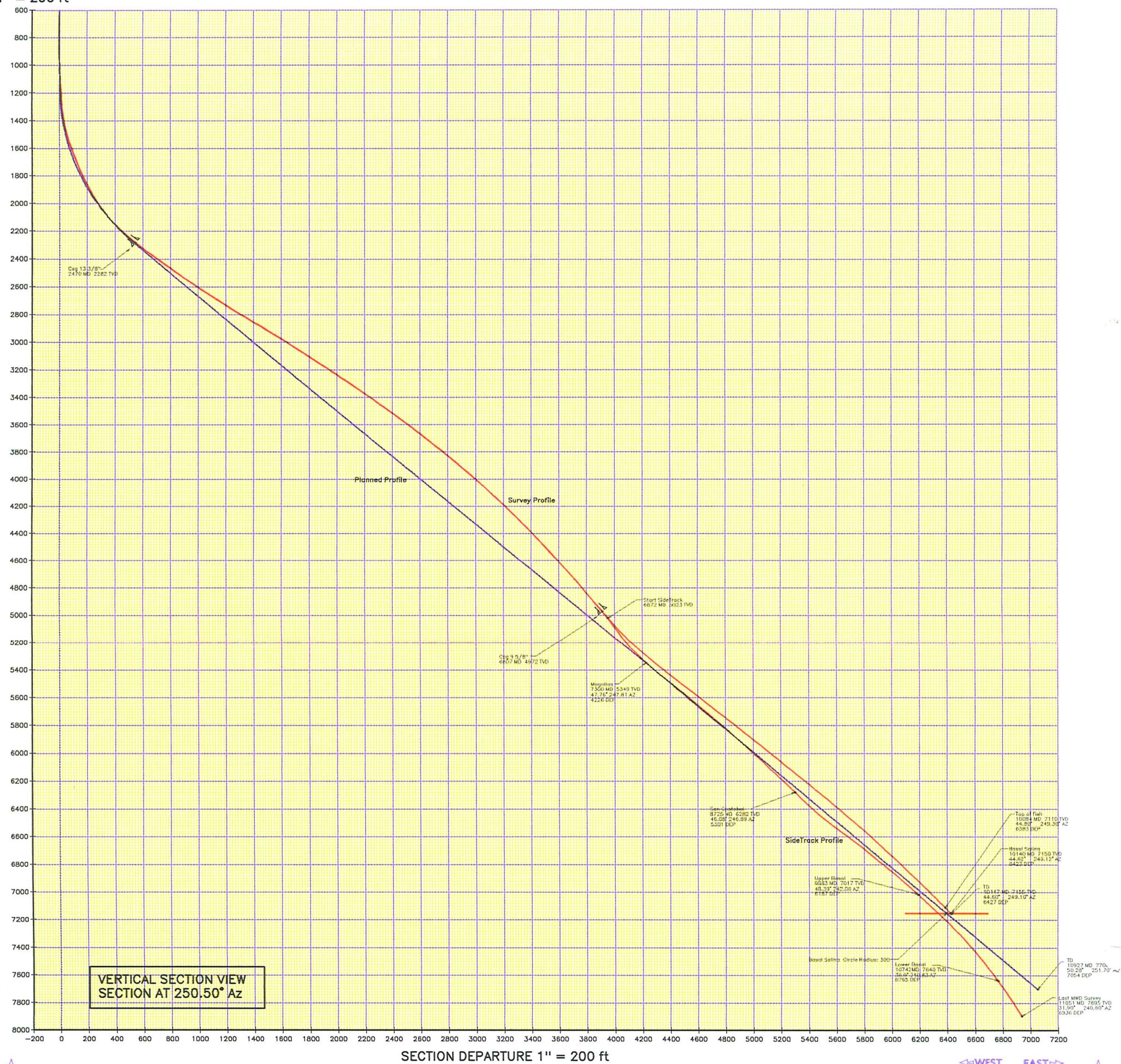


Schlumberger

Anadiri

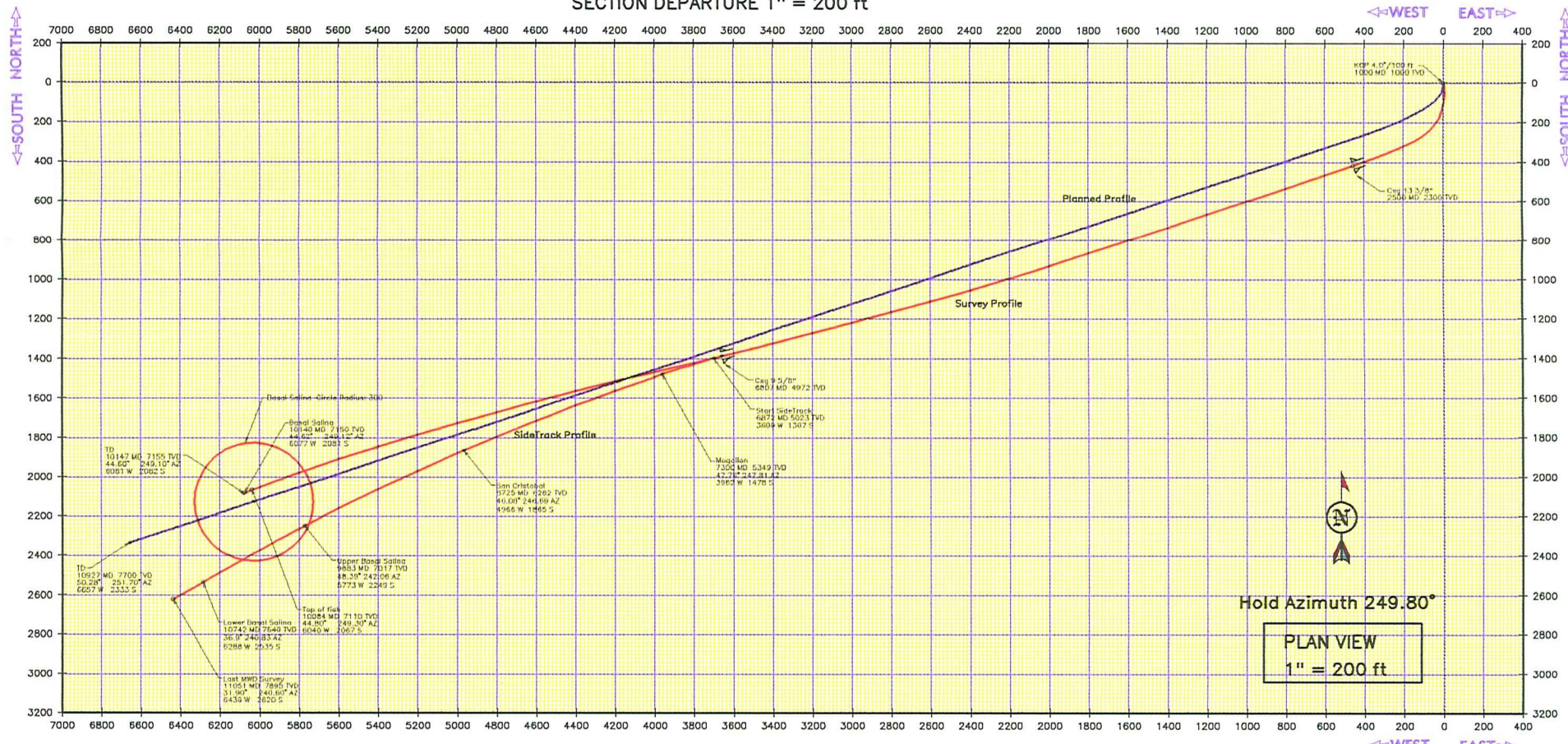
WELL	LO16-24	FIELD	LOBITOS	RIC	Petrex #3
Magnetic Declination	Angle: 2.0208°	FS: 29114.18	Lat: S04°27'57.174"	Surface: Grid E: 459,711.140	Target: Grid E: 457,873.380
Model: IGRF	Dip: 14.8542°	Date: 25-Feb-98	Lon: W81°21'47.371"	Grid N: 9'506,385,919	Grid N: 9'505,549,110
				KB Elevation: 50 ft	Drawn: 31-Mar-98
					Plan#: Rev. #3

TVD
1" = 200 ft



VERTICAL SECTION VIEW
SECTION AT 250.50° Az

SECTION DEPARTURE 1" = 200 ft



Hold Azimuth 249.80°

PLAN VIEW
1" = 200 ft

PETRO-TECH PERUANA S.A.

LOBITOS 16-24

[illegible]

<i>Rig:</i>	PETREX RIG #3	<i>Footage:</i>	1720'	<i>SPP on:</i>	2300	PSI	<i>Inc start:</i>	1.0° PR
<i>Pusher:</i>	MIKE DARWENT	<i>Drlg hrs(*):</i>	44.50	<i>SPP off:</i>	2100	PSI	<i>Inc end:</i>	53.0° PR
<i>Date in:</i>	17-Jan-98	<i>Av. ROP:</i>	38.7'/hr	<i>WOB:</i>	40K	Klbs	<i>Azi start:</i>	112.7° PR
<i>Date out:</i>	20-Jan-98	<i>Rotating ft:</i>	943'	<i>RPM:</i>	50		<i>Azi end:</i>	248.5° PR
<i>DD:</i>	JOHN TAYLOR	<i>Rotating hrs:</i>	22.00	<i>Volume:</i>	800	GPM	<i>BUR plan:</i>	3.35°/100' AVG.
<i>DD:</i>		<i>Steering ft:</i>	777'	<i>Bend °:</i>	1.50°		<i>BUR Calc:</i>	3.15°/100' FROM 1000'
<i>Slim1:</i>	LUIS TENORIO	<i>Steering hrs:</i>	22.50	<i>Survey pt:</i>	58'	FT	<i>Co.Rep:</i>	GUILLERMO RUESTA
<i>Slim1:</i>	G. SOTO / R. BERMUDEZ	<i>R/S Config:</i>	5 / 6	<i>T-B-G:</i>	2-E-IN		<i>Co.Rep:</i>	OSWALDO PACHAS

BHA expected behavior: BUILD ANGLE @ AVERAGE OF 3.35°/100' TO 50.28°. START WITH AZIMUTH OF 180° FOR ANTI-COLLISION PURPOSES. THEN TURN TO PLANNED AZIMUTH OF 251°.

BHA actual behavior: AS EXPECTED.

Comments: STARTED NUDGING WELL @ 750' FOR ANTI-COLLISION PURPOSES. HAD 5.5° OF INCLINATION IN HOLE WHEN STARTED CURVE. NO PROBLEMS W/ MAGNETIC INTERFERENCE. HAD PROBLEMS GETTING STARTED TURNING TO RIGHT, BUT OK AFTER TREND INITIATED. SOME MWD VIBRATION PROBLEMS BETWEEN 6° & 12°.

PETRO-TECH PERUANA S.A.

LOBITOS 16-24

BHA & TRIP DATA SHEET			Depth in: 2475'	Depth out: 3517'	JOB #98-001			BHA #2	
ITEM	Description	Vendor	Serial #	Stb O.D.	F. N.	OD / ID	Conn	Length	Cum
1	BIT TYPE: AG526	HTC	0400942		3 x 20 2 x 18	12 1/4"		1.18	1.18
2	NB STB	ANADRILL	771719	12 1/4"	2.32	8 1/2"	6 5/8 R B	5.57	6.75
3	PONY DC	ANADRILL	9850-5			2 7/8"	6 5/8 R B		
4	STB	ANADRILL	9857-1	11 3/4"	2.39	8 1/8"	6 5/8 R P	11.59	18.34
5	UBHO	ANADRILL	12052-8			3"	6 5/8 R B		
6	NMDC	ANADRILL	K869			8"	6 5/8 R P	5.51	23.85
7	STB	ANADRILL	13421-1	12 1/4"	2.33	2 7/8"	6 5/8 R B		
8	NMDC	ANADRILL	7978			8 1/16"	6 5/8 R P	2.28	26.13
9	3 x 8" DC	PETREX				3"	6 5/8 R B		
10	FLEX JOINT	ANADRILL	124776			8"	6 5/8 R P	30.56	56.69
11	EQ JARS	ANADRILL	125168			3"	6 5/8 R B		
12	X/O	PETREX				7 15/16"	6 5/8 R P	5.68	62.37
13	9 x 6 1/2" DC	PETREX				2 7/8"	6 5/8 R B		
14	X/O	PETREX				8"	6 5/8 R P	30.52	92.89
15	21 HWDP	PETREX				3"	6 5/8 R B		
16						7 7/8"	6 5/8 R P	90.29	183.18
17						3"	6 5/8 R B		
18						5 3/4"	6 5/8 R P	9.08	192.26
19						3 1/2"	6 5/8 R B		
						7 3/4"	6 5/8 R P	22.85	215.11
						3"	6 5/8 R B		
					1.11	7 7/8"	6 5/8 R P	2.60	217.71
					6 1/2"	2 3/4"	4 1/2 XH B		
						6 3/16"	4 1/2 XH P	266.65	484.36
						2 7/8"	4 1/2 XH B		
						6 3/8"	4 1/2 XH P	1.92	486.28
						2 15/16"	4 1/2 IF B		
						5"	4 1/2 IF P	650.11	1136.39
						3"	4 1/2 IF B		

Rig:	PETREX RIG #3	Footage:	1042'	SPP on:	1750	PSI	Inc start:	53.0° PR
Pusher:	MIKE DARWENT	Drlg hrs(*):	11.00	SPP off:	N/A	PSI	Inc end:	59.0° PR
Date in:	22-Jan-98	Av. ROP:	94.7'/hr	WOB:	12/20	Klbs	Azi start:	250.0° PR
Date out:	23-Jan-98	Rotating ft:	1042'	RPM:	130		Azi end:	251.0° PR
DD:	JOHN TAYLOR	Rotating hrs:	11.00	Volume:	700	GPM	BUR plan:	N/A
DD:		Steering ft:	N/A	Bend °:	N/A		BUR Calc:	N/A
Slim1:	LUIS TENORIO	Steering hrs:	N/A	Survey pt:	42'	FT	Co.Rep:	GUILLERMO RUESTA
Slim1:	G. SOTO / R. BERMUDEZ	R/S Config:	N/A	T-B-G:	SAME		Co.Rep:	OSWALDO PACHAS

BHA expected behavior: HOLD ANGLE & AZIMUTH TO 9 5/8" CASING POINT.

BHA actual behavior: ASSEMBLY AVERAGED .56°/100' BUILD AND HELD AZIMUTH.

Comments: ASSEMBLY STARTED OFF BUILDING @ +.7°/100'. TAPERER OFF TO .5°/100' BUILD AT END OF RUN.

THIS ASSEMBLY WOULD PROBABLY HAVE ENDED UP HOLDING ANGLE IF WE COULD HAVE KEPT DRILLING. TRIED DIFFERENT PARAMETERS TO ARREST BUILD, WITH LITTLE SUCCESS. POH TO P/U DROP ASSEMBLY.

PETRO-TECH PERUANA S.A.

LOBITOS 16-24

BHA & TRIP DATA SHEET			Depth in: 3517'	Depth out: 5952'	JOB #98-001			BHA #3	
ITEM	Description	Vendor	Serial #	Stb O.D.	F. N.	OD / ID	Conn	Length	Cum
1	BIT TYPE: AG526	HTC	0400942		3 x 20 2 x 18	12 1/4"		1.18	1.18
2	NB STB	ANADRILL	771719	12 1/4"	2.32	8 1/2"	6 5/8 R B	5.57	6.75
3	PONY DC	ANADRILL	9850-5			2 7/8"	6 5/8 R B		
4	STB	ANADRILL	25650	12 1/4"	1.94	8 1/8"	6 5/8 R P	11.59	18.34
5	UBHO	ANADRILL	12052-8			3"	6 5/8 R B		
6	NMDC	ANADRILL	K869			7 3/4"	6 5/8 R P	5.31	23.65
7	STB	ANADRILL	13421-1	12 1/4"	2.33	2 7/8"	6 5/8 R B		
8	NMDC	ANADRILL	7978			8"	6 5/8 R P	2.28	25.93
9	3 x 8" DC	PETREX				2 7/8"	6 5/8 R B		
10	FLEX JOINT	ANADRILL	124776			8 1/16"	6 5/8 R P	30.56	56.49
11	EQ JARS	ANADRILL	125168			3"	6 5/8 R B		
12	X/O	PETREX			1.11 6 1/2"	8"	6 5/8 R P	5.68	62.17
13	9 x 6 1/2" DC	PETREX				2 7/8"	6 5/8 R B		
14	X/O	PETREX				7 15/16"	6 5/8 R P	90.29	182.98
15	21 HWDP	PETREX				3"	6 5/8 R B		
16						5 3/4"	6 5/8 R P	9.08	192.06
17						3 1/2"	6 5/8 R B		
18						7 3/4"	6 5/8 R P	22.85	214.91
19						3"	6 5/8 R B		

Rig:	PETREX RIG #3	Footage:	2435'	SPP on:	2500	PSI	Inc start:	59.0° PR
Pusher:	MIKE DARWENT	Drig hrs(*):	33.00	SPP off:	N/A	PSI	Inc end:	44.5° PR
Date in:	23-Jan-98	Av. ROP:	73.8'/hr	WOB:	25K	Klbs	Azi start:	251.0° PR
Date out:	27-Jan-98	Rotating ft:	2435'	RPM:	100/130		Azi end:	256.5° PR
DD:	JOHN TAYLOR	Rotating hrs:	33.00	Volume:	700	GPM	BUR plan:	N/A
DD:		Steering ft:	N/A	Bend °:	N/A		BUR Calc:	N/A
Slim1:	LUIS TENORIO	Steering hrs:	N/A	Survey pt:	42'	FT	Co.Rep:	RICARDO GILABERT
Slim1:	G. SOTO / R. BERMUDEZ	R/S Config:	N/A	T-B-G:	10% WEAR/IN		Co.Rep:	FRANKLIN CORDOVA

BHA expected behavior: DROP ANGLE & HOLD AZIMUTH TO 9 5/8" CASING POINT.

BHA actual behavior: ASSEMBLY DROPPED .73°/100' AND WE ENDED UP WITH 6° OF RH WALK.

Comments: ASSEMBLY DROPPED A LITTLE FASTER THAN EXPECTED. WANTED TO AVERAGE .4° TO .5° DROP / 100'.

THIS WAS THE INITIAL DROP, BUT IT INCREASED AS WE GOT DEEPER. DIP ANGLE OF TOOL WAS 16+ WHEN IT SHOULD HAVE BEEN 14°. THIS CONTRIBUTED TO RH WALK. HEAVY SEAS FLOODED SCR HOUSE WHILE DRILLING AND CUT POWER. BIT SET ON BOTTOM WHILE WE RESTORED POWER. POH TO CHECK BIT & TOOLS. TRIP OUT A BITCH.

PETRO-TECH PERUANA S.A.

LOBITOS 16-24

BHA & TRIP DATA SHEET			Depth in:	5952'	Depth out:	6807'	JOB #98-001		BHA #4
ITEM	Description	Vendor	Serial #	Stb O.D.	F. N.	OD / ID	Conn	Length	Cum
1	BIT TYPE: AG526	HTC	0400942		5 x 20	12 1/4"	6 5/8 R P	1.18	1.18
2	NB STB	ANADRILL	771719	12 1/4"	2.32	8 1/2"	6 5/8 R B	5.57	6.75
						2 7/8"	6 5/8 R B		
3	PONY DC	ANADRILL	9850-5			8 1/8"	6 5/8 R P	11.59	18.34
						3"	6 5/8 R B		
4	STB	ANADRILL	9857-1	11 3/4"	2.39	8"	6 5/8 R P	5.51	23.85
						2 7/8"	6 5/8 R B		
5	UBHO	ANADRILL	12052-8			8"	6 5/8 R P	2.28	26.13
						2 7/8"	6 5/8 R B		
6	NMDC	ANADRILL	K869			8 1/16"	6 5/8 R P	30.56	56.69
						3"	6 5/8 R B		
7	STB	ANADRILL	13421-1	12 1/4"	2.33	8"	6 5/8 R P	5.68	62.37
						2 7/8"	6 5/8 R B		
8	NMDC	ANADRILL	7978			8"	6 5/8 R P	30.52	92.89
						3"	6 5/8 R B		
9	3 x 8" DC	PETREX				7 15/16"	6 5/8 R P	90.29	183.18
						3"	6 5/8 R B		
10	FLEX JOINT	ANADRILL	115987			5 3/4"	6 5/8 R P	9.20	192.38
						3 1/2"	6 5/8 R B		
11	EQ JARS	ANADRILL	124058			7 5/8"	6 5/8 R P	22.10	214.48
						3"	6 5/8 R B		
12	X/O	PETREX			1.11 6 1/2"	7 7/8"	6 5/8 R P	2.60	217.08
						2 3/4"	4 1/2 XH B		
13	9 x 6 1/2" DC	PETREX				6 3/16"	4 1/2 XH P	266.65	483.73
						2 7/8"	4 1/2 XH B		
14	X/O	PETREX				6 3/8"	4 1/2 XH P	1.92	485.65
						2 15/16"	4 1/2 IF B		
15	21 HWDP	PETREX				5"	4 1/2 IF P	650.11	1135.76
						3"	4 1/2 IF B		
16									
17									
18									
19									

Rig:	PETREX RIG #3	Footage:	855'	SPP on:	2500	PSI	Inc start:	44.5° PR
Pusher:	ADOLFO RIMAC	Drig hrs(*):	15.00	SPP off:	N/A	PSI	Inc end:	39.0° PR
Date in:	27-Jan-98	Av. ROP:	57'/hr	WOB:	28K	Klbs	Azi start:	255.5° PR
Date out:	30-Jan-98	Rotating ft:	855'	RPM:	120		Azi end:	256.5° PR
DD:	JOHN TAYLOR	Rotating hrs:	15.00	Volume:	650	GPM	BUR plan:	N/A
DD:		Steering ft:	N/A	Bend °:	N/A		BUR Calc:	N/A
Slim1:	LUIS TENORIO	Steering hrs:	N/A	Survey pt:	42'	FT	Co.Rep:	RICARDO GILABERT
Slim1:	G. SOTO / R. BERMUDEZ	R/S Config:	N/A	T-B-G:	15% WEAR		Co.Rep:	FRANKLIN CORDOVA

BHA expected behavior: BUILD ANGLE SLOWLY TO 9 5/8" CASING POINT.

BHA actual behavior: ASSEMBLY AVERAGED .57°/100' DROP & DISPLAYED SLIGHT RH WALK.

Comments: MOGOLLON CAME IN HIGH, SO ENDED SECTION EARLY. EXPECTED SLIGHT BUILD OUT OF ASSEMBLY, BUT GOT SLIGHT DROP INSTEAD. HAD 13 HOURS DOWN TIME FOR RIG REPAIR DURING RUN. TRIPPED FOR WASHOUT WHEN ARRIVED AT BOTTOM ORIGINALLY. FOUND HOLE IN DRILLPIPE. POH @ 9 5/8" CASING POINT.

PETRO-TECH PERUANA S.A.

LOBITOS 16-24

BHA & TRIP DATA SHEET			Depth in: 6812'	Depth out: 7366'	JOB #98-001			BHA #5	
ITEM	Description	Vendor	Serial #	Stb O.D.	F. N.	OD / ID	Conn	Length	Cum
1	BIT TYPE: M 88	SMITH	JR3310		3 x 15 3 x 14	8 1/2"		1.00	1.00
							4 1/2 R P		
2	NB STB	ANADRILL	771720	8 1/2"	2.27	6 3/4"	4 1/2 R B	5.45	6.45
						2 7/8"	4 1/2 IF B		
3	FLOAT SUB	ANADRILL	14637-13			6 3/4"	4 1/2 IF P	2.61	9.06
						2 13/16"	4 1/2 IF B		
4	PONY DC	ANADRILL	9851-8			6 1/2"	4 1/2 IF P	11.27	20.33
						2 15/16"	4 1/2 IF B		
5	UBHO	ANADRILL	14128-5			6 13/16"	4 1/2 IF P	2.29	22.62
						2 13/16"	4 1/2 IF B		
6	NMDC	ANADRILL	8807			6 3/4"	4 1/2 IF P	30.71	53.33
						2 7/8"	4 1/2 IF B		
7	STB	ANADRILL	771728	8 1/2"	2.31	6 3/4"	4 1/2 IF P	5.10	58.43
						2 7/8"	4 1/2 IF B		
8	NMDC	ANADRILL	8799			6 3/4"	4 1/2 IF P	30.63	89.06
						2 7/8"	4 1/2 IF B		
9	STB	ANADRILL	771732	8 1/2"	2.22	6 3/4"	4 1/2 IF P	5.09	94.15
						2 7/8"	4 1/2 IF B		
10	X/O	ANADRILL	9858-2			6 1/2"	4 1/2 IF P	1.86	96.01
						2 15/16"	4 1/2 XH B		
11	9 x 6 1/2" DC	PETREX				6 3/16"	4 1/2 XH P	266.65	362.66
						2 7/8"	4 1/2 XH B		
12	X/O	PETREX				6 3/8"	4 1/2 XH P	1.92	364.58
						2 15/16"	4 1/2 IF B		
13	6 HWDP	PETREX				5 "	4 1/2 IF P	185.75	550.33
						3 "	4 1/2 IF B		
14	FLEX JOINT	ANADRILL	960402			4 1/2"	4 1/2 IF P	11.15	561.48
						2 3/4"	4 1/2 IF P		
15	EQ JARS	ANADRILL	961462			6 1/2"	4 1/2 IF B	23.38	584.86
						2 1/4"	4 1/2 IF B		
16	15 HWDP	PETREX				5 "	4 1/2 IF P	464.36	1049.22
						3 "	4 1/2 IF B		
17									
18									
19									

Rig:	PETREX RIG #3	Footage:	554'	SPP on:	2600	PSI	Inc start:	39.0° PR
Pusher:	ADOLFO RIMAC	Drig hrs(*):	15.50	SPP off:	N/A	PSI	Inc end:	52.5° PR
Date in:	2-Feb-98	Av. ROP:	35.7'/hr	WOB:	22	Klbs	Azi start:	256.5° PR
Date out:	3-Feb-98	Rotating ft:	554'	RPM:	100		Azi end:	256.7° PR
DD:	JOHN TAYLOR	Rotating hrs:	15.50	Volume:	589	GPM	BUR plan:	N/A
DD:		Steering ft:	N/A	Bend °:	N/A		BUR Calc:	N/A
Slim1:	LUIS TENORIO	Steering hrs:	N/A	Survey pt:	38'	FT	Co.Rep:	GUILLERMO RUESTA
Slim1:	G. SOTO / R. BERMUDEZ	R/S Config:	N/A	T-B-G:	NEW/IN		Co.Rep:	OSWALDO PACHAS

BHA expected behavior: BUILD ANGLE AT 2.0° TO 3.0°/100'.

BHA actual behavior: ASSEMBLY AVERAGED 2.4°/100' BUILD AND ESSENTIALLY HELD AZIMUTH.

Comments: EXPERIENCED SAME PROBLEMS WITH DIP ANGLE THIS RUN AS WE HAD WITH BHA #3 IN 12 1/4" HOLE

SECTION. MWD GIVING DIP ANGLE OF 17°+ INSTEAD OF 14.8° THAT IS CORRECT FOR THIS AREA. THIS SWUNG US

3° TO RIGHT & TOOK US OUT OF TARGET. WILL RE-SURVEY WITH NEW TOOL ON NEXT RUN. POH FOR HOLD/SLIGHT

DROP ASSEMBLY.

PETRO-TECH PERUANA S.A.

LOBITOS 16-24

BHA & TRIP DATA SHEET			Depth in: 7366'	Depth out: 10206'	JOB #98-001			BHA #6	
ITEM	Description	Vendor	Serial #	Stb O.D.	F. N.	OD / ID	Conn	Length	Cum
1	BIT TYPE: M 88	SMITH	JR3310		3 x 15 3 x 14	8 1/2"		1.00	1.00
2	NB STB	ANADRILL	771720	8 1/2"	2.27	6 3/4"	4 1/2 R B	5.45	6.45
3	FLOAT SUB	ANADRILL	14637-13			2 7/8"	4 1/2 IF B		
4	PONY DC	ANADRILL	9851-8			6 3/4"	4 1/2 IF P	2.61	9.06
5	STB	ANADRILL	771730	8 1/4"	2.30	2 13/16"	4 1/2 IF B		
6	UBHO	ANADRILL	14128-5			6 1/2"	4 1/2 IF P	11.27	20.33
7	NMDC	ANADRILL	8807			2 15/16"	4 1/2 IF B		
8	STB	ANADRILL	771728	8 1/2"	2.31	6 11/16"	4 1/2 IF P	5.07	25.40
9	NMDC	ANADRILL	8799			2 7/8"	4 1/2 IF B		
10	X/O	ANADRILL	9858-2			6 13/16"	4 1/2 IF P	2.29	27.69
11	9 x 6 1/2" DC	PETREX				2 13/16"	4 1/2 IF B		
12	X/O	PETREX				6 3/4"	4 1/2 IF P	30.71	58.40
13	6 HWDP	PETREX				2 7/8"	4 1/2 IF B		
14	FLEX JOINT	ANADRILL	960402			6 3/4"	4 1/2 IF P	5.10	63.50
15	EQ JARS	ANADRILL	961462			2 7/8"	4 1/2 IF B		
16	15 HWDP	PETREX				6 3/4"	4 1/2 IF P	30.63	94.13
17						2 7/8"	4 1/2 IF B		
18						6 1/2"	4 1/2 IF P	1.86	95.99
19						2 15/16"	4 1/2 XH B		
						6 3/16"	4 1/2 XH P	266.65	362.64
						2 7/8"	4 1/2 XH B		
						6 3/8"	4 1/2 XH P	1.92	364.56
						2 15/16"	4 1/2 IF B		
						5"	4 1/2 IF P	185.75	550.31
						3"	4 1/2 IF B		
						4 1/2"	4 1/2 IF P	11.15	561.46
						2 3/4"	4 1/2 IF P		
						6 1/2"	4 1/2 IF B	23.38	584.84
						2 1/4"	4 1/2 IF B		
						5"	4 1/2 IF P	464.36	1049.20
						3"	4 1/2 IF B		

Rig:	PETREX RIG #3	Footage:	2840'	SPP on:	3000	PSI	Inc start:	52.5° PR
Pusher:	ADOLFO RIMAC	Drig hrs(*):	115.50	SPP off:	N/A	PSI	Inc end:	44.4° PR
Date in:	3-Feb-98	Av. ROP:	24.6'/hr	WOB:	20/25	Klbs	Azi start:	256.7° PR
Date out:	9-Feb-98	Rotating ft:	2840'	RPM:	80/120		Azi end:	249.1° PR
DD:	JOHN TAYLOR	Rotating hrs:	115.50	Volume:	518/589	GPM	BUR plan:	N/A
DD:		Steering ft:	N/A	Bend °:	N/A		BUR Calc:	N/A
Slim1:	LUIS TENORIO	Steering hrs:	N/A	Survey pt:	43'	FT	Co.Rep:	RUESTA/GILABERT
Slim1:	G. SOTO / R. BERMUDEZ	R/S Config:	N/A	T-B-G:	% WEAR/IN		Co.Rep:	PACHAS/PINTO

BHA expected behavior: HOLD OR DROP ANGLE SLOWLY TO TARGET.

BHA actual behavior: AS EXPECTED. ASSEMBLY AVERAGED .29° DROP PER 100' AND WALKED LEFT .29°/100'

Comments: DIP ANGLE 16.5 THIS RUN. ADJUSTED AZIMUTH 2° TO LEFT TO COMPENSATE. LH WALK WAS JUST WHAT THE DOCTOR ORDERED FOR THIS RUN. ASSEMBLY VIRTUALLY HELD ANGLE (DROPPED 1°) FIRST 1200'.

POH F/ BIT & ROP AFTER ENTERING BASAL SALINA. ANADRILL RELEASED.

Anadrill Personnel on the rig:		
L. TENORIO G. SOTO	DD MWD MWD	FELIX VICUNA R. BERMUDEZ
Operator Representatives:		
GUILLERMO RUESTA OSWALDO PACHAS		
CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY		

Schlumberger		Anadrill	17-Jan 1998	
		Peru Morning Report		
Company PETRO-TECH PERUANA S.A.		as of 2400 hrs.		
Rig	PETREX RIG #3	JOB #98-001		
Well	LOBITOS 16-24			
BHA #	1	MWD/S LIM1	RUN #1	RUN #
A962 PowerPak	#01112	Tools Hrs.	10.0	
Bent Housing°	1.50°	Cum. Hours	10.0	
Pad/Stab OD	16 3/4"	Tool Mode	2239	
Drig Hrs	5.00	Pulser Config.	L14	
Circ. Hrs.	0.00	Last Batt.Volt.	50	
Cum. Drig Hrs	5.00	SLIM TOTAL HRS: 10.0		
Cum. Circ. Hrs	0.00	Assy. Part Code		
Cum. Ftg	295'	SMA	213	
TOTAL PDM HRS	5.00	SMC		
Depth In	750'	SEA	005	
Depth Out		SMC		
PSI on BTM	1950	SBA	80559	
PSI off BTM	1750	SGR		
WOB	40K	SMC		
RFM	50	SSL		
GFM	800	Comments:		
Hook Load	80K			
P/U weight	85K			
S/O weight	75K			
BHA #1		BHA #		
17" BIT	1.37			
9 5/8" MOTOR	26.32			
X/O	1.50			
PONY NMDC	10.65			
UBHO	2.13			
NMDC	30.56			
NMDC	30.52			
3 x 8" DC	90.29			
FLEX JOINT	9.08			
7 3/4" EQ JARS	22.85			
X/O	2.60			
9 x 6 1/2" DC	266.65			
X/O	1.92			
Total	496.44	Total	0.00	
MUD TYPE	BENTONITE		Bit N°	1
Weight 9.3	Fan Viscosity 43	Plastic Visc. 12	Size	17"
Yield Point 13	Water Loss 10.0	PH 9.0	Make	HTC
Solid 8.7%	MBT 18.0	Oil 0%	Type	GTX 1
Sand % 0.50%	KCl 12.0	Tot Hardness 1803.5	Depth in	750'
Brine % 92.6%	T° 80°F	Slim Temp °F 104°F	Depth out	
			Hours	5.0
			Footage	295'
			ROP / Avg.	59'/hr
			Nozzles(TFA)	2 x 20 / 1 x 22
			T/B/G	
RESUME FOR THIS WELL (to charge)				
Engineers (days)	2	SLIM ST BY (days)	1	
Tools (monthly)		SLIM OPER. (days)	1	
PDM 9 5/8" (hrs)	5.00	GR ST BY (days)		
PDM 8" (hrs)		GR OPER. (days)		
PDM 6 3/4" (hrs)				
Drilling Jar EQ #125168				
Size	7 3/4"			
Daily Rotating	3.50			
Cum Rotating	3.50			
Time Breakdown with Comments				
Time	Hrs	Code	Comments	
0000-1200	12.00	S	ANADRILL STANDING BY WHILE RIG RIH W/ DRILL OUT ASSEMBLY. DRILL CEMENT & NEW FORMATION TO 750'. CIRCULATE & POH TO P/U KICK-OFF ASSEMBLY.	
1200-1600	4.00	T	PICK UP MOTOR, NMDC's, ETC FOR BHA #1. RIH TO 690'.	
1600-1630	0.50	T	SURVEY FOR WELL INFO & MWD TEST.	
1630-1700	0.50	T	RIH TO 750' W/ BHA #1.	
1700-1830	1.50	T	FIND OUT WE NEED TO CONDITION MUD IN PITs. POH TO SHOE AND CONDITION MUD IN PITs.	
1830-1900	0.50	T	RIH AND SURVEY ON BOTTOM.	
1900-2400	5.00	D	ROTATE & SLIDE 750' TO 1045' FOR NUDGE (ASSIST IN AVOID-ING NEARBY WELLBORES).	
LAST SURVEY: 933' / 4.3° inc. / 184.2° azi.				
NEXT OPERATION CONTINUE TO BUILD CURVE				
Comments: ANADRILL OPERATING				
ANADRILL DD ARRIVES RIG 1015 HRS.				
MOTORS ON RIG: 01112 (9 5/8" 5/6 IN HOLE) 01158 (8" 7/8 STANDING BY)				
JARS ON RIG: 124058 (7 3/4" EQ STANDING BY) 125168 (7 3/4" EQ IN HOLE)				
Anadrill Personnel on the rig:				
JOHN TAYLOR	DD	FELIX VICUNA		
L. TENORIO	MWD	R. BERMUDEZ		
G. SOTO	MWD			
Operator Representatives:				
GUILLERMO RUESTA OSWALDO PACHAS				
CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY				

Schlumberger		Anadrill		18-Jan 1998	
Company		PETRO-TECH PERUANA S.A.			
Rig		PETREX RIG #3			
Well		LOBITOS 16-24			
Peru Morning Report		as of 2400 hrs.			
JOB #98-001					
Report N°		3		Depth @ 2400 Hrs. 1818'	
Spud Date		15-Jan		Ftg. Last 24 Hrs. 773'	
Days from KOP		1		Total Footage 1068'	
BHA #		1			
A962 PowerPak		#01112			
Bent Housing°		1.50°			
Pad/Stab OD		16 3/4"			
Drig Hrs		20.50			
Circ. Hrs.		0.50			
Cum. Drig Hrs		25.50			
Cum. Circ. Hrs		0.50			
Cum. Ftg		1068'			
TOTAL PDM HRS		26.00			
Depth In		750'			
Depth Out					
PSI on BTM		2100			
PSI off BTM		1900			
WOB		40K			
RFM		50			
GFM		800			
Hook Load		88K			
P/U weight		90K			
S/O weight		85K			
MWD/S LIM1		RUN #1		RUN #	
Tools Hrs.		24.0			
Cum. Hours		34.0			
Tool Mode		2239			
Pulser Config.		L14			
Last Batt.Volt.		50			
SLIM TOTAL HRS: 34.0					
Assy. Part Code					
SMA		213			
SMC					
SEA		005			
SMC					
SBA		80559			
SGR					
SMC					
SSL					
Comments:					
Total		1,146.55		Total 0.00	
MUD TYPE		BENTONITE			
Weight		Fan Viscosity		Plastic Visc.	
8.7		45		10	
Yield Point		Water Loss		FH	
14		16.0		8.5	
Solid		MBT		Oil	
4.8%		20.0		0%	
Sand %		KCl		Tot Hardness	
1.00%		4.0		1603.1	
Brine %		T°		Slim Temp °F	
96.8%		85° F		112° F	
Bit N°		1			
Size		17"			
Make		HTC			
Type		GTX 1			
Depth in		750'			
Depth out					
Hours		25.5			
Footage		1068'			
ROP / Avg.		41.9'/hr			
Nozzles(TFA)		2 x 20 / 1 x 22			
T/B/G					
RESUME FOR THIS WELL (to charge)					
Engineers (days)		3		SLIM ST BY (days) 1	
Tools (monthly)				SLIM OPER. (days) 2	
PDM 9 5/8" (hrs)		26.00		GR ST BY (days)	
PDM 8" (hrs)				GR OPER. (days)	
PDM 6 3/4" (hrs)					
Drilling Jar		EQ #125168			
Size		7 3/4"			
Daily Rotating		10.00			
Cum Rotating		13.50			
Comments: ANADRILL OPERATING					
MOTORS ON RIG:		01112 (9 5/8" 5/6 IN HOLE)			
		01158 (8" 7/8 STANDING BY)			
JARS ON RIG:		124058 (7 3/4" EQ STANDING BY)			
		125168 (7 3/4" EQ IN HOLE)			
Anadrill Personnel on the rig:					
JOHN TAYLOR		DD			
L. TENORIO		MWD			
G. SOTO		MWD		R. BERMUDEZ	
Operator Representatives:					
GUILLERMO RUESTA					
OSWALDO PACHAS					
CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY					
Time Breakdown with Comments					
Time		Hrs		Code	
0000-1030		10.50		D	
1030-1130		1.00		S	
1130-1800		6.50		D	
1800-1830		0.50		C	
1830-2030		2.00		T	
2030-2400		3.50		D	
24.00					
LAST SURVEY:		1720' / 24.5° inc. / 220.9° azi.			
NEXT OPERATION		CONTINUE TO BUILD CURVE			

Schlumberger

Anadrill

19-Jan 1998

Company	PETRO-TECH PERUANA S.A.
Rig	PETREX RIG #3
Well	LOBITOS 16-24

Peru Morning Report

as of 2400 hrs.

JOB #98-001

Report N°	4	Depth @ 2400 Hrs.	2470'
Spud Date	15-Jan	Ftg. Last 24 Hrs.	652'
Days from KOP	2	Total Footage	1720'

BHA #	1
A962 PowerPak	#01112
Bent Housing°	1.50°
Pad/Stab OD	16 3/4"
Drig Hrs	19.00
Circ. Hrs.	1.00
Cum. Drig Hrs	44.50
Cum. Circ. Hrs	1.50
Cum. Ftg	1720'
TOTAL PDM HRS	46.00
Depth In	750'
Depth Out	2470'
PSI on BTM	2300
PSI off BTM	2100
WOB	40K
PPM	50
GPM	800
Hook Load	88K
P/U weight	90K
S/O weight	85K

MWD/S LIM1	RUN #1	RUN #
Tools Hrs.	24.0	
Cum. Hours	58.0	
Tool Mode	2239	
Pulser Config.	L14	
Last Batt.Volt.	50	
SLIM TOTAL HRS: 58.0		
Assy. Part Code		
SMA	213	
SMC		
SEA	005	
SMC		
SBA	80559	
SGR		
SMC		
SSL		
Comments:		

BHA #1		BHA #	
17" BIT	1.37		
9 5/8" MOTOR	26.32		
X/O	1.50		
PONY NMDC	10.65		
UBHO	2.13		
NMDC	30.56		
NMDC	30.52		
3 x 8" DC	90.29		
FLEX JOINT	9.08		
7 3/4" EQ JARS	22.85		
X/O	2.60		
9 x 6 1/2" DC	266.65		
X/O	1.92		
21 HWDP	650.11		
Total	1,146.55	Total	0.00

MUD TYPE	BENTONITE	
Weight	Fan Viscosity	Plastic Visc.
9.4	54	23
Yield Point	Water Loss	FH
18	2.0	8.5
Solid	MBT	Oil
1.6%	22.0	0%
Sand %	KCl	Tot Hardness
0.50%	4.0	1763.4
Brine %	T°	Slim Temp °F
95.80%	118° F	127° F

Bit N°	1
Size	17"
Make	HTC
Type	GTX 1
Depth in	750'
Depth out	2470'
Hours	44.5
Footage	1720'
ROP / Avg.	38.7"/hr
Nozzles(TFA)	2 x 20 / 1 x 22
T/B/G	SIH

RESUME FOR THIS WELL (to charge)			
Engineers (days)	4	SLIM ST BY (days)	1
Tools (monthly)		SLIM OPER. (days)	3
PDM 9 5/8" (hrs)	46.00	GR ST BY (days)	
PDM 8" (hrs)		GR OPER. (days)	
PDM 6 3/4" (hrs)			

Drilling Jar	EQ #125168
Size	7 3/4"
Daily Rotating	9.00
Cum Rotating	22.50

Time Breakdown with Comments			
Time	Hrs	Code	Comments
0000-0500	5.00	D	SLIDE & ROTATE 1818' TO 2001'.
0500-0630	1.50	S	RIG REPAIR (BRUSHES ON MOTOR FOR MP #1).
0630-2030	14.00	D	SLIDE & ROTATE 2001' TO 2470'.
THIS IS END OF CURVE & END OF 17" HOLE SECTION			
2030-2130	1.00	C	CIRCULATE PRIOR TO TRIP. PUMP VISCOUS PILL.
2130-2400	2.50	T	POH W/ BHA #1 @ END OF 17" HOLE SECTION.
24.00			
LAST SURVEY: 2352' / 48.3° inc. / 249.3° azi.			
NEXT OPERATION CONTINUE TO BUILD CURVE			

Comments: ANADRILL OPERATING

MOTORS ON RIG: 01112 (9 5/8" 5/6 IN HOLE)
01158 (8" 7/8 STANDING BY)
JARS ON RIG: 124058 (7 3/4" EQ STANDING BY)
125168 (7 3/4" EQ IN HOLE)

Anadrill Personnel on the rig:		
JOHN TAYLOR	DD	
L. TENORIO	MWD	
G. SOTO	MWD	R. BERMUDEZ
Operator Representatives:		
GUILLERMO RUESTA		
OSWALDO PACHAS		
CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY		

Schlumberger		Anadrill		20-Jan	1998
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Company	PETRO-TECH PERUANA S.A.	Peru Morning Report		Report N°	5	Depth @ 2400 Hrs.	2470'
Rig	PETREX RIG #3			Spud Date	15-Jan	Ftg. Last 24 Hrs.	0'
Well	LOBITOS 16-24			Days from KOP	3	Total Footage	1720'

BHA #	1	MWD/S LIM1	RUN #1	RUN #	BHA #1		BHA #	
A962 PowerPak	#01112	Tools Hrs.	2.25		17" BIT	1.37		
Bent Housing°	1.50°	Cum. Hours	60.25		9 5/8" MOTOR	26.32		
Pad/Stab OD	16 3/4"	Tool Mode	2239		X/O	1.50		
Drig Hrs	19.00	Pulser Config.	L14		PONY NMDC	10.65		
Circ. Hrs.	1.00	Last Batt.Volt.	50		UBHO	2.13		
Cum. Drig Hrs	44.50	SLIM TOTAL HRS: 60.25			NMDC	30.56		
Cum. Circ. Hrs	1.50	Assy. Part Code			NMDC	30.52		
Cum. Ftg	1720'	SMA	213		3 x 8" DC	90.29		
TOTAL PDM HRS	46.00	SMC			FLEX JOINT	9.08		
Depth In	750'	SEA	005		7 3/4" EQ JARS	22.85		
Depth Out	2470'	SMC			X/O	2.60		
PSI on BTM	2300	SBA	80559		9 x 6 1/2" DC	266.65		
PSI off BTM	2100	SGR			X/O	1.92		
WOB	40K	SMC			21 HWDP	650.11		
RFM	50	SSL						
GFM	800							
Hook Load	88K	Comments: GOOD RUN						
P/U weight	90K							
S/O weight	85K							
					Total	1,146.55	Total	0.00

MUD TYPE	BENTONITE		Bit N°	1	RESUME FOR THIS WELL (to charge)			
Weight	Fan Viscosity	Plastic Visc.	Size	17"	Engineers (days)	5	SLIM ST BY (days)	1
9.4	54	23	Make	HTC	Tools (monthly)		SLIM OPER. (days)	4
Yield Point	Water Loss	PH	Type	GTX 1	PDM 9 5/8" (hrs)	46.00	GR ST BY (days)	
18	2.0	8.5	Depth in	750'	PDM 8" (hrs)		GR OPER. (days)	
Solid	MBT	Oil	Depth out	2470'	PDM 6 3/4" (hrs)			
1.6%	22.0	0%	Hours	44.5				
Sand %	KCl	Tot Hardness	Footage	1720'				
0.50%	4.0	1763.4	ROP / Avg.	38.7'/hr				
Brine %	T°	Slim Temp °F	Nozzles(TFA)	2 x 20 / 1 x 22				
95.80%			T/B/G	2-E-IN				

Time Breakdown with Comments				Comments:	
Time	Hrs	Code			
0000-0330	3.50	T	FINISH POH W/ BHA #1. L/O MOTOR, UBHO, PONY NMDC, SLIM. RACK NMDC's IN DERRICK.		
			ANADRILL STANDING BY		
0330-2400	20.50	S	ANADRILL STANDING BY WHILE RIG DOES WIPER TRIP, RUNS SONIC LOG, RUNS & CEMENTS 13 3/8" CASING, NIPPLES UP.		
24.00					
LAST SURVEY:			2352' / 48.3° inc. / 249.3° azi.		
NEXT OPERATION			SONIC LOG, RUN & CEMENT 13 3/8" CASING		

Comments: ANADRILL OPERATING		
ANADRILL PERSONNEL TO TOWN FOR STANDBY ON MORNING CREW BOAT		
MOTORS ON RIG		

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Schlumberger

Anadrill

22-Jan 1998

Company	PETRO-TECH PERUANA S.A.
Rig	PETREX RIG #3
Well	LOBITOS 16-24

Peru Morning Report

as of 2400 hrs.

JOB #98-001

Report N°	7	Depth @ 2400 Hrs.	2700'
Spud Date	15-Jan	Ftg. Last 24 Hrs.	230'
Days from KOP	5	Total Footage	1950'

BHA #	2
A962 PowerPak	N/A
Bent Housing°	N/A
Pad/Stab OD	N/A
Drlg Hrs	2.50
Circ. Hrs.	N/A
Cum. Drlg Hrs	2.50
Cum. Circ. Hrs	N/A
Cum. Ftg	225'
TOTAL PDM HRS	N/A
Depth In	2475'
Depth Out	
PSI on BTM	1300
PSI off BTM	N/A
WOB	20K
RFM	130
GFM	700
Hook Load	95K
P/U weight	125K
S/O weight	90K

MWD/SLIM1	RUN #2	RUN #
Tools Hrs.	21.5	
Cum. Hours	21.5	
Tool Mode	1202	
Pulser Config.	L14	
Last Batt.Volt.	56	
SLIM TOTAL HRS: 81.75		
Assy. Part Code		
SMA	060	
SMC		
SEA	005	
SMC		
SBA	80559	
SGR		
SMC		
SSL		
Comments:		

BHA #2		BHA #	
12 1/4" BIT	1.18		
12 1/4" NB STB	5.57		
PONY DC	11.59		
11 3/4" STB	5.51		
UBHO	2.28		
NMDC	30.56		
12 1/4" STB	5.68		
NMDC	30.52		
3 x 8" DC	90.29		
FLEX JOINT	9.08		
7 3/4" EQ JARS	22.85		
X/O	2.60		
9 x 6 1/2" DC	266.65		
X/O	1.92		
21 HWDP	650.11		
Total	1,136.39	Total	0.00

MUD TYPE	KCI IDBOND	
Weight	Fan Viscosity	Plastic Visc.
8.8	42	16
Yield Point	Water Loss	PH
10	2.0	9.0
Solid	MBT	Oil
2.7%	4.0	0%
Sand %	KCI	Tot Hardness
0.30%	18.0	2404.7
Brine %	T°	Slim Temp °F
98.6%	80° F	97° F

Bit N°	2
Size	12 1/4"
Make	HTC
Type	AG526
Depth in	2475'
Depth out	
Hours	2.5
Footage	225'
ROP / Avg.	90.0'/hr
Nozzles(TFA)	3 x 20 / 2 x 18
T/B/G	

RESUME FOR THIS WELL (to charge)			
Engineers (days)	7	SLIM ST BY (days)	2
Tools (monthly)		SLIM OPER. (days)	5
PDM 9 5/8" (hrs)	46.00	GR ST BY (days)	
PDM 8" (hrs)		GR OPER. (days)	
PDM 6 3/4" (hrs)			

Drilling Jar	EQ #125168
Size	7 3/4"
Daily Rotating	3.00
Cum Rotating	26.50

Time Breakdown with Comments			
Time	Hrs	Code	Comments
0000-0030	0.50	S	ROTATE 2470' TO 2475'.
0030-0230	2.00	S	POH W/ SLICK DRILL OUT ASSEMBLY.
0230-0530	3.00	T	PICK UP TOOLS FOR BHA #2. INSTALL MWD. RIH TO 579'.
0530-2100	15.50	S	ATTEMPT TO TEST SLIM. NO PUMP PRESSURE. TRY MANY THINGS TO GET PRESSURE. TEAR PUMPS DOWN & CHECK. CUT HOLES IN SUCTION LINE TO SEE IF PLUGGED WITH POLYMER. TRANSFER MUD FROM SUCTION PIT TO SEE IF SUCTION PLUGGED IN PIT. CROSS CHARGE PUMPS. CHECK CENTRIFUGAL PUMPS. CHECK SURFACE LINES. CAN FIND NO PROBLEMS. POH TO CHECK THAT BIT STILL ATTACHED-OK. RIH TO SHOE TO SEE IF PRESSURES WILL RETURN TO NORMAL WITH MORE DEPTH.
2100-2130	0.50	C	TEST SLIM @ SHOE-OK. PUMP PRESSURES ARE NORMAL.
2130-2400	2.50	D	ROTATE 2475' TO 2700'.
	24.00		
LAST SURVEY:	2548' / 53.8° inc. / 251.7° azi.		
NEXT OPERATION	DRILL 12 1/4" HOLE		

Comments: ANADRILL OPERATING

MOTORS ON RIG: 01158 (8" 7/8 STANDING BY)

JARS ON RIG: 124058 (7 3/4" EQ STANDING BY)
125168 (7 3/4" EQ IN HOLE)

Anadrill Personnel on the rig:		
JOHN TAYLOR	DD	
L. TENORIO	MWD	
G. SOTO	MWD	R. BERMUDEZ
Operator Representatives:		
RICARDO GILABERT		
FRANKLIN CORDOVA		
CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY		

[illegible]

24-Jan 1998

Comments: ANADRILL OPERATING		
<u>MOTORS ON RIG:</u>	01158 (8" 7/8 STANDING BY)	
<u>JARS ON RIG:</u>	124058 (7 3/4" EQ STANDING BY) 125168 (7 3/4" EQ IN HOLE)	
Anadrill Personnel on the rig:		
JOHN TAYLOR L. TENORIO G. SOTO	DD MWD MWD	R. BERMUDEZ
Operator Representatives:		
RICARDO GILABERT FRANKLIN CORDOVA		
CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-RY		

Schlumberger

Anadrill

25-Jan 1998

Company	PETRO-TECH PERUANA S.A.
Rig	PETREX RIG #3
Well	LOBITOS 16-24

Peru Morning Report

as of 2400 hrs.

JOB #98-001

Report N°	10	Depth @ 2400 Hrs.	5952'
Spud Date	15-Jan	Ftg. Last 24 Hrs.	440'
Days from KOP	8	Total Footage	5202'

BHA #	3
A962 PowerPak	N/A
Bent Housing°	N/A
Pad/Stab OD	N/A
Drig Hrs	8.50
Circ. Hrs.	N/A
Cum. Drig Hrs	33.00
Cum. Circ. Hrs	N/A
Cum. Ftg	2435'
TOTAL PDM HRS	N/A
Depth In	3517'
Depth Out	
PSI on BTM	2500
PSI off BTM	N/A
WOB	25K
RFM	120
GFM	676
Hook Load	115K
P/U weight	220K
S/O weight	80K

MWD/S LIM1	RUN #3
Tools Hrs.	24.0
Cum. Hours	58.25
Tool Mode	1202
Pulser Config.	L14
Last Batt.Volt.	56
SLIM TOTAL HRS: 153.5	
Assy. Part Code	
SMA	060
SMC	
SEA	005
SMC	
SBA	80559
SGR	
SMC	
SSL	
Comments: Dip angle on surveys 16°+ instead of the 14.8° called for on plot. Numbers OK before trip for BHA #3.	

BHA #3	BHA #
12 1/4" BIT	1.18
12 1/4" NB STB	5.57
PONYDC	11.59
12 1/4" STB	5.31
UBHO	2.28
NMDC	30.56
12 1/4" STB	5.68
NMDC	30.52
3 x 8" DC	90.29
FLEX JOINT	9.08
7 3/4" EQ JARS	22.85
X/O	2.60
9 x 6 1/2" DC	266.65
X/O	1.92
21 HWDP	650.11
Total	1,136.19
Total	0.00

MUD TYPE	KCI IDBOND	
Weight	Fan Viscosity	Plastic Visc.
10.7	52	28
Yield Point	Water Loss	PH
21	6.0	8.5
Corr Solid	MBT	Oil
9%	15.0	0%
Sand %	KCI	Tot Hardness
0.50%	34.0	2204.3
Cl	T°	Slim Temp °F
51,000	90° F	128° F

Bit N°	2
Size	12 1/4"
Make	HTC
Type	AG526
Depth in	3517'
Depth out	
Hours	33.0
Footage	2435'
ROP / Avg.	73.8'/hr
Nozzles(TFA)	3 x 20 / 2 x 18
T/B/G	

RESUME FOR THIS WELL (to charge)			
Engineers (days)	10	SLIM ST BY (days)	2
Tools (monthly)		SLIM OPER. (days)	8
PDM 9 5/8" (hrs)	46.00	GR ST BY (days)	
PDM 8" (hrs)		GR OPER. (days)	
PDM 6 3/4" (hrs)			

Drilling Jar	EQ #125168
Size	7 3/4"
Daily Rotating	8.50
Cum Rotating	68.00

Time Breakdown with Comments			
Time	Hrs	Code	Comments
0000-0130	1.50	T	SHORT TRIP 8 STANDS.
0130-0330	2.00	D	ROTATE 5512' TO 5638'.
0330-0700	3.50	S	OBSERVE DROP IN PRESSURE. CHECK SURFACE EQUIPMENT-OK. DECIDE TO POH LOOKING FOR WASHOUT.
0700-0930	2.50	T	POH LOOKING FOR WASHOUT. FIND WASHOUT IN DRILLPIPE #36 OUT OF HOLE AT SLIP AREA. L/O DAMAGED JOINT & RIH TO BOT-TOM.
0930-1600	6.50	D	ROTATE 5638' TO 5952'.
1600-2400	8.00	S	SEAS COME UP SUDDENLY & STERN OF SUSUN LYNN BECOMES AWASH. WATER ENTERS SCR HOUSE & CREATES SMALL EXPLOSION. LOSE ALL POWER. EFFORTS TO PUT POWER BACK ON LINE FUTILE AS INTERIOR OF SCR HOUSE IS DRENCHED. BIT ON BOT-TOM. SLACK OFF WEIGHT OF DRILL STRING TO BUCKLE PIPE IN AN EFFORT TO REDUCE CHANCES OF GETTING STUCK. KELLY COMPLETELY DOWN. DISCONNECT RETURN LINE & HIGH PRESSURE HOSE FROM PUMP AT BARGE IN CASE OF DRIVE OFF. WORKING TO DRY OUT SCR HOUSE & RESTORE POWER.
	24.00		
LAST SURVEY:		5776' / 45.8° inc. / 256.8° azi.	
NEXT OPERATION		RESTORE POWER TO RIG	

Comments: ANADRILL OPERATING

MOTORS ON RIG: 01158 (8" 7/8 STANDING BY)

JARS ON RIG: 124058 (7 3/4" EQ STANDING BY)
125168 (7 3/4" EQ IN HOLE)

Anadrill Personnel on the rig:

JOHN TAYLOR	DD	
L. TENORIO	MWD	
G. SOTO	MWD	R. BERMUDEZ

Operator Representatives:

RICARDO GILABERT
FRANKLIN CORDOVA

CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY

[illegible]

Schlumberger		Anadrill	27-Jan 1998
Peru Morning Report			Report N° 12 Depth @ 2400 Hrs. 5952'
as of 2400 hrs.			Spud Date 15-Jan Ftg. Last 24 Hrs. 0'
JOB #98-001			Days from KOP 10 Total Footage 5202'
Company PETRO-TECH PERUANA S.A.	Rig PETREX RIG #3	Well LOBITOS 16-24	
BHA # 3 4	MWD/SLIM1 RUN #3 RUN #4	BHA #3 BHA #4	
A962 PowerPak N/A N/A	Tools Hrs. 14.5 8.5	12 1/4" BIT 1.18 12 1/4" BIT 1.18	
Bent Housing° N/A N/A	Cum. Hours 96.75 8.0	12 1/4" NB STB 5.57 12 1/4" NB STB 5.57	
Pad/Stab OD N/A N/A	Tool Mode 1202 1202	PONY DC 11.59 PONY DC 11.59	
Drig Hrs 0.00 0.00	Pulser Config. L14 L14	12 1/4" STB 5.31 12 1/4" STB 5.51	
Circ. Hrs. N/A N/A	Last Batt.Volt. 56	UBHO 2.28 UBHO 2.28	
Cum. Drig Hrs 33.00 0.00	SLIM TOTAL HRS: 200.5	NMDC 30.56 NMDC 30.56	
Cum. Circ. Hrs N/A N/A	Assy. Part Code	12 1/4" STB 5.68 12 1/4" STB 5.68	
Cum. Ftg 2435' 0'	SMA 060 O61	NMDC 30.52 NMDC 30.52	
TOTAL PDM HRS N/A N/A	SMC 005 223	3 x 8" DC 90.29 3 x 8" DC 90.29	
Depth In 3517' 5952'	SEA 80559 80559	FLEX JOINT 9.08 FLEX JOINT 9.20	
Depth Out 5952'	SGR	7 3/4" EQ JARS 22.85 7 3/4" EQ JARS 22.10	
PSI on BTM	SSL	X/O 2.60 X/O 2.60	
PSI off BTM	Comments:	9 x 6 1/2" DC 266.65 9 x 6 1/2" DC 266.65	
WOB		X/O 1.92 X/O 1.92	
RFM		21 HWDP 650.11 21 HWDP 650.11	
GFM		Total 1,136.19 Total 1,135.76	
Hook Load			
P/U weight			
S/O weight			
MUD TYPE KCL IDBOND	Bit N° 2 2	RESUME FOR THIS WELL (to charge)	
Weight Fan Viscosity Plastic Visc. 10.5 53 23	Size 12 1/4" 12 1/4"	Engineers (days) 12 SLIM ST BY (days) 2	
Yield Point Water Loss FH 25 5.7 9.5	Make HTC HTC	Tools (monthly) SLIM OPER. (days) 10	
Corr Solid MBT Oil 8.3% 15.0 0%	Type AG526 AG526	PDM 9 5/8" (hrs) 46.00 GR ST BY (days)	
Sand % KCl Tot Hardness 0.50% 34.0 1282.5	Depth in 3517' 5952'	PDM 8" (hrs) GR OPER. (days)	
CI T° Slim Temp °F 51,000	Depth out 5952'	PDM 6 3/4" (hrs)	
	Hours 33.0	Drilling Jar EQ #125168 EQ #124058	
	Footage 2435'	Size 7 3/4" 7 3/4"	
	ROP / Avg. 73.8'/hr	Daily Rotating 0.00 0.00	
	Nozzles(TFA) 3 x 20 / 2 x 18 5 x 20	Cum Rotating 68.00 0.00	
	T/B/G 10% WEAR/IN	Comments: ANADRILL OPERATING	
Time Breakdown with Comments		CHANGE OUT JARS. SEND OLD JARS TO TOWN FOR SERVICE.	
Time Hrs Code Comments			
0000-0230 2.50 T FINISH POH TO SHOE W/ BHA #3.			
0230-1130 9.00 S LOW DRUM CLUTCH ON DRAWWORKS NOT DISENGAGING. CHANGE OUT LOW DRUM CLUTCH.			
1130-1830 7.00 T FINISH POH W/ BHA #3. CHECK BIT-OK. CHANGE OUT 1 STB AND MWD. CHANGE OUT JARS & FLEX JOINT. RIH TO 580' & TEST MWD-OK.			
1830-2200 3.50 T RIH TO SHOE.			
2200-2400 2.00 S RIG REPAIR. EL MAGCO NOT WORKING.			
24.00			
LAST SURVEY: 5776' / 45.8° inc. / 256.8° azi.			
NEXT OPERATION REPAIR EL MAGCO, RIH & DRILL			
Anadrill Personnel on the rig:			
JOHN TAYLOR DD			
L. TENORIO MWD			
G. SOTO MWD R. BERMUDEZ			
Operator Representatives:			
RICARDO GILABERT			
FRANKLIN CORDOVA			
CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY			

Peru Morning Report

as of 2400 hrs.

JOB #98-001

Report N°	13	Depth @ 2400 Hrs.	5952'
Spud Date	15-Jan	Ftg. Last 24 Hrs.	0'
Days from KOP	11	Total Footage	5202'

BHA #	4	
A962 PowerPak	N/A	
Bent Housing°	N/A	
Pad/Stab OD	N/A	
Drlg Hrs	0.00	
Circ. Hrs.	N/A	
Cum. Drlg Hrs	0.00	
Cum. Circ. Hrs	N/A	
Cum. Ftg	0'	
TOTAL PDM HRS	N/A	
Depth In	5952'	
Depth Out		
PSI on BTM		
PSI off BTM		
WOB		
RFM		
GFM		
Hook Load		
P/U weight		
S/O weight		

MWD/SLIM1	RUN #4	RUN #
Tools Hrs.	24.0	
Cum. Hours	32.0	
Tool Mode	1202	
Pulser Config.	L14	
Last Batt.Volt.	56	
SLIM TOTAL HRS: 224.5		
Assy. Part Code		
SMA	061	
SMC		
SEA	223	
SMC		
SBA	80559	
SGR		
SMC		
SSL		
Comments:		

BHA #4		BHA #	
12 1/4" BIT	1.18		
12 1/4" NB STB	5.57		
PONY DC	11.59		
11 3/4" STB	5.51		
UBHO	2.28		
NMDC	30.56		
12 1/4" STB	5.68		
NMDC	30.52		
3 x 8" DC	90.29		
FLEX JOINT	9.20		
7 3/4" EQ JARS	22.10		
X/O	2.60		
9 x 6 1/2" DC	266.65		
X/O	1.92		
21 HWDP	650.11		
Total	1,135.76	Total	0.00

MUD TYPE	KCL IDBOND	
Weight 10.7	Fan Viscosity 54	Plastic Visc. 23
Yield Point 28	Water Loss 5.2	PH 8.9
Corr Solid 8.1%	MBT 15.0	Oil 0%
Sand % 0.50%	KCl 34.0	Tot Hardness 1963.8
Cl 53.000	T°	Slim Temp °F

Bit N°	2	
Size	12 1/4"	
Make	HTC	
Type	AG526	
Depth in	5952'	
Depth out		
Hours	0.0	
Footage	0'	
ROP / Avg.	N/A	
Nozzles(TFA)	5 x 20	
T/B/G		

RESUME FOR THIS WELL (to charge)			
Engineers (days)	12	SLIM ST BY (days)	2
Tools (monthly)		SLIM OPER. (days)	10
PDM 5 5/8" (hrs)	46.00	GR ST BY (days)	
PDM 8" (hrs)		GR OPER. (days)	
PDM 6 3/4" (hrs)			

Drilling Jar	EQ#124058
Size	7 3/4"
Daily Rotating	0.00
Cum Rotating	0.00

Time Breakdown with Comments			
Time	Hrs	Code	Comments
0000-0530	5.50	S	FINISH CHANGING TRANSFORMERS IN SCR HOUSE. EL MAGCO BRAKE NOT FUNCTIONING.
0530-0600	0.50	T	RIH TO SHOE.
0600-1500	9.00	T	RIH W/ BHA #4, PICKING UP KELLY AS NECESSARY TO WASH THROUGH TIGHT SPOTS. SURVEYING EVERY 5 STANDS PAST LAST GOOD SURVEY FROM BHA #2 (3466'). DIP ANGLE OK WITH THIS TOOL.
1500-1700	2.00	T	BRIEFLY STUCK @ 5826'. WORK FREE. NOTICE DROP IN PUMP PRESSURE & INCREASE IN PUMP STROKES.
1700-2100	4.00	T	POH LOOKING FOR WASHOUT. FIND HOLE IN DP #72 AT SLIP AREA.
2100-2400	3.00	T	CONTINUE RIH W/ BHA #4. P/U KELLY @ 5725' & WASH SINGLES DOWN TO 5858'.
	24.00		
LAST SURVEY:		5776' / 45.8° inc. / 256.8° azi.	
NEXT OPERATION		FINISH RIH TO BOTTOM. DRILL 12 1/4" HOLE	

Comments: ANADRILL OPERATING
SEND JAR #125168 TO TOWN FOR SERVICE.

NEW SURVEYS TAKEN WHILE RIH:

3638'	58.4° inc	251.9° azi
4165'	56.4° inc	251.6° azi
4545'	54.7° inc	252.7° azi
5021'	51.4° inc	253.7° azi
5399'	49.0° inc	254.7° azi

MOTORS ON RIG: 01158 (8" 7/8 STANDING BY)
JARS ON RIG: 124058 (7 3/4" EQ IN HOLE)

Anadrill Personnel on the rig:

JOHN TAYLOR	DD	
L. TENORIO	MWD	
G. SOTO	MWD	R. BERMUDEZ

Operator Representatives:

RICARDO GILABERT
FRANKLIN CORDOVA

CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY

Schlumberger

Anadrill

29-Jan 1998

Company	PETRO-TECH PERUANA S.A.
Rig	PETREX RIG #3
Well	LOBITOS 16-24

Peru Morning Report

as of 2400 hrs.

JOB #98-001

Report N°	14	Depth @ 2400 Hrs.	6522'
Spud Date	15-Jan	Ftg. Last 24 Hrs.	570'
Days from KOP	12	Total Footage	5772'

BHA #	4	
A962 PowerPak	N/A	
Bent Housing°	N/A	
Pad/Stab OD	N/A	
Drig Hrs	9.50	
Circ. Hrs.	N/A	
Cum. Drig Hrs	9.50	
Cum. Circ. Hrs	N/A	
Cum. Ftg	570'	
TOTAL PDM HRS	N/A	
Depth In	5952'	
Depth Out		
PSI on BTM	2500	
PSI off BTM	N/A	
WOB	28K	
RFM	120	
GFM	650	
Hook Load	135K	
P/U weight	275K	
S/O weight	90K	

MWD/Slim1	RUN #	RUN #
Tools Hrs.	24.0	
Cum. Hours	56.0	
Tool Mode	1202	
Pulser Config.	L14	
Last Batt.Volt.	56	
SLIM TOTAL HRS: 248.5		
Assy. Part Code		
SMA	061	
SMC		
SEA	223	
SMC		
SBA	80559	
SGR		
SMC		
SSL		
Comments:		

BHA #4		BHA #	
12 1/4" BIT	1.18		
12 1/4" NB STB	5.57		
PONY DC	11.59		
11 3/4" STB	5.51		
UBHO	2.28		
NMDC	30.56		
12 1/4" STB	5.68		
NMDC	30.52		
3 x 8" DC	90.29		
FLEX JOINT	9.20		
7 3/4" EQ JARS	22.10		
X/O	2.60		
9 x 6 1/2" DC	266.65		
X/O	1.92		
21 HWDP	650.11		
Total	1,135.76	Total	0.00

MUD TYPE	KCL IDBOND	
Weight	Fan Viscosity	Plastic Visc.
10.7	54	26
Yield Point	Water Loss	FH
22	5.5	9.0
Corr Solid	MBT	Oil
8.0%	18.0	0%
Sand %	KCl	Tot Hardness
0.80%	34.0	2404.7
Cl	T°	Slim Temp °F
53,000	90° F	117° F

Bit N°	2	
Size	12 1/4"	
Make	HTC	
Type	AG526	
Depth in	5952'	
Depth out		
Hours	9.5	
Footage	570'	
ROP / Avg.	60'/hr	
Nozzles(TFA)	5 x 20	
T/B/G		

RESUME FOR THIS WELL (to charge)			
Engineers (days)	14	SLIM ST BY (days)	2
Tools (monthly)		SLIM OPER. (days)	12
PDM 9 5/8" (hrs)	46.00	GR ST BY (days)	
PDM 8" (hrs)		GR OPER. (days)	
PDM 6 3/4" (hrs)			

Drilling Jar	EQ#124058
Size	7 3/4"
Daily Rotating	9.50
Cum Rotating	9.50

Time Breakdown with Comments			
Time	Hrs	Code	Comments
0000-0200	2.00	T	WASHING TO BOTTOM W/ BHA #4.
0200-0230	0.50	S	RIG SERVICE.
0230-1030	8.00	D	ROTATE 5951' TO 6443'.
1030-2230	12.00	S	SCR SHUTS DOWN WHILE ROTATING ON BOTTOM. POH TO SHOE WHILE REPAIR SAME. RIH AFTER REPAIR.
2230-2400	1.50	D	ROTATE 6443' TO 6522'.
24.00			
LAST SURVEY: 6314' / 42.1° inc. / 255.8° azi.			
NEXT OPERATION DRILL 12 1/4" HOLE TO 9 5/8" CASING POINT, SONIC LOG			

Comments: ANADRILL OPERATING

MOTORS ON RIG: 01158 (8" 7/8 STANDING BY)
 JARS ON RIG: 124058 (7 3/4" EQ IN HOLE)

Anadrill Personnel on the rig:		
JOHN TAYLOR	DD	
L. TENORIO	MWD	
G. SOTO	MWD	R. BERMUDEZ
Operator Representatives:		
GUILLERMO RUESTA		
OSWALDO PACHAS		
CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY		

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Schlumberger

Anadrill

3-Feb

1998

Company	PETRO-TECH PERUANA S.A.
Rig	PETREX RIG #3
Well	LOBITOS 16-24

Peru Morning Report

as of 2400 hrs.

JOB #98-001

Report N°	19	Depth @ 2400 Hrs.	7509'
Spud Date	15-Jan	Ftg. Last 24 Hrs.	287'
Days from KOP	17	Total Footage	6759'

BHA #	5	6
A675 PowerPak	N/A	N/A
Bent Housing°	N/A	N/A
Pad/Stab OD	N/A	N/A
Drig Hrs	6.50	4.00
Circ. Hrs.	N/A	N/A
Cum. Drig Hrs	15.50	4.00
Cum. Circ. Hrs	N/A	N/A
Cum. Ftg	554'	143'
TOTAL PDM HRS	N/A	N/A
Depth In	6812'	7366'
Depth Out	7366'	
PSI on BTM	2600	2700
PSI off BTM	N/A	N/A
WOB	22K	20/25K
RFM	100	100
GFM	589	589
Hook Load		129K
P/U weight		250K
S/O weight		90K

MWD/SLIM1	RUN #5	RUN #6
Tools Hrs.	12.0	11.0
Cum. Hours	30.5	11.0
Tool Mode	1202	1202
Pulser Config.	L10	L10
Last Batt.Volt.	50	50
SLIM TOTAL HRS: 307.0		
Assy. Part Code		
SMA	364	059
SMC		
SEA	074	319
SMC		
SBA	80559	80559
SGR		
SMC		
SSL		

Comments: Dip angle for run #5 was 17°+.

Dip angle for run #6 is 16°+. Should be 14.8°

for this area.

BHA #5		BHA #6	
8 1/2" BIT	1.00	8 1/2" BIT	1.00
8 1/2" NB STB	5.45	8 1/2" NB STB	5.45
FLOAT SUB	2.61	FLOAT SUB	2.61
PONY DC	11.27	PONY DC	11.27
UBHO	2.29	8 1/4" STB	5.07
NMDC	30.71	UBHO	2.29
8 1/2" STB	5.10	NMDC	30.71
NMDC	30.63	8 1/2" STB	5.10
8 1/2" STB	5.09	NMDC	30.63
X/O	1.86	X/O	1.86
9 x 6 1/2" DC	266.65	9 x 6 1/2" DC	266.65
X/O	1.92	X/O	1.92
6 HWDP	185.75	6 HWDP	185.75
FLEX JOINT	11.15	FLEX JOINT	11.15
6 1/2" EQ JARS	23.38	6 1/2" EQ JARS	23.38
15 HWDP	464.36	15 HWDP	464.36
Total	1,049.22	Total	1,049.20

MUD TYPE	KCL IDBOND	
Weight	Fan Viscosity	Plastic Visc.
10.8	48	23
Yield Point	Water Loss	PH
23	4.8	9.4
Corr Solid	MBT	Oil
9.0	17.0	0%
Sand %	KCl	Tot Hardness
0.50%	30.0	2324.5
Cl	T°	Slim Temp °F
39,000	100° F	132° F

Bit N°	3	3
Size	8 1/2"	8 1/2"
Make	SMITH	SMITH
Type	M88	M88
Depth in	6812'	7366'
Depth out	7366'	
Hours	15.5	4.0
Footage	554'	143'
ROP / Avg.	35.7"/hr	35.8"/hr
Nozzles(TFA)	3x14 / 3x15	3x14 / 3x15
T/B/G	NEW/IN	

RESUME FOR THIS WELL (to charge)			
Engineers (days)	18	SLIM ST BY (days)	4
Tools (monthly)		SLIM OPER. (days)	15
PDM 9 5/8" (hrs)	46.00	GR ST BY (days)	
PDM 8" (hrs)		GR OPER. (days)	
PDM 6 3/4" (hrs)			

Drilling Jar	#961462
Size	6 1/2" EQ
Daily Rotating	10.50
Cum Rotating	19.50

Time Breakdown with Comments			
Time	Hrs	Code	Comments
0000-0130	1.50	D	ROTATE 7222' TO 7254'.
0130-0230	1.00	S	AIR-CON GOES DOWN IN SCR SHACK & ROOM OVERHEATS, SHUTTING DOWN SCR. COOL DOWN SCR SHACK.
0230-0730	5.00	D	ROTATE 7254' TO 7366'.
0730-0800	0.50	C	CIRCULATE PRIOR TO POH.
0800-1600	8.00	T	POH W/ BHA #5 TO PICK UP HOLD/SLIGHT DROP ASSEMBLY.
			CHANGE STBS AROUND FOR BHA #6. REPLACE PULSER AND ELECTRONICS ON MWD. RIH TO SHOE.
1600-1700	1.00	S	CUT & SLIP DRILLING LINE.
1700-1930	2.50	T	CONTINUE TO RIH W/ BHA #6, SURVEYING HOLE AS WE RUN IN.
			SAME PROBLEM WITH DIP ANGLE ON SURVEYS.
1930-2100	1.50	D	ROTATE 7366' TO 7435'.
2100-2130	0.50	S	RIG REPAIR-MP.
2130-2400	2.50	D	ROTATE 7435' TO 7509'.
	24.00		
LAST SURVEY:		7457' / 52.4° inc. / 256.8 azi.	
NEXT OPERATION		DRILL 8 1/2" HOLE	

Comments: ANADRILL OPERATING
 EXPERIENCING SAME PROBLEM WITH NEW MWD ELECTRONICS AND DIP ANGLE. NOW 16°+. AFTER CONSULTING WITH FESTUS, DECIDED TO DRILL AHEAD & TAKE 2° OFF AZIMUTH READINGS TO LEFT. TOWN STILL TRYING TO FIGURE OUT WHY THIS IS HAPPENING. WILL RE-SURVEY HOLE NEXT TRIP WITH NEW TOOL.
MOTORS ON RIG: 01164 (6 3/4" 4/5 STANDING BY)
JARS ON RIG: 961462 (6 1/2" EQ IN HOLE)
 705218 (6 1/2" EQ STANDING BY)

Anadrill Personnel on the rig:		
JOHN TAYLOR	DD	
LUIS TENORIO	MWD	
G. SOTO	MWD	R. BERMUDEZ
Operator Representatives:		
GUILLERMO RUESTA		
OSWALDO PACHAS		
CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY		

Peru Morning Report

as of 2400 hrs.

JOB #98-001

Report N°	20	Depth @ 2400 Hrs.	8270'
Spud Date	15-Jan	Ftg. Last 24 Hrs.	761'
Days from KOP	18	Total Footage	7520'

BHA #	6	
A675 PowerPak	N/A	
Bent Housing°	N/A	
Pad/Stab OD	N/A	
Drlg Hrs	22.50	
Circ. Hrs.	N/A	
Cum. Drlg Hrs	26.50	
Cum. Circ. Hrs	N/A	
Cum. Ftg	904'	
TOTAL PDM HRS	N/A	
Depth In	7366'	
Depth Out		
PSI on BTM	2700	
PSI off BTM	N/A	
WOB	25K	
RPM	100	
GPM	589	
Hook Load	135K	
P/U weight	250K	
S/O weight	90K	

MWD/SLIM1	RUN #6	RUN #
Tools Hrs.	24.0	
Cum. Hours	35.0	
Tool Mode	1202	
Pulser Config.	L10	
Last Batt.Volt.	50	
SLIM TOTAL HRS: 331.0		
Assy. Part Code		
SMA	059	
SMC		
SEA	319	
SMC		
SBA	80559	
SGR		
SMC		
SSL		
Comments: Dip angle for run #5 was 17°+. Dip angle for run #6 is 16°+. Should be 14.8° for this area.		

BHA #6		BHA #	
8 1/2" BIT	1.00		
8 1/2 NB STB	5.45		
FLOAT SUB	2.61		
PONYDC	11.27		
8 1/4" STB	5.07		
UBHO	2.29		
NMDC	30.71		
8 1/2" STB	5.10		
NMDC	30.63		
X/O	1.86		
9 x 6 1/2" DC	266.65		
X/O	1.92		
6 HWDP	185.75		
FLEX JOINT	11.15		
6 1/2" EQ JARS	23.38		
15 HWDP	464.36		
Total	1,049.20	Total	0.00

MUD TYPE	KCL IDBOND	
Weight 10.8	Fan Viscosity 46	Plastic Visc 21
Yield Point 10	Water Loss 5.0	FH 10.0
Corr Solid 9.3%	MBT 18.0	Oil 0%
Sand % 0.80%	KCl 25.0	Tot Hardness 2645.1
Cl 37.000	T° 100° F	Slim Temp °F 144° F

Bit N°	3	
Size	8 1/2"	
Make	SMITH	
Type	M88	
Depth in	7366'	
Depth out		
Hours	26.5	
Footage	904'	
ROP / Avg.	34.1'/hr	
Nozzles(TFA)	3x14 / 3x15	
T/B/G		

RESUME FOR THIS WELL (to charge)			
Engineers (days)	19	SLIM ST BY (days)	4
Tools (monthly)		SLIM OPER. (days)	16
PDM 9 5/8" (hrs)	46.00	GR ST BY (days)	
PDM 8" (hrs)		GR OPER. (days)	
PDM 6 3/4" (hrs)			

Drilling Jar	#961462
Size	6 1/2" EQ
Daily Rotating	22.50
Cum Rotating	42.00

Time Breakdown with Comments			
Time	Hrs	Code	Comments
0000-0230	2.50	D	ROTATE 7509' TO 7558'.
0230-0300	0.50	S	RIG REPAIR (MP #1 PISTON, CLEAN FILTER).
0300-1430	11.50	D	ROTATE 7558' TO 7920'.
1430-1500	0.50	S	RIG REPAIR (MP #1 LINER & PISTON).
1500-1530	0.50	S	RIG SERVICE.
1530-2400	8.50	D	ROTATE 7920' TO 8270'.
	24.00		
LAST SURVEY:			8121' / 51.9° inc. / 254.8 azi.
NEXT OPERATION			DRILL 8 1/2" HOLE TO 9 5/8" CASING POINT

Comments: ANADRILL OPERATING

MOTORS ON RIG: 01164 (6 3/4" 4/5 STANDING BY)

JARS ON RIG: 961462 (6 1/2" EQ IN HOLE)
705218 (6 1/2" EQ STANDING BY)

Anadrill Personnel on the rig:

JOHN TAYLOR	DD	
LUIS TENORIO	MWD	
G. SOTO	MWD	R. BERMUDEZ

Operator Representatives:

GUILLERMO RUESTA
OSWALDO PACHAS

CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY

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	Schlumberger	Anadrill	8-Feb	1998
Company PETRO-TECH PERUANA S.A.		Peru Morning Report		
Rig	PETREX RIG #3	as of 2400 hrs.		
Well	LOBITOS 16-24	JOB #98-001		
		Report N°	24	Depth @ 2400 Hrs. 10065'
		Spud Date	15-Jan	Ftg. Last 24 Hrs. 375'
		Days from KOP	22	Total Footage 9315'
BHA #	6	MWD/SLIM1	RUN #6	RUN #
A675 PowerPak	N/A	Tools Hrs.	24.0	
Bent Housing*	N/A	Cum. Hours	131.0	
Pad/Stab OD	N/A	Tool Mode	1202	
Drlg Hrs	20.50	Pulser Config.	L10	
Circ. Hrs.	N/A	Last Batt.Volt.	50	
Cum. Drlg Hrs	105.00	SLIM TOTAL HRS: 427.0		
Cum. Circ. Hrs	N/A	Assy. Part Code		
Cum. Ftg	2699'	SMA	059	
TOTAL PDM HRS	N/A	SMC		
Depth In	7366'	SEA	319	
Depth Out		SMC		
PSI on BTM	3000	SBA	80559	
PSI off BTM	N/A	SGR		
WOB	20/25K	SMC		
RFM	80/100	SSL		
GFM	542	Comments: Dip angle for run #5 was 17°+.		
Hook Load	150K	Dip angle for run #6 is 16°+. Should be 14.8°		
P/U weight	300K	for this area.		
S/O weight	90K			
MUD TYPE	KCL IDBOND	Bit N°	3	
Weight	Fan Viscosity	Size	8 1/2"	
11.2	57	Make	SMITH	
Yield Point	Water Loss	Type	M88	
25	4.0	Depth in	7366'	
Corr Solid	MBT	Depth out		
10.5%	20.0	Hours	105.0	
Sand %	KCl	Footage	2699'	
0.60%	21.0	ROP / Avg.	25.7'/hr	
CI-	T°	Nozzles(TFA)	3x14 / 3x15	
32,500	110° F	T/B/G		
21.0				
150° F				
RESUME FOR THIS WELL (to charge)				
Engineers (days)	23	SLIM ST BY (days)	4	
Tools (monthly)		SLIM OPER. (days)	20	
PDM 9 5/8" (hrs)	46.00	GR ST BY (days)		
PDM 8" (hrs)		GR OPER. (days)		
PDM 6 3/4" (hrs)				
Drilling Jar #961462				
Size	6 1/2" EQ			
Daily Rotating	20.50			
Cum Rotating	120.50			
Comments: ANADRILL OPERATING				
MOTORS ON RIG: 01164 (6 3/4" 4/5 STANDING BY)				
JARS ON RIG: 961462 (6 1/2" EQ IN HOLE) 705218 (6 1/2" EQ STANDING BY)				
Anadrill Personnel on the rig:				
JOHN TAYLOR	DD			
LUIS TENORIO	MWD			
G. SOTO	MWD	R. BERMUDEZ		
Operator Representatives:				
RICARDO GILABERT				
RAUL PINTO				
CODES: D=DRILLING/T=TRIP/C=CIRC/S=STAND-BY				

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