**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** June 15, 2001

| RIG | Days | Last Casing |
|---|---|---|
| P - 48 | 52 | 5 1/2" @ 8275' |

**24 hours summary:** Testing well.

**PO:** Well on production.

**Remarks:** Test data

- June 14, 2001: 788 BOPD x 47 BWPD (6% water cut) x 640 psi x 3/8" choke.
- June 15, 2001: 385 BOPD x 205 BWPD (35% water cut) x 460 psi x 3/8" choke (*)

(*) On last 11 hours, the water cut drop from 40% to 25%; 384 BOPD x 144 BWPD x 460 psi x 806 GOR.

**Next:**

- Continue evaluating well production.
- Plan is to attempt to run a production log in order to identify and isolate the water producing sand.
- If water cut continue decreasing, the production log will be cancelled and the possibility of fracturing the Upper Basal Salina will be considered.

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 9,300 |
| Cumulated ($): | 1'489,305 |

## FINAL WELL REPORT



MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...June 15 (37) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** June 14, 2001

| RIG | Days | Last Casing |
|---|---|---|
| P - 48 | 51 | 5 1/2" @ 8275' |

**24 hours summary:** Production evaluating well.

**PO:** Well on production.

**Remarks:** Test: 788 BOPD x 47 BWPD x 640 psi x 3/8 choke.

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 14,900 |
| Cumulated ($): | 1'480,005 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...June 14 (36) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** June 13, 2001

| RIG | Days | Last Casing |
|---|---|---|
| P - 48 | 50 | 5 1/2" @ 8275' |

**24 hours summary:** Schlumberger perforated Upper Basal Salina, 3rd stage from 7982' to 7912' w/ 69 shots, WHP= 1850 psi.

**PO:** Well on production.

**Remarks:** Production test from stages 1st and 2nd: 284 BOPD x 55 BWPD x 810 psi x 3/8 choke x 7 ¾ hours

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 15,550 |
| Cumulated ($): | 1'465,105 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...June 13 (35) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** June 12, 2001

| RIG | Days | Last Casing |
|---|---|---|
| P - 48 | 49 | 5 1/2" @ 8275' |

**24 hours summary:** Ran CBL- VDL- GR log. Tested 5 ½" casing with 5000 psi. Schlumberger perforated the Upper Basal Salina as follows:

- 8042' – 7904' with 75 shots, WHP 1600 psi.
- 8004' – 7958' with 78 shots, WHP 1700 psi.

While POOH, broke in weak point. RIH to perforate 3rd. interval (7982'- 7912'), the CCL did not work properly, POOH to check it. Left in hole CCL and gun.

**PO:** Testing well

**Remarks:**

- While waiting for perforating gun from Talara, open the well to production at 8:30 a.m.
- At 11:00 a.m., the well is flowing 50 Barrels per hour (crude oil and diesel, diesel comes from diesel cushion), 420-400 psi WHP, 3/8" choke, 893 GOR.
- We still need to perforate some intervals. Based on production results, we will evaluate the convenience of fracturing the Upper Basal Salina sand.

**Next:** Continue evaluating the Upper Basal Salina.

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451, 680 |
| Daily ($): | 34,668 |
| Cumulated ($): | 1'449, 555 |

MCh/PA

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** June 11, 2001

| RIG | Days | Last Casing |
|---|---|---|
| P - 48 | 48 | 5 1/2" @ 8275' |

**24 hours summary:** Over the weekend ran and cemented 5 ½" casing at 8275'. WOC

**PO:** Taking Temperature survey.

**Next:** Run CBL- VDL log. We expect to perforate the Upper Basal Salina (7904'- 8042') this afternoon.

**Mud weight:** 12.4 ppg. **Viscosity:** 58 sec **Filtrate:** 5.0 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 115,391 |
| Cumulated ($): | 1'399,754 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...June 11 (33) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** June 8, 2001

| RIG | Days | Last Casing | FTD |
|---|---|---|---|
| P - 48 | 45 | 9 5/8" @ 5313' | *9040'* |

**24 hours summary:** Schlumberger ran following logs:

- Resistivity- Porosity & Gamma Ray (HALS-MSFL-LDT-CNL-GR) from 8945' to 5313'
- Dipmeter- Gamma Ray from 9040' to 5313'
- Check Shot from 9040' to 500' in 20 stations.

**PO:** Rigging down Schlumberger unit.

**Next:** Well will be completed in Upper Basal Salina.

**Remarks:**

- Power log evaluation indicates a total of 117' MD (104' TVD) of net sand in Upper Basal Salina with 10.7% of porosity and 52.1 % of water saturation. Oil and gas shows were also observed through this interval.
- The Upper Basal Salina in this well is about 110 feet higher than LO6- 25 well.
- Only 19' of net sand has been encountered in the Lower Basal Salina in thin sandstones.
- Based on Electrical Logs the formational tops and petrophysical for Upper & Lower Basal Salina are as follows:

| FORMATION | MD (Feet) | VSS (Feet) | South (Feet) | West (Feet) | GrossSect MD (VD) | Net Sand MD (VD) | Net Pay MD (VD) | Average Porosity | Average Sw | Average Vclay |
|---|---|---|---|---|---|---|---|---|---|---|
| Talara | At sea | bottom | | | | | | | | |
| Chacra | 2490 | -2376 | 242 | 148 | | | | | | |
| Rio Bravo | 3592 | -3359 | 659 | 420 | | | | | | |
| Palegreda | 5146 | -4804 | 1147 | 698 | | | | | | |
| Mogollon | 5869 | -5490 | 1369 | 854 | | | | | | |
| San Cristobal | 6340 | -5892 | 1541 | 981 | | | | | | |
| Upp Bs Salina | 7902 | -7284 | 2100 | 1401 | 176 (157) | 117 (104) | 46 (41) | 10.7 | 52.1 | 15.7 |
| Low Bs Salina | 8445 | -7926' | 2321 | 1562 | 595 (539) | 19 (17) | 15 (13) | 8.5 | 45.0 | 32.8 |
| Total Depth | 9040 | -8282' | 2525 | 1710 | | | | | | |

**Mud weight:** 12.4 ppg. **Viscosity:** 62 sec **Filtrate:** 5.0 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 71,831 |
| Cumulated ($): | 1'265,424 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...June 8 (32) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** June 7, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | FTD |
|---|---|---|---|---|---|
| P - 48 | 9040' @ 00 hrs | 95' | 44 | 9 5/8" @ 5313' | *9040'* |

**24 hours summary:** Drilling stopped at 9040' in Lower Basal Salina on June 6, 2001. Conditioning hole to run electrical logs.

**PO:** POOH for logs.

**Remarks:**

- At 7:30 hrs, Schlumberger personnel rigging up Resistivity, Porosity and Gamma Ray logs.
- Plan is to run Resistivity, Porosity, Dipmeter and Check shot.

| Lithology Interval | Sd | Sst | Slst | Clyst | Fluor | Description |
|---|---|---|---|---|---|---|
| *8990'-9010'* | -- | *10* | -- | *90* | *Traces* | ***Sst**: Lt gy, vf, w sort, sb ang- sb rnd, sl calc, arg mtx, mod hd, p vis por.*<br>***Clyst**: Gy, sl brnsh-gy,sb blky, mod frm, sl calc, micr mic, micr carb.*<br>***Fluor**: Wh yel sl bri, v slow & v weak cut, sl mky wh cut fluor, non-visible residual ring. **V poor oil show***<br>***TG: 150; C1: 150*** |
| *9010'-9030'* | -- | *40* | -- | *60* | *Traces* | ***Sst**: Wh gy, f, w sort, sb sng- sb rnd, sl calc, mod frm, arg mtx, dty sst, p vis por.*<br>***Fluor**: Wh yel sl bri, v slow & v weak cut, sl mky wh cut fluor, non-visible residual ring. **V poor oil show***<br>***Clyst**: Same as above.*<br>***TG: 200; C1: 200*** |
| *9030'-9040'* | -- | *10* | -- | *90* | *NF* | ***Sst & Clyst**: Same as above.*<br>***TG: 145; C1: 145*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |
| Lower Basal Salina | 8520' | 7870' | -7820' |

**Last survey:**

| Depth (ft) | Incl (degr) | Azimuth (deg) | TVD (ft) | VSS (ft) | N/ -S (ft) | E/ -W (ft) |
|---|---|---|---|---|---|---|
| *7796* | *30.3* | *216.0* | *7243* | *-7193* | *-2061* | *-1373* |

**Mud weight:** 12.4 ppg. **Viscosity:** 60 sec **Filtrate:** 5.0 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 22,938 |
| Cumulated ($): | 1'193,593 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** June 6, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | FTD |
|---|---|---|---|---|---|
| P - 48 | 8945' @ 00 hrs | 86' | 43 | 9 5/8" @ 5313' | ***9200'*** |

**24 hours summary:** Drilled from 8876' to 8878'. Trip to check wash out # 12. RIH to continue drilling.

**PO:** Drilling at 8985' in Lower Basal Salina.

**Remarks:**
Based on correlation with neighboring wells, we expected the Balcones at 9100 feet.

**Next:** Continue drilling trough the Lower Basal Salina.

Lithology

| *Interval* | *Sd* | *Sst* | *Slst* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *8870'-8970'* | -- | *10* | *10* | *80* | *NF* | ***Sst**: Lt gy, gy, vf, w sort, sb ang- sb rnd, sl calc, arg mtx, mod hd-hd, p vis por.*<br>***Slst**: Gysh, blky, mic, micr carb, mod frm, sl calc.*<br>***Clyst**: Gy, sl brnsh-gy, blky- sb blky, mod frm- frm, non- calc, micr mic, micr carb.*<br>***TG: 300; C1: 276; C2: 12*** |
| *8970'-8990'* | -- | *20* | -- | *80* | *Traces* | ***Sst**: Wh gy, f, w sort, sl calc, sl fri, arg mtx, dty sst, p vis por.*<br>***Fluor**: Wh yel sl bri, v slow & v weak cut, sl mky wh cut fluor, non-visible residual ring.* ***V poor oil show***<br>***Clyst**: Same as above.*<br>***TG: 541; C1: 507; C2: 17*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |
| Lower Basal Salina | 8520' | 7870' | -7820' |

**Palinology:**

| *Interval* | *Determination* | *Formation* |
|---|---|---|
| *8770'-8780'* | *Zone VI* | *Basal Salina formation* |
| *8830'-8840'* | *Zone VI* | *Basal Salina formation* |

**Last survey:**

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *7796* | *30.3* | *216.0* | *7243* | *-7193* | *-2061* | *-1373* |

**Mud weight:** 12.3 ppg. **Viscosity:** 60 sec **Filtrate:** 5.0 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 25,722 |
| Cumulated ($): | 1'170,655 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** June 5, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | FTD |
|---|---|---|---|---|---|
| P - 48 | 8859' @ 00 hrs | 124' | 42 | 9 5/8" @ 5313' | ***9200'*** |

**24 hours summary:** Drilled from 8735' to 8876' in Lower Basal Salina. Trip to check wash out.

**PO:** RIH.

**Remarks:**

- From 8840' to 8850', 30% sand with 30% natural fluorescence and TG: 2060; C1: 1836; C2: 58; C3: 13; C4: 11; C5: 5 have been reported.
- Based on correlation with neighboring wells, we expected the Balcones at 9100 feet.

**Next:** Continue drilling trough the Lower Basal Salina.

**Lithology**

| *Interval* | *Sd* | *Sst* | *Slst* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *8760'-8840'* | -- | -- | *10* | *90* | | ***Slst**: Gysh, blky, mic, micr carb, mod frm, sl calc.*<br>***Clyst**: Gy, brnsh-gy, blky- sb blky, plty, mod frm, sl calc, mic mic, micr carb, rough surf, slty- cly in pt.*<br>***TG: 409; C1: 837; C2: 11*** |
| *8840'-8850'* | *30* | *20* | -- | *50* | *30* | ***Sd**: Wh hy, f-m, w sort, sb ang, sb rnd.*<br>***Sst**: Wh gy, wh, f-m, w sort, sb ang- sb rnd, non-calc, mod fri, fr vis por.*<br>***Fluor**: Wh yel sl bri, mod fast & strong strmg cut, mky wh cut fluor, non-residual ring, **Fair oil show.***<br>***Clyst**: Same as above.*<br>***TG: 2060; C1: 1836; C2: 58; C3: 13; C4: 11; C5: 5*** |
| *8850-8860* | *10* | *10* | -- | *80* | *10* | ***Sd, Sst & Clyst**: Same as above.*<br>***Fluor**: Wh yel sl bri, same as above, **Fair- poor oil show.***<br>***TG: 415; C1: 387; C2: 14*** |
| *8860'-8870'* | -- | -- | -- | *100* | | ***Clyst**: Same as above.*<br>***TG: 189; C1: 189*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |
| Lower Basal Salina | 8520' | 7870' | -7820' |

**Palinology:**

| *Interval* | *Determination* | *Formation* |
|---|---|---|
| *8770'-8780'* | *Zone VI* | *Basal Salina formation* |
| *8830'-8840'* | *Zone VI* | *Basal Salina formation* |

**Last survey:**

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *7796* | *30.3* | *216.0* | *7243* | *-7193* | *-2061* | *-1373* |

**Mud weight:** 12.3 ppg. **Viscosity:** 59 sec **Filtrate:** 5.0 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 25,722 |
| Cumulated ($): | 1'148,653 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** June 4, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | FTD |
|---|---|---|---|---|---|
| P - 48 | 8570' @ 00 hrs | 80' | 41 | 9 5/8" @ 5313' | *9200'* |

**24 hours summary:** Drilled from 8570' to 8735'. Trip to change bit at 8652'.

**PO:** Drilling at 8770' in Lower Basal Salina.

**Remarks:**

- Tentative top of Lower Basal Salina at 8520' MD (-7820' VSS).
- Trip gas at 8652' reported TG: 38210; C1: 34632; C2: 1102; C3: 189; C4: 168; C5: 27

**Next:** Continue drilling trough the Basal Salina.

**Lithology**

| *Interval* | *Sd* | *Sst* | *Slst* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *8570'-8580'* | -- | *30* | -- | *70* | *5* | ***Sst**: Lt gysh, vf, sb ang- sb rnd, w sort, mod frm, calc, p vis por.*<br>***Fluor**: Yel v sl bri, slow & weak strmg cut, sl mky wh cut fluor, non-residual ring, **Poor oil show.***<br>***Clyst**: Gy, blky, mod frm, non-calc, mic mic.*<br>***TG: 1243; C1: 998; C2: 47; C3: 18; C4: 18; C5: 5*** |
| *8580'-8710'* | -- | *10* | -- | *90* | *NF* | ***Sst & Clyst**: Same as above.*<br>***TG: 338; C1: 316; C2: 11*** |
| *8710-8720* | *10* | *20* | -- | *70* | *5* | ***Sd**: Wh hy, f, occ m w sort, sb ang, sb rnd.*<br>***Sst**: Wh gy, gysh, vf, w sort, calc, sl fri- mod frm, p vis por.*<br>***Fluor**: Yel v sl bri, slow & weak strmg cut, sl mky wh cut fluor, non-residual ring, **Poor oil show.***<br>***TG: 1243; C1: 998; C2: 47; C3: 18; C4: 18*** |
| *8720'-8760'* | -- | *10* | -- | *90* | *NF* | ***Sst**: Same as above.*<br>***Clyst**: Gy, sb blky- blky, non-calc, micr mic, micr carb, mod frm- frm*<br>***TG: 409; C1: 387; C2: 11*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |
| Lower Basal Salina | 8520' | 7870' | -7820' |

**Palinology:**

| *Interval* | *Determination* | *Formation* |
|---|---|---|
| *8540'-8560'* | *Zone VI* | *Basal Salina formation* |

**Last survey:**

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *7796* | *30.3* | *216.0* | *7243* | *-7193* | *-2061* | *-1373* |

**Mud weight:** 12.3 ppg. **Viscosity:** 59 sec **Filtrate:** 5.0 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 25,722 |
| Cumulated ($): | 1'127,785 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** June 1, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | FTD |
|---|---|---|---|---|---|
| P - 48 | 8570' @ 00 hrs | 47' | 38 | 9 5/8" @ 5313' | *9200'* |

**24 hours summary:** Drilled from 8489' to 8570' in Lower Basal Salina. Trip to check drill pipe for wash out # 9 and 10. Continue POOH to change 20 joints.

**PO:** RIH.

**Remarks:**

- Tentative top of Lower Basal Salina at 8520' MD (-7820' VSS).
- Trip gas at 8570' reported TG: 103055; C1: 90605; C2: 3472; C3: 697; C4: 705; C5: 119

**Next:** Continue drilling trough the Basal Salina.

| Lithology *Interval* | *Sd* | *Sst* | *Slst* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *8540'-8570'* | -- | -- | *10* | *90* | | ***Slst:*** *Gysh, blky, micr mic, micr carb, non-calc, mod frm.* ***Clyst:*** *Gy, blky, mod frm, non-calc, mic mic.* ***TG: 637; C1: 581; C2: 28*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |
| Lower Basal Salina | 8520' | 7870' | -7820' |

| Last survey: *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *7796* | *30.3* | *216.0* | *7243* | *-7193* | *-2061* | *-1373* |

**Mud weight:** 12.3 ppg. **Viscosity:** 56 sec **Filtrate:** 5.0 ml

| WELL COST: | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 19,687 |
| Cumulated ($): | 1'061,758 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...June 1 (27) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 31, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | FTD |
|---|---|---|---|---|---|
| P - 48 | 8523' @ 00 hrs | 104' | 37 | 9 5/8" @ 5313' | ***9200'*** |

**24 hours summary:** Drilled from 8419' to 8489'. Trip to check drill pipe for wash out # 7. Continue drilling to 8545' in Lower Basal Salina. Trip to check drill pipe for wash out # 8.

**PO:** RIH.

**Remarks:**

- Tentative top of Lower Basal Salina at 8520' MD (-7820' VSS), 5% natural fluorescence and C1 through C5 gas readings have been reported.
- Only 320 feet have been drilled in the last five days due to drill pipe wash outs (8 total) and rig mechanical problems.
- Short trip gas at 8489' reported TG: 82347; C1: 71444; C2: 3177; C3: 444; C4: 663; C5: 113

**Next:** Continue drilling trough the Basal Salina.

**Lithology**

| *Interval* | *Sd* | *Sst* | *Slst* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *8460'-8480'* | -- | *40* | -- | *60* | *5* | ***Sst**: Wh gy, vf, sb ang, sb rnd, w sort, sl calc, w/ mic & dk gr incl, mod frm, v p vis por.*<br>***Fluor**: Wh yel sl bri, slow & weak strmg cut, sl mky wh cut fluor, non-residual ring. **Poor oil show.***<br>***Clyst**: Brnsh- gy, Gy, sb blky- blky, minor sb plty, mod frm, non-calc, v mic mic, slty in pt*<br>***TG: 6753; C1: 6209; C2: 172; C3: 26; C4: 28; C5: 2*** |
| *8480'-8520'* | -- | *10* | -- | *90* | *NF* | ***Sst & Clyst**: Same as above.*<br>***TG: 1832; C1: 1603; C2: 58; C3: 15; C4: 17*** |
| *8520'-8530'* | *20* | *10* | -- | *70* | *5* | ***Sd**: Hy, wh, 30%f, 60%m, 10%c, occ vc, sb ang, sb rd, lse sd.*<br>***Sst**: Wh-lt gy, vf, w sort, fri, calc, w/dk gr incl, p vis por.*<br>***Fluor**: Wh yel sl bri, slow & weak strmg cut, sl mky wh cut fluor, non-residual ring. **Poor oil show.***<br>***Clyst**: Same as above.*<br>***TG: 764; C1: 581; C2: 39; C3: 15; C4: 15*** |
| *8530'-8540'* | -- | *10* | -- | *90* | *5* | ***Sst & Clyst**: Same as above.*<br>***TG: 506; C1: 474; C2: 16*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |
| Lower Basal Salina | 8520' | 7870' | -7820' |

**Last survey:**

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *7796* | *30.3* | *216.0* | *7243* | *-7193* | *-2061* | *-1373* |

**Mud weight:** 12.3 ppg. **Viscosity:** 55 sec **Filtrate:** 5.0 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 20,450 |
| Cumulated ($): | 1'042,071 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...May 31 (26) LO6-23.doc

**PETRO - TECH PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 30, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 8419' @ 00 hrs | 83' | 36 | 9 5/8" @ 5313' | *Lower Basal Salina @ 8550'MD (-7250' VSS)* | *9200'* |

**24 hours summary:** Drilled from 8336' to 8419'. Trip to check drill pipe for wash out.

**PO:** Drilling at 8451' in Basal Salina formation.

**Remarks:**

- Presently, drilling a sandy section near the top of Lower Basal Salina.
- From 8420' to 8460', 5 to 20% of natural fluorescence and total gas increase from 100 to 11,245 ppm with C1- C5 readings.

**Next:** Continue drilling trough the Basal Salina.

| Lithology Interval | Sd | Sst | Slst | Clyst | Fluor | Description |
|---|---|---|---|---|---|---|
| *8310'-8340'* | -- | -- | *20* | *80* | | ***Slsts**: Gysh, blky, mic, micr carb, sl calc, mod frm.* ***Clyst**: Brnsh- gy, Gy, sb blky- blky, minor sb plty, mod frm, non-calc, v mic mic, slty in pt* ***TG: 100; C1: 100*** |
| *8340'-8420'* | -- | *10* | -- | *90* | *NF* | ***Sst**: Wh gy, vf, sb ang, sb rnd, w sort, sl calc, w/ mic & dk gr incl, mod frm, v p vis por.* ***Clyst**: Same as above.* ***TG: 579; C1: 543; C2: 18*** |
| *8420'-8425'* | -- | *40* | -- | *60* | *20* | ***Sst**: Wh-lt gy, vf, w sort, fri, calc, w/ mic & dk gr incl, p vis por.* ***Fluor**: Wh yel sl bri, slow & v weak strmg cut, mky wh fluor on cut, non-residual ring.* ***Fair to poor oil show.*** ***Clyst**: Same as above.* ***TG: 1223; C1: 1093; C2: 36; C3:5; C4: 8; C5: 2*** |
| *8425'-8450'* | -- | *20* | -- | *80* | *5* | ***Sst & Clyst**: Same as above.* ***TG: 2163; C1: 1964; C2: 69; C3: 8; C4: 9*** |
| *8450'-8460'* | -- | *40* | -- | *60* | *5* | ***Sst & Clyst**: Same as above.* ***TG: 11245; C1: 10152; C2: 324; C3: 38; C4: 44; C5:7*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |

**Palinology:**

| Interval | Determination | Formation |
|---|---|---|
| *8310'-8330'* | *Zone VI* | *Basal Salina formation* |

**Last survey:**

| Depth (ft) | Incl (degr) | Azimuth (deg) | TVD (ft) | VSS (ft) | N/ -S (ft) | E/ -W (ft) |
|---|---|---|---|---|---|---|
| *7796* | *30.3* | *216.0* | *7243* | *-7193* | *-2061* | *-1373* |

**Mud weight:** 12.3 ppg. **Viscosity:** 55 sec **Filtrate:** 5.0 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 20,956 |
| Cumulated ($): | 1'021,621 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...May 30 (25) LO6-23.doc

**PETRO - TECH PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 29, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 8336' @ 00 hrs | 29' | 35 | 9 5/8" @ 5313' | *Lower Basal Salina @ 8550'MD (-7250' VSS)* | *9200'* |

**24 hours summary:** Trip to change bit.

**PO:** RIH with tri-conic bit.

**Remarks:**

- Presently, drilling the shaly section between Upper and Lower Basal Salina.

**Next:** Continue drilling trough the Basal Salina.

| Lithology Interval | Sd | Sst | Slst | Clyst | Fluor | Description |
|---|---|---|---|---|---|---|
| *8310'-8330'* | -- | -- | *10* | *90* | | ***Slsts**: Gysh, blky, mic, micr carb, sl calc, mod frm.* ***Clyst**: Brnsh- gy, Gy, sb blky- blky, minor sb plty, mod frm, non-calc, v mic mic, slty in pt* ***TG: 140; C1: 140*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |

**Last survey:**

| Depth (ft) | Incl (degr) | Azimuth (deg) | TVD (ft) | VSS (ft) | N/ -S (ft) | E/ -W (ft) |
|---|---|---|---|---|---|---|
| *7796* | *30.3* | *216.0* | *7243* | *-7193* | *-2061* | *-1373* |

**Mud weight:** 12.3 ppg. **Viscosity:** 55 sec **Filtrate:** 5.0 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 24,523 |
| Cumulated ($): | 1'000,665 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...May 29 (24) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 28, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 8307' @ 00 hrs | 78' | 34 | 9 5/8" @ 5313' | *Lower Basal Salina @ 8550'MD (-7250' VSS)* | *9200'* |

**24 hours summary:** Over the weekend drilled from 8068' to 8315' in Basal Salina formation. POOH to check drill pipe due to wash out (a total of four wash outs have been detected in the last two days).

**PO:** POOH to check drill pipe for wash out.

**Remarks:**

- Presently, drilling the shaly section between Upper and Lower Basal Salina.
- Based on ditch sample description a total of 160 ft. of coarse to conglomeratic-grained sands with oil and gas shows, C1 through C5, have been observed in the Upper Basal Salina formation (7910'- 8070' MD).

**Next:** Continue drilling trough the Basal Salina.

**Lithology**

| *Interval* | *Sd* | *Sst* | *Slst* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *8070'-8090'* | *10* | *40* | *--* | *50* | *5* | ***Sd:** Wh, hyl, 30%m, 40%c, 30%vc, sb ang, sb rnd, p srt.* ***Sst:** Lt gy, vf,sb ang- sb rnd, w srt, arg mtx, fri, dty, calc cmt, w/ mic & dk gr incl, vp vis por.* ***Fluor:** Wh yel sl bri, slow strm cut, weak mky wh fluor on cut, non-visible resid ring. **Poor oil show*** ***Clyst:** Brnsh- gy, Gy, sb blky- blky, minor sb plty, mod frm, non-calc, v mic mic, slty in pt* ***TG: 140; C1: 140*** |
| *8090'-8270'* | *--* | *--* | *10* | *90* | *NF* | ***Slsts:** Gysh, blky, mic, micr carb, sl calc, mod frm.* ***Clyst:** Same as above.* ***TG: 131; C1: 131*** |
| *8270'-8280'* | *10* | *--* | *--* | *90* | *5* | ***Sd:** Wh, hyl, 20% vf, 60%f, 20%m, p srt,* ***Fluor:** Wh yel sl bri, v slow & weak strm cut, pale mky wh fluor on cut, non-visible resid ring. **Poor oil show*** ***Clyst:** Same as above.* ***TG: 337; C1: 295; C2: 21*** |
| *8280'-8310'* | *--* | *20* | *--* | *80* | *5* | ***Sst:** Wh gy, 90%vf, 10%f, sb ang, sb rnd, w sort, sl calc, w/ mic & dk gr incl, mod frm, v p vis por.* ***Clyst:** Same as above.* ***Fluor:** Wh yel sl bri, mod weak mky wh fluor on cut, non-vis residual ring. **Poor oil show*** ***TG: 316; C1: 316*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |

**Last survey:**

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *7796* | *30.3* | *216.0* | *7243* | *-7193* | *-2061* | *-1373* |

**Mud weight:** 12.3 ppg. **Viscosity:** 55 sec **Filtrate:** 5.0 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 19,766 |
| Cumulated ($): | 976,142 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...May 28 (23) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 25, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 8002' @ 00 hrs | 137' | 31 | 9 5/8" @ 5313' | *Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Drilled from 7865' to 8002'.

**PO:** Drilling at 8068' in Upper Basal Salina formation.

**Remarks:**

- Based on ditch sample description a total of 160 ft. of coarse to conglomeratic-grained sands with oil and gas shows, C1 through C5, have been observed in the Upper Basal Salina formation.
- The top of Basal Salina is at 7780' MD, 7230" TVD (- 7180' VSS), which is about 150' higher than LO6-25 well.

**Next:** Continue drilling trough the Upper Basal Salina.

| Lithology Interval | Sd | Sst | Slsts | Clyst | Fluor | Description |
|---|---|---|---|---|---|---|
| *7865'-7910'* | -- | *20* | -- | *80* | *NF* | ***Sst**: Lt gy, vf,sb ang- sb rnd, w srt, arg mtx, fri, dty, calc cmt, w/ mic & dk gr incl, vp vis por.*<br>***Clyst**: Brnsh- gy, Gy, sb blky- blky, minor sb plty, mod frm, non-calc, v mic mic, slty in pt*<br>***TG: 2173; C1: 2105; C2: 34*** |
| *7910'-7980'* | *50* | *10* | -- | *40* | *NF* | ***Sd**: Wh, hyl, 30%m, 40%c, 30%vc, sb ang, sb rnd, p srt.*<br>***Sst & Clyst:** Same as above.*<br>***TG: 12126; C1: 11419; C2: 225; C3: 12; C4: 54; C5: 1*** |
| *7980'-8020'* | *60* | *10* | -- | *30* | *5-15* | ***Sd**: Wh, hyl, smky, 10%m, 30%c, 40%vc, 20%cgl, p srt, hky.*<br>***Sst**:Wh, wh gy, 90%vf, 10%f, sb ang, sb rnd, v calc, w/ mic & dk gr incl, fri- mod frm, p vis por.*<br>***Fluor**: Wh yel sl bri, mod fast strm cut, weak mky wh fluor on cut, non-visible resid ring. **Fair oil show***<br>***Clyst**: Same as above.*<br>***TG: 2032; C1: 1603; C2: 58; C3: 12; C4: 38; C5: 25*** |
| *8020'-8070'* | *60* | *20* | -- | *20* | *30-40* | ***Sd, Sst & Clyst**: Same as above.*<br>***Fluor**: Wh yel sl bri, mod weak mky wh fluor on cut, non-vis residual ring. **Good oil show***<br>***TG: 4172; C1: 3376; C2: 150; C3: 21; C4: 87; C5: 17*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |

**Last survey:**

| Depth (ft) | Incl (degr) | Azimuth (deg) | TVD (ft) | VSS (ft) | N/ -S (ft) | E/ -W (ft) |
|---|---|---|---|---|---|---|
| *7796* | *30.3* | *216.0* | *7243* | *-7193* | *-2061* | *-1373* |

**Mud weight:** 12.1 ppg. **Viscosity:** 54 sec **Filtrate:** 5.4 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 22,558 |
| Cumulated ($): | 908,187 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUAN^ S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 24, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 7865' @ 00 hrs | 94' | 30 | 9 5/8" @ 5313' | *Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Drilled from 7807' to 7865' in Basal Salina formation. Trip to change BHA and bit.

**PO:** RIH.

**Remarks:**

- The tentative top of Basal Salina is at 7780' MD, 7230" TVD (- 7180' VSS), which is about 150' higher than LO6-25 well.
- Mud weight has been increased from 11.6 to 12.0 pounds per gallon.

**Next:** Continue drilling trough the Upper Basal Salina.

| Lithology *Interval* | *Sd* | *Sst* | *Slsts* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *7800'-7850'* | -- | *10* | -- | *90* | *NF* | ***Ss.*** *Lt gy, vf,sb ang- sb rnd, w srt, arg mtx, fri, dty, calc cmt, w/ mic & dk gr incl, vp vis por.* ***Clyst:*** *Brnsh- gy, Gy, sb blky- blky, minor sb plty, mod frm, non-calc, v mic mic, slty in pt* ***TG: 1510; C1: 1424; C2: 43*** |
| *7850'-7865'* | -- | -- | -- | *100* | *NF* | ***Clyst:*** *Same as above.* ***TG: 663; C1: 621; C2: 21*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |

**Last survey:**

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *7796* | *30.3* | *216.0* | *7243* | *-7193* | *-2061* | *-1373* |

**Mud weight:** 12.0 ppg. **Viscosity:** 53 sec **Filtrate:** 5.6 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 24,557 |
| Cumulated ($): | 856,629 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...May 24 (21) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 23, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 7771' @ 00 hrs | 157' | 29 | 9 5/8" @ 5313' | *Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Drilled from 7636' to 7771'.

**PO:** Drilling rotating and sliding at 7807' in Basal Salina formation.

**Remarks:**

- Based on ditch sample description and gas shows a total of 20 ft. of tentative Upper Basal Salina formation have been drilled.
- Gas shows with C1 through C5 in only 10% of medium to coarse-grained sands without fluorescence have been observed. Total gas increased from 539 to 65,225 ppm.
- The tentative top of Basal Salina is at 7780' MD, 7230" TVD (- 7180' VSS), which is about 150' higher than LO6-25 well.
- Mud weight has been increased from 11.0 to 11.6 pounds per gallon.

**Next:** Continue drilling until the Upper Basal Salina is confirmed, then perform a trip to change BHA and bit.

| Lithology Interval | Sd | Sst | Slsts | Clyst | Fluor | Description |
|---|---|---|---|---|---|---|
| *7630'-7780'* | -- | -- | -- | *100* | | ***Clyst**: Gy, sb blky-blky, v micr mic, sl micr carb, non calc, mod frm & Brnsh- gy, sb blky, micr mic, micr carb, non- calc, mod frm.* ***TG: 539; C1: 507; C2: 16*** |
| *7780'-7800'* | *10* | -- | -- | *90* | *NF* | ***Sd**: Wh, hy, 90%m, 10%c-vc, sb ang- sb rd, w srt.* ***Clyst**: Same as above.* ***TG: 65225; C1: 6234; C2: 1308; C3: 87; C4: 71; C5: 6*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Upper Basal Salina | 7780' | 7230' | -7180' |

**Micropaleontology:**

| Interval | Determination | Formation |
|---|---|---|
| *7570'-7750'* | *Palegreda/ Salina assembly very poor* | *San Cristobal formation* |

**Last survey:**

| Depth (ft) | Incl (degr) | Azimuth (deg) | TVD (ft) | VSS (ft) | N/ -S (ft) | E/ -W (ft) |
|---|---|---|---|---|---|---|
| *7670* | *27.2* | *218.8* | *7133* | *-7083* | *-2013* | *-1282* |

**Mud weight:** 11.4 ppg. **Viscosity:** 53 sec **Filtrate:** 5.6 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 20,170 |
| Cumulated ($): | 861,072 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 22, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 7614' @ 00 hrs | 283' | 28 | 9 5/8" @ 5313' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Drilled from 7390' to 7614'. Repairing mud pumps.

**PO:** Drilling rotating and sliding at 7636' in San Cristobal formation.

**Next:** Continue drilling to reach the Basal Salina objective.

Lithology

| *Interval* | *Sd* | *Sst* | *Slsts* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *7390'-7630'* | -- | -- | -- | *100* | | *Clyst. Gy, sb blky-blky, v micr mic, sl micr carb, non calc, mod frm & Brnsh- gy, sb blky, micr mic, micr carb, sl calc, mod frm. & Dk gy, frm, sb blky- blky, non-calc, micr mic,slty in pt.*<br>*TG: 928; C1: 880; C2: 24* |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| San Cristobal | 6240' | 5853' | -5803' |

Micropaleontology:

| *Interval* | *Determination* | *Formation* |
|---|---|---|
| *7330'-7510'* | *Palegreda/ Salina assembly very poor* | *San Cristobal formation* |
| *7510'-7570'* | *Palegreda/ Salina assembly poor* | *San Cristobal formation* |

Last survey:

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *7482* | *26.4* | *220.9* | *6965* | *-6915* | *-1949* | *-1282* |

**Mud weight:** 11.0 ppg. **Viscosity:** 52 sec **Filtrate:** 5.6 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 22,663 |
| Cumulated ($): | 840,902 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...May 22 (19) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 21, 2001

| RIG | Today Depth | Progress last 24 hrs | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 7331' @ 00 hrs | 121' | 27 | 9 5/8" @ 5313' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Over weekend drilled from 6764' to 7331'. Trip to check MWD, didn't receive signal. RIH with mud motor.

**PO:** Drilling rotating and sliding at 7390' in San Cristobal formation.

**Next:** Continue drilling to reach the Basal Salina objective.

**Lithology**

| *Interval* | *Sd* | *Sst* | *Slsts* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *6760'-7390'* | -- | -- | -- | *100* | | ***Clyst**: Gy, sb blky-blky, v micr mic, sl micr carb, non calc, mod frm & Brnsh- gy, sb blky, micr mic, micr carb, sl calc, mod frm.* ***TG: 850; C1: 800; C2: 25*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| San Cristobal | 6240' | 5853' | -5803' |

**Micropaleontology:**

| *Interval* | *Determination* | *Formation* |
|---|---|---|
| *6290'-6750'* | *Palegreda/ Salina assembly very poor* | *San Cristobal formation* |
| *6750'-6990'* | *Palegreda/ Salina assembly poor- common* | *San Cristobal formation* |
| *6990'-7230'* | *Pg/ Sn assy common + Balcones Reworked traces- very poor* | *San Cristobal formation* |
| *7230'-7330'* | *Palegreda/ Salina assembly poor* | *San Cristobal formation* |

**Last survey:**

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *6979* | *26.3* | *218.8* | *6516* | *-6466* | *-1779* | *-1132* |
| *7293* | *26.7* | *223.0* | *6796* | *-6746* | *-1885* | *-1225* |

**Mud weight:** 11.0 ppg. **Viscosity:** 51 sec **Filtrate:** 5.2 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 20,355 |
| Cumulated ($): | 818,239 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...May 21 (18) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 18, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 6764' @ 00 hrs | 193' | 24 | 9 5/8" @ 5313' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Drilled from 6605' to 6764' in San Cristobal formation. Trip to change assembly.

**PO:** RIH.

**Next:** Continue drilling to reach the Basal Salina objective.

**Lithology**

| *Interval* | *Sd* | *Sst* | *Slsts* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *6600'-6760'* | -- | -- | -- | *100* | | ***Clyst:*** *Gy, sb blky-blky, v micr mic, micr carb, non calc, mod frm & Brnsh, sb blky, micr mic, micr carb, sl calc, mod frm.*<br>***TG: 262; C1: 258; C2: 2*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| San Cristobal | 6240' | 5853' | -5803' |

**Last survey:**

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *6700* | *26.2* | *209.4* | *6265* | *-6215* | *-1678* | *-1061* |

**Mud weight:** 10.9 ppg. **Viscosity:** 52 sec **Filtrate:** 5.2 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 20,596 |
| Cumulated ($): | 753,538 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...May 18 (17) LO6-23.doc

PETRO - TECH
PERUANA S.A.

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 17, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 6571' @ 00 hrs | 250' | 23 | 9 5/8" @ 5313' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Drilled to 6571'. Trip to change assembly. RIH with PDC bit and Mud motor.

**PO:** Drilling at 6605' in San Cristobal formation.

**Next:** Continue drilling to reach the Basal Salina objective.

**Lithology**

| *Interval* | *Sd* | *Sst* | *Slsts* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *6500'-6600'* | -- | -- | -- | *100* | | ***Clyst**: Gy, sb blky-blky, v micr mic, micr carb, non calc, mod frm*<br>***TG: 847; C1: 825; C2: 2; C3: 1; C4:1; C5: 3*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| San Cristobal | 6240' | 5853' | -5803' |

**Last survey:**

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *6516* | *26.1* | *209.6* | *6100* | *-6050* | *-1608* | *-1020* |

**Mud weight:** 10.9 ppg. **Viscosity:** 52 sec **Filtrate:** 5.2 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 21,366 |
| Cumulated ($): | 732,942 |

MCh/PA

CENTRAL FILE
GEOSCIENCES

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 16, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 6321' @ 00 hrs | 467' | 22 | 9 5/8" @ 5313' | ***Upper Basal Salina @ 7850' MD (-7280' VSS)*** ***Lower Basal Salina @ 8250'MD (-7650' VSS)*** | ***8700'*** |

**24 hours summary:** RIH testing strings each 10 stands to 5854'. Continue drilling.

**PO:** Drilling at 6532' in San Cristobal formation.

**Next:** Continue drilling to reach the Basal Salina objective.

| Lithology *Interval* | *Sd* | *Sst* | *Slsts* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *5850'-5890'* | -- | -- | -- | *100* | | ***Clyst**: Brn- gy, sb blky, sb plty, v micr mic, micr carb, non- calc, mod sft.* |
| *5890'-5970'* | -- | *40* | -- | *60* | *5* | ***Sst**: Wh, 60%vf, 40%f, sb ang- sb rd, fr srt, sl cln, v calc cmt, fri- mod hd, w/dk gr inc, p vis por.* ***Fluor**: Pale yel', slow & weak cut, sl mlky wh fluor crush spl, Non visible residual ring* ***Clyst**. Brn- gy, sb blky- blky, mod frm, micr mic, micr carb, non- calc, sl waxy.* |
| *5970'-6040'* | -- | *80* | -- | *20* | *10* | ***Ss**. Wh-gy, 70%vf, 30%f, sb ang –sb rd, fri - mod hd, w srtd, sl arg mtx, calc cmt, w/lam coal, mic & dk gr inc, ` p vis por.* ***Fluorl**: Wh dull, mod strg cut, sl mlky wh fluor on crush spl, Non Vis Res Ring* ***Clyst**: Same as above* |
| *6040'-6240'* | -- | *40* | -- | *60* | *NF* | ***Sst**: Lt Gy, vf, w srtd, arg mtx, mod hd, non calc, dty, w/lam coal & dk gr inc, vp-p vis por.* ***Clyst**: Same as above* |
| *6240'-6500'* | -- | *10* | -- | *90* | *NF* | ***Clyst**. Gy, sb blky- blky, mod frm, non calc,v mic mic, mic carb.* |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| San Cristobal | 6240' | 5853' | -5803' |

**Last survey:**

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *5957* | *27.2* | *218.1* | *5600* | *-5550* | *-1401* | *-880* |
| *6516* | *26.1* | *209.6* | *6100* | *-6050* | *-1608* | *-1020* |

**Mud weight:** 10.9 ppg. **Viscosity:** 50 sec **Filtrate:** 5.2 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 37,941 |
| Cumulated ($): | 711,576 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

PETRO - TECH
PERUANA S.A.

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 15, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 5854' @ 00 hrs | 82' | 21 | 9 5/8" @ 5313' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Changed Assy, RIH w/ Rotary Assy, drilled to 5854'. Dropped pressure, POOH to check. Changed jets in bit. RIH to 497'.

**PO:** Circulating to check drill collars and HW's.

**Next:** Continue drilling to reach the Basal Salina objective.

Lithology

| *Interval* | *Sd* | *Sst* | *Slsts* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *5818'-5850'* | -- | -- | *10* | *90* | *NF* | ***Slsts**: Gy , sb blky to blky, mic, micr carb, non- calc, sft.*<br>***Clyst**: Sl brnsh gy, mnr gy, sb blky, sb plty, v micr mic, micr carb, non- calc, mod sft.* |

Formation : **Mogollon**

Palinology:

| *Interval* | *Determination* | *Formation* |
|---|---|---|
| *5800'-5818'* | *Sub zone VIII a* | *Mogollon formation* |

**Last survey:**

| *Depth (ft)* | *Incl (degr)* | *Azimuth (deg)* | *TVD (ft)* | *VSS (ft)* | *N/ -S (ft)* | *E/ -W (ft)* |
|---|---|---|---|---|---|---|
| *5753* | *27.6* | *217.5* | *5419* | *-5369* | *-1327* | *-822* |

**Mud weight:** 10.4 ppg. **Viscosity:** 54 sec **Filtrate:** 5.4 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 24,702 |
| Cumulated ($): | 673,635 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...May 15 (14) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 14, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 5772' @ 00 hrs | 459' | 20 | 9 5/8" @ 5313' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Over weekend drilled from 5313' to 5818' in Palegreda formation.

**PO:** Trip to change assembly.

**Next:** Continue drilling to reach the Basal Salina objective.

| Lithology Interval | Sd | Sst | Slsts | Clyst | Fluor | Description |
|---|---|---|---|---|---|---|
| *5313'-5570'* | -- | -- | *20* | *80* | *NF* | ***Slsts**: Gy- lt gy, sb blky, mic, micr carb, non- calc, mod frm.*<br>***Clyst**: Gy, sb blky, sb plty- plty, micr mic, micr carb, non- calc, mod frm.* |
| *5570'-5640'* | -- | *10* | *10* | *80* | *NF* | ***Sst**: Lt gy, vf, sb ang- sb rd, w sort, mod fri, calc cem, cly mtx, w/ dk gr & coal incl, dty sst, p vis por.*<br>***Slsts**: Same as above.*<br>***Clyst**: Gy, blky- sb blky, non-calc, v micr mic, rough surf, slty- clyst.* |
| *5640'-5818'* | -- | -- | *10* | *90* | | ***Slsts & Clyst**: Same as above.* |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Mogollon | 5570' | 5253' | -5203' |

**Palinology:**

| Interval | Determination | Formation |
|---|---|---|
| *5290'-5310'* | *Sub zone VIII b* | *Palegreda formation* |

**Surveys:**

| Depth (ft) | Incl (degr) | Azimuth (deg) | TVD (ft) | VSS (ft) | N/ -S (ft) | E/ -W (ft) |
|---|---|---|---|---|---|---|
| *5346* | *19.2* | *209.6* | *5045* | *-4995* | *-1199* | *-726* |
| *5660* | *24.4* | *217.4* | *5336* | *-5286* | *-1295* | *-797* |
| *5753* | *27.6* | *217.5* | *5419* | *-5369* | *-1327* | *-822* |

**Mud weight:** 10.2 ppg. **Viscosity:** 51 sec **Filtrate:** 5.4 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 22,393 |
| Cumulated ($): | 648,933 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 11, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 5313' @ 00 hrs | 33' | 17 | 13 3/8" @ 1500' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Conditioning hole. Ran 9 5/8" casing to 5313'.

**PO:** Cementing.

**Next:** WOC and continue drilling to reach the Basal Salina objective.

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Palegreda | 5200' | 4906' | -4856' |

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 22,293 |
| Cumulated ($): | 458,238 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...May 11 (12) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 10, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 5280' @ 00 hrs | 530' | 16 | 13 3/8" @ 1500' | ***Upper Basal Salina @ 7850' MD (-7280' VSS)*** ***Lower Basal Salina @ 8250'MD (-7650' VSS)*** | ***8700'*** |

**24 hours summary:** Trip for bit and assembly at 4998'. Continue drilling to 5313' in Palegreda formation.

**PO:** Conditioning hole to run 9 5/8" casing.

**Next:** Set and cement 9 5/8" casing.

| Lithology Interval | Sd | Sst | Slsts | Clyst | Fluor | Description |
|---|---|---|---|---|---|---|
| *4990'-5200'* | -- | *20* | *10* | *70* | *NF* | ***Sst:*** *Lt gy, vf, sb ang- sb rd, w sort, mod frm, non-calc cly mtx, p vis por.* ***Slsts:*** *Gysh, blky, micr mic, micr carb, sl calc, mod frm.* ***Clyst:*** *Gy, sb blky, micr mic, non- calc, mod frm.* ***TG: 949; C1: 933; C2: 2; C3: 1; C4: 1; C5: 1*** |
| *5200'-5313* | -- | *10* | *10* | *80* | *NF* | ***Sst & Slsts:*** *Same as above* ***Clyst:*** *Lt gy, sb blky, sb plty, micr mic, micr carb, non calc, mod frm.* ***TG: 711; C1: 711*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Palegreda | 5200' | 4906' | -4856' |

**Paleontology:**

| Interval | Determination | Formation |
|---|---|---|
| *5170'-5260'* | *Palegreda fauna very poor* | *Palegreda formation* |

**Surveys:**

| Depth (ft) | Incl (degr) | Azimuth (deg) | TVD (ft) | VSS (ft) | N/ -S (ft) | E/ -W (ft) |
|---|---|---|---|---|---|---|
| *5036* | *15.6* | *208.2* | *4748* | *-4698* | *-1121* | *-683* |
| *5162* | *16.1* | *208.2* | *4870* | *-4820* | *-1151* | *-700* |
| *5274* | *17.0* | *208.2* | *4977* | *-4927* | *-1179* | *-715* |

**Mud weight:** 9.8 ppg. **Viscosity:** 52 sec **Filtrate:** 5.6 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 29,294 |
| Cumulated ($): | 435,945 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 9, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 4750' @ 00 hrs | 521' | 15 | 13 3/8" @ 1500' | ***Upper Basal Salina @ 7850' MD (-7280' VSS)*** ***Lower Basal Salina @ 8250'MD (-7650' VSS)*** | ***8700'*** |

**24 hours summary:** Drilling.

**PO:** Drilling at 4990' in Rio Bravo formation.

**Next:** Continue drilling to 5200' in order to set 9 5/8" casing.

| Lithology Interval | Sd | Sst | Slsts | Clyst | Fluor | Description |
|---|---|---|---|---|---|---|
| 4220'-4330' | -- | 50 | 10 | 40 | 10 | ***Sst***: *Wh gy, 50%vf, 50%f, sb ang- sb rd, fr sort, mod frm, non-calc slty mtx, p vis por.* ***Fluor***: *Yel sl bri, slow stream mky wh fluor on cut, lt yel residual ring. Fair- poor oil show.* ***Slsts***: *Gysh, blky, micr mic, micr carb, sl calc, mod frm.* ***Clyst***: *Gy, sb blky, micr mic, non- calc, mod frm.* ***TG: 3395; C1: 3190; C2: 22; C3: 16; C4: 12; C5: 13*** |
| 4330'-4510 | -- | 20 | 30 | 50 | NF | ***Sst***: *Wh, 90%vf, 10%f, sb ang, sb rd, w sort, mod frm, non- calc, cly mtx, dty sst, p vis por* ***Slsts & Clyst***: *Same as above.* ***TG: 693; C1: 693*** |
| 4510'-4630' | 10 | 30 | 20 | 40 | 5 | ***Sd***: *Wh hy, 70% f, 30% m, sb ang, sb rd, fr-p sort.* ***Sst, Sltst & Clyst***: *Same as above* ***TG: 4408; C1: 4136; C2: 25; C3: 22; C4: 19; C5: 16*** |
| 4630'-4750' | -- | 50 | -- | 50 | NF | ***Sst***: *Lt gy, vf, cly mtx, dty sst, p vis por.* ***Clyst***: *Gy, sb blky, micr mic, mod frm.* ***TG: 1048; C1: 1048*** |
| 4750'-4990' | -- | 20 | 10 | 70 | NF | ***Sst, Sltst & Clyst***: *Same as above* ***TG: 693; C1: 693*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Rio Bravo | 3610' | 3427' | -3377' |

**Surveys:**

| Depth (ft) | Incl (degr) | Azimuth (deg) | TVD (ft) | VSS (ft) | N/ -S (ft) | E/ -W (ft) |
|---|---|---|---|---|---|---|
| 4426 | 21.2 | 208.6 | 4170 | -4120 | -952 | -592 |
| 4739 | 18.5 | 208.2 | 4464 | -4414 | -1046 | -643 |
| 4896 | 16.3 | 208.9 | 4614 | -4564 | -1087 | -665 |

**Mud weight:** 9.8 ppg. **Viscosity:** 53 sec **Filtrate:** 5.6 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 26,149 |
| Cumulated ($): | 405,651 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 8, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 4229' @ 00 hrs | 445' | 14 | 13 3/8" @ 1500' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Drilled from 3784' to 4229' in Rio Bravo formation. Trip for bit.

**PO:** RIH with new bit.

**Next:** Continue drilling to 5200' in order to set 9 5/8" casing.

| Lithology Interval | Sd | Sst | Slsts | Clyst | Fluor | Description |
|---|---|---|---|---|---|---|
| *3760'-3850'* | *10* | *40* | *--* | *50* | *30* | ***Sd**: Wh hy, 50% f, 50% m, sb ang, sb rd, fr-p sort.*<br>***Sst**: Wh gy, 60%vf, 40%f, sb ang- sb rd, fr sort, mod frm, non-calc slty mtx, p vis por.*<br>***Fluor**: Yel sl bri, mod fast, strong stream mky wh fluor on cut, lt yel residual ring. Good oil show.*<br>***Clyst**: Gy, sb blky, micr mic, non- calc, mod frm.*<br>***TG: 2164; C1: 1840; C2: 20; C3: 17; C4: 22; C5: 29*** |
| *3850'-4060* | *--* | *60* | *--* | *40* | *NF* | ***Sst**: Wh, 80%vf, 20%f, sb ang, sb rd, w sort, fri, non- calc, fr vis por*<br>***Clyst**: Same as above.*<br>***TG: 1071; C1: 935; C2: 12; C3: 10; C4: 8; C5: 10*** |
| *4060'-4220'* | *--* | *30* | *--* | *70* | *NF* | ***Sst & Clyst**: Same as above*<br>***TG: 260; C1: 258; C2: 1*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Rio Bravo | 3610' | 3427' | -3377' |

**Surveys:**

| Depth (ft) | Incl (degr) | Azimuth (deg) | TVD (ft) | VSS (ft) | N/ -S (ft) | E/ -W (ft) |
|---|---|---|---|---|---|---|
| *3263* | *26.3* | *211.4* | *3113* | *-3063* | *-535* | *-345* |
| *3579* | *25.8* | *211.7* | *3397* | *-3347* | *-654* | *-417* |
| *4113* | *23.8* | *210.4* | *3881* | *-3831* | *-847* | *-532* |

**Mud weight:** 9.7 ppg. **Viscosity:** 52 sec **Filtrate:** 5.8 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 26,058 |
| Cumulated ($): | 379,502 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 7, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 3784' @ 00 hrs | 2184' | 13 | 13 3/8" @ 1500' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Over the weekend drilled from 1600' to 3784'.

**PO:** Drilling at 3914' in Rio Bravo formation.

**Next:** Continue drilling to 5200' in order to set 9 5/8" casing.

| Lithology Interval | Sd | Sst | Slsts | Clyst | Fluor | Description |
|---|---|---|---|---|---|---|
| 1600'-2500' | -- | -- | -- | 100 | | ***Clyst:*** *Brnish, sb blky- blky, micr mic, sl micr carb, sl calc, mod sft.*<br>***TG: 2250; C1: 2250*** |
| 2500'-3610 | -- | -- | 10 | 90 | | ***Slsts:*** *Gysh, w/ mic incl, sl calc, sft.*<br>***Clyst:*** *Gy, sb blky, micr mic, non- calc, mod frm.*<br>***TG: 270; C1: 270*** |
| 3610'-3670' | 10 | 20 | -- | 70 | 15 | ***Sd:*** *Wh hy, 20%v f, 70% f, 10%m, sb ang, sb rd, fr sort.*<br>***Sst:*** *Wh, 70%vf, 30%f, sb ang, sb rd, w sort, fri, non- calc, fr vis por.*<br>***Fluor:*** *Yel sl bri, mod fast, strong stream mky wh fluor on cut, lt yel residual ring. Good oil show.*<br>***Clyst:*** *Brnsh gy, sb blky, sl micr mic, sl micr carb, non-calc, mod frm, smooth surf.*<br>***TG: 3268; C1: 2755; C2: 46; C3: 44; C4: 36; C5: 29*** |
| 3670'-3760' | 10 | 50 | -- | 40 | 50 | ***Sd:*** *Wh hy, 40% f, 50% m, 10%c, sb ang, sb rd, fr-p sort.*<br>***Sst:*** *Wh gy, 50%vf, 40%f, 10%m, sb ang- sb rd, fr sort, mod frm, non-calc slty mtx, p vis por.*<br>***Fluor:*** *Yel sl bri, mod fast, strong stream mky wh fluor on cut, lt yel residual ring. Good oil show.*<br>***Clyst:*** *Same as above.*<br>***TG: 5770; C1: 5422; C2: 33; C3: 29; C4: 25; C5: 19*** |

| Formation | MD | TVD | VSS |
|---|---|---|---|
| Chacra | 2500' | 2434 | -2384' |
| Rio Bravo | 3610' | 3427' | -3377' |

**Surveys:**

| Depth (ft) | Incl (degr) | Azimuth (deg) | TVD (ft) | VSS (ft) | N/ -S (ft) | E/ -W (ft) |
|---|---|---|---|---|---|---|
| 1681 | 5.6 | 211.2 | 1681 | -1631 | 10 | 11 |
| 1837 | 14.6 | 215.9 | 1834 | -1784 | -13 | -4 |
| 1962 | 18.7 | 209.6 | 1954 | -1904 | -43 | -25 |
| 2056 | 22.4 | 206.0 | 2042 | -1992 | -72 | -39 |
| 2182 | 28.2 | 212.9 | 2155 | -2105 | -119 | -67 |
| 3106 | 26.4 | 212.9 | 2972 | -2922 | 476 | -308 |

**Mud weight:** 9.5 ppg. **Viscosity:** 52 sec **Filtrate:** 6.0 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 27,873 |
| Cumulated ($): | 353,444 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 4, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 1600' @ 00 hrs | 100' | 10 | 13 3/8" @ 1500' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** RIH with PDC to 1600'. Slim-1 did not work properly. Trip to check it. RIH with triconic bit. Slim-1 working properly. Trip to change bit.

**PO:** RIH with PDC bit and Slim-1.

**Next:** Continue drilling to 5200' in order to set 9 5/8" casing.

**Mud weight:** 9.8 ppg. **Viscosity:** 44 sec **Filtrate:** 7.6 ml

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 18,435 |
| Cumulated ($): | 269,933 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...May 4 (7) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 3, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 1500' @ 00 hrs | --- | 9 | 13 3/8" @ 1500' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Drilled cement to 1470', no progress. Trip to check bit. RIH with new bit. Drilled out cement and formation to 1600' in Talara Group. Trip for mud motor.

**PO:** RIH with mud motor.

**Next:** Continue drilling to 5200' in order to set 9 5/8" casing.

**Lithology**

| *Interval* | *Sd* | *Sst* | *Slsts* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *1500'-1600'* | -- | -- | -- | *100* | | ***Clyst**: Lt brnish, sb blky- blky, non-calc, micr mic, micr carb, sft.* |

| **Formation** | **MD** | **TVD** | **VSS** |
|---|---|---|---|
| Talara Group | 597' | 597 | -547 (First sample recovered) |

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 18,733 |
| Cumulated ($): | 251,498 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** May 2, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 1500' @ 00 hrs | 903' | 8 | 13 3/8" @ 1500' | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Over the weekend, drilled from 597' to 1500' in Talara Group. Set and cement 13 3/8" casing at 1500 feet. WOC.

**PO:** Welding flow line.

**Next:** Continue drilling to 5200' in order to set 9 5/8" casing.

**Lithology**

| *Interval* | *Sd* | *Sst* | *Slsts* | *Clyst* | *Fluor* | *Description* |
|---|---|---|---|---|---|---|
| *597'-790'* | *30* | *40* | *--* | *30* | *NF* | ***Sd**: Wh, hy, 30% f, 50% m, 20%c, sb ang, sb rd, p sort.*<br>***Sst**: Gysh, wh gnih, 30%f, 50%f, 20%m, p sort, sb ang- sb rd, fri, arg mat, calc cem, w/ gn min & carb mat incl, p vis por.*<br>***Clyst**: Brnish, sb blky, micr mic, micr carb, sl calc, mod sft.* |
| *790'-850'* | *--* | *40* | *--* | *60* | *NF* | ***Sst**: Wh gy, vf-f, sb ang- sb rd, w sort, fri, arg mtx, calc cem, p vis por.*<br>***Clyst**: Same as above.* |
| *850'-1500'* | *--* | *--* | *--* | *100* | | ***Clyst**: Lt brnish, sb blky- blky, non-calc, micr mic, micr carb, sft.* |

| **Formation** | **MD** | **TVD** | **VSS** |
|---|---|---|---|
| Talara Group | 597' | 597 | -547 (First sample recovered) |

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 34,042 |
| Cumulated ($): | 232,765 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** April 26, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 597' @ 00 hrs | 17' | 2 | ------- | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Preparing to run 18" conductor.

**PO:** Running 18" conductor

**Next:** Set and cement 18" conductor at 597'.

**WELL COST:**

| | |
|---|---|
| AFE ($): | N/ A |
| Daily ($): | 18,158 |
| Cumulated ($): | 58,192 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** April 27, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 597' @ 00 hrs | -- | 4 | ------- | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Ran 18" conductor to 597 feet.

**PO:** Cementing 18" conductor

**Next:** WOC and continue drilling to 5200' in order to set 9 5/8" casing.

**WELL COST:**

| | |
|---|---|
| AFE ($): | 1'451,680 |
| Daily ($): | 18,621 |
| Cumulated ($): | 76,813 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...Apr 27 (4) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** April 25, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 360' @ 00 hrs | 220' | 1 | ------- | *Upper Basal Salina @ ~~8900~~ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Drilled from 414' to 445' with high torque. Trip for Magnet, recovered pieces of junk. Trip for bit. Drilled to 597' with sea water, no samples returns.

**PO:** Reaming.

**Next:** Set and cement 18" conductor at 580'.

**WELL COST:**

| | |
|---|---|
| AFE ($): | N/ A |
| Daily ($): | 18,158 |
| Cumulated ($): | 39,561 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...Apr 25(2) LO6-23.doc

**PETRO - TECH**
**PERUANA S.A.**

# LO6 -23 GEOLOGICAL REPORT

**Date:** April 24, 2001

| RIG | Today Depth | Progress | Days | Last Casing | Objective | FTD |
|---|---|---|---|---|---|---|
| P - 48 | 360' @ 00 hrs | 75' | | ------- | *Upper Basal Salina @ 7850' MD (-7280' VSS)*<br>*Lower Basal Salina @ 8250'MD (-7650' VSS)* | *8700'* |

**24 hours summary:** Skidded rig over conductor N° 23. Ran 18" conductor to 395'. Drill spud on April 24, 2001.

**PO:** Drilling at 414' with sea water, no samples returns.

**Next:** Set and cement 18" conductor at 565'.

**LO6- 23**
**Direction:** S 34° W
**Max. vertical angle:** 25 degrees
**Main Objective:** Basal Salina (Upper and Lower sections)

**Geological Summary:**

- This well has been recommended to continue with the development of the Basal Salina in a faulted block of approximately 300 acres where is located the well LO6- 25, at 800 meters towards NE.
- Estimated reserves for **LO6-23** are 300 MBO, and IPR is 300 BOPD.
- The Net pay estimated for Basal Salina is 350' (150' & 200' in the Upper and Lower sections respectively). The sand quality is expected to be similar to that encountered in LO6- 25 well.
- Expected formation tops are as follows:

| | MD | TVD | VSS |
|---|---|---|---|
| Talara | From Sea level | | |
| Chacra | 2300' | 2250' | -2200' |
| Rio Bravo | 3900' | 3750' | -3700' |
| Palegreda | 5100' | 4800' | -4750' |
| Mogollon | 5800' | 5450' | -5400' |
| San Cristobal | 6350' | 5950' | -5900' |
| Upper Basal Salina | 7850' | 7330' | -7280' |
| Lower Basal Salina | 8250' | 7700' | -7650' |
| Balcones | 8500' | 7900' | -7850' |
| Total Depth | 8700' | 8100' | -8050' |

**WELL COST:**

| | |
|---|---|
| AFE ($): | N/ A |
| Daily ($): | 21,403 |
| Cumulated ($): | 21,403 |

MCh/PA

Cc/ WMK, FAT, LCh, BB, RS, AV, File.

MCH.....C:...Apr 24(1) LO6-23.doc