

PETRO-TECH PERUANA S. A.

① J. Caceres JM  
② Anatin  
J. Albuquerque

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INTEROFFICE MEMORANDUM

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PTP-ENG-473-99

DATE: SEPTEMBER 21, 1999  
TO: JEROME HAGAN  
CC: PRD, RES-LIMA, CRONO AND WELL FILE  
FROM: JOHN MEYERS  
SUBJECT: WELL SERVICE PROGRAM. WELL LO16-22  
LOBITOS OFFSHORE

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Attached you will find the well service program for well LO16-22 to perform a Temperature Survey, isolate Upper Bs. Salina and down Chamber gas lift installation.

In the last well service performed in this well in order to recover 40 BOPD from Upper Bs. Salina, it could not be controlled because of gas coming from this formation, left in the hole tubing with scraper & bit @ 5455'.

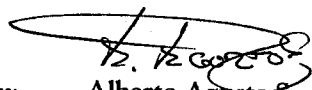
Based on this results, the geological review correlated the sands of the gas injector LO16-21 well as "Upper Basal Salina" therefore it has been recommended to take a Temperature Survey in order to know the gassy zone in this interval to get best management the gas flooding performance in this block.

We concur that any mechanical gas isolation job in this formation has low chances of success because there are few spacing between shots, for that it will be isolated whole interval with bridge plug @ 5850' and put on production the Mogollón fm. thru Chamber gas lift installation.

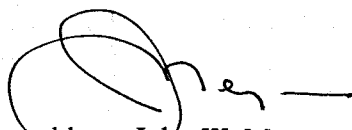
We recommend killing well with treated water, pulling out the tubing, performing Temperature log, set bridge plug and running Chamber gas lift installation. We expect to recover its production around of 15 BOPD.

Well services total expenses out of pocket about \$ 18,000 will be charged to account # 960-43-01-xxx-84722.

Proposed by:

  
Alberto Aguirre S.  
Operations Engineer

Approved by:

  
John W. Meyers  
Production Manager

# PRODUCTION STRING

WELL : Z - 2A - 21 - 790 - D - LO16

LO16-22

LOBITOS OFFSHORE

OFFICIAL NUMBER

PETRO-TECH NUMBER

AREA

CURRENT

PROPOSAL

## CHAMBER INSTALLATION

INSTALLATION TYPE

WELL DATA					
ZERO POINT	PRODUCTION CASING		WELL HEAD		
33' CHF	5 1/2" x N-80 & K-55 x 17.0 #/ft		13 3/8" x 9 5/8" x 5 1/2"		
F.C.	LAST TOP OF SAND		AVERAGE ANGLE		
7623'	w/SCRAPER @ 7622'		22°		
PERFORATED INTERVALS	INTERVAL		FORMATION	DATE	
	7544' - 7316'		UPPER BS. SALINA	Jun-90	
	5620' - 5542'		MOGOLLON	Sep-98	
INSTALLATION	TUBING WITH SCRAPER & BIT 43/4" @ 5455'.				
LAST SERVICE	SEP-99 POH CONV. INST. CLEAN w/ BAILER & FISH RBP @ 5760'. BLEED OFF AND KILL WELL w/ WATER. POH AND DOWN SCRAPER TO 7622'. WELL CAME IN GAS W/ HIGH PRESSURE. LEFT IN THE HOLE TUBING & SCRAPER @ 5455'.				
LAST TESTS	DATE	B O P D	B W P D	GOR	STATUS
OTHERS					

## JOB PROCEDURE

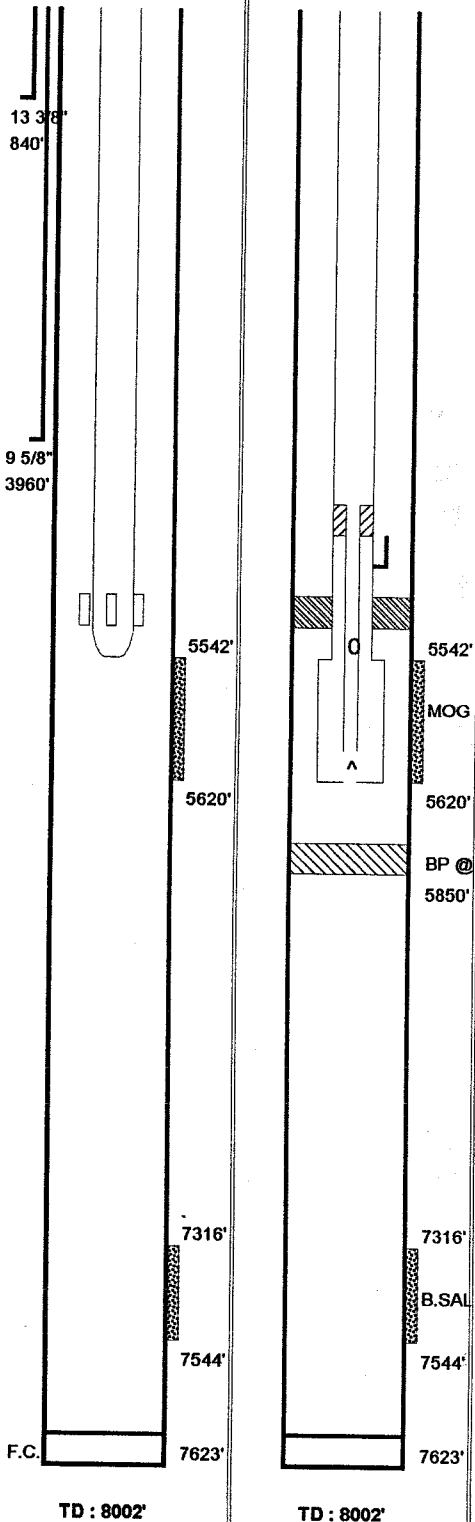
- 1.- RIG UP WELL SERVICE UNIT OVER "LO16-22" WELL.
- 2.- BLEED OFF & KILL THE WELL WITH TREATED WATER.
- 3.- REMOVE "X-TREE" & NIPPLE UP BOP'S.
- 4.- POH TUBING & SCRAPER.
- 5.- INSTALL SHOOTING VALVE & ELECTRIC LOG UNIT'S LUBRICATOR.
- 6.- BLEED OFF WELL IN ORDER TO RECOVER TREATED WATER & CAME IN GAS.
- 7.- SHUT IN WELL 3 HOURS TO GET STATIC TEMPERATURE GRADIENT.
- 8.- DOWN RECORDING TEMPERATURE LOG FROM 5000' TO 7600'.
- 9.- PUT THE WELL ON PRODUCTION TEST TO GET FLOWING TEMPERATURE GRADIENT.
- 10.- UP RECORDING TEMPERATURE LOG FROM 7600' TO 5000'. POH ELECTRIC WIRE LINE.
- 11.- SET BRIDGE PLUG @ 5850' WITH WIRE LINE. LAY DOWN LUBRICATOR & SHOOTING VALVE.
- 12.- NIPPLE UP BOP'S AND RIH CHAMBER INSTALLATION ACCORDING DESIGN.
- 13.- NIPPLE DOWN BOP'S & INSTALL "X-TREE". SWAB THE WELL @ 5000'.
- 14.- KICK OFF THE WELL WITH HIGH PRESSURE GAS.
- 15.- PUT THE WELL ON PRODUCTION TEST AND REPORT RESULTS.
- 16.- MOVE RIG ANOTHER LOCATION.

## DOWNHOLE EQUIPMENT

- A.- +/- 5540 FEET OF 2 7/8" TUBING WITH:
- CROSS OVER DE 2 7/8" x 3 1/2"
  - +/- 70 FEET OF 3 1/2" TUBING WITH:
  - CROSS OVER DE 3 1/2" x 2 7/8"
  - A SEATING NIPPLE AND 2 1/2" STANDING VALVE @ 5610'.
- B.- A HANGER OF 2 7/8" EUE x 1 1/4" I J @ 5470' WITH:
- +/- 135 FEET OF 1 1/4" TUBING WITH OPEN END @ 5605'.
  - A BLEED PORT OF 1/2" @ 5530'.
- C.- A PACKER R-4 OF 5 1/2" x 2 7/8" @ 5510'.
- D.- A MANDREL "B" WITH J-40 VALVE, PORT 5/16" & 650 PSI(TROP) @ 5480'.

A.AGURTO

SEP-99



Talara, September 18th, 1999.

Messers  
**PETRO TECH PERUANA**  
Negritos

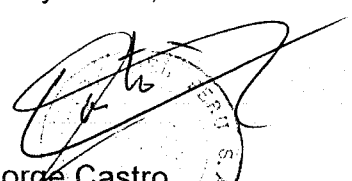
**Atn: Mr. John Meyers**

Dear Sir,

According to your requirements, please find our economical proposal for  
Shooting in well LO16-~~8~~<sub>2c</sub>

We hope you find this proposal acceptable and let us continue serving  
you.

Truly Yours,

  
Jorge Castro  
Services Coordinator

## PROPOSAL FOR SHOOTING

**CUSTOMER : PETRO TECH PERUANA**

**WELL: LO16-8/22**

### SUMMARY OF SERVICES

**Well LO16-22**

**Well Depth: 7600'-7300'**

**Temperatura Log**

	DESCRIPTION	QUANTITY	U.PRICE \$	ITEM TOTAL \$
750-100	BASIC CHARGE	1	2,500.00	2,500.00
756-110	Temperatura Depth	3300	1.00	3,300.00
756-111	Temperatura Survey	1000	1.00	1,000.00
751-161	PRESSURE CHARGE	1	270.00	270.00

**SUBTOTAL**

**DISCOUNT 30%**

7,070.00

2,121.00

<b>TOTAL</b>	<b>4,949.00</b>
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**THESE PRICES INCLUDE VOLUME DISCOUNT**

**Remarks:**

- 1) All prices specified in this Service Contract are in U.S. Dollars and not including IGTV
- 2) Upon the request of the Client , any additional services to be provided by HALLIBURTON to the Client shall be in accordance with the unit price listed in Service Contract.

*Oil g... 9-18-99*