

BELCO PETROLEUM

CORPORATION OF PERU
(SUCURSAL DEL PERU)

TELEF. -- NEGRITOS
863-864-886

Man ✓
JC ✓
Mch ✓
APARTADO No. 1
TALARA - PERU

WELL FILE

July 23, 1984.-
E- 26, 1984.-

To : Drilling Superintendent
From : Engineering
Ref : Drilling Prognosis for the
Well Z2A-21-568-D-L06 (L06-24)
Lobitos - Offshore

Please, attached you will find the Drilling Prognosis for the well in reference, to be drilled by Rig III to 5800' as total depth.

This prognosis is based on the Geologic Prognosis and data gathered from correlation wells, L06-13X, L04-13, L04-7.

In this well the Rio Bravo sands is the objective. The use of salt saturated mud is recommended for this well, because in Lobitos area can to obtain the maximum penetration rate and will reduce the drilling time prognosis.

Jorge Perez
Drlg. Compl.

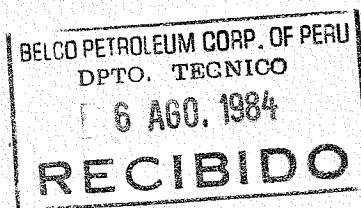
Thomas Mohr : Approved
Drlg. Supt.

V°B° : José Zamalloa
Pet. Engineering

Approved : Carlos Valdizán M
Eng. Supt (Act)

RG/rzz

cc: Oper. Man.
Lima Tech.
Petro-Peru-Lima
Drlg. Supt. (4)
S.M.D.Co.
Finanne
Well Site
Well file

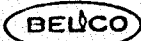




DRILLING PROGNOSIS

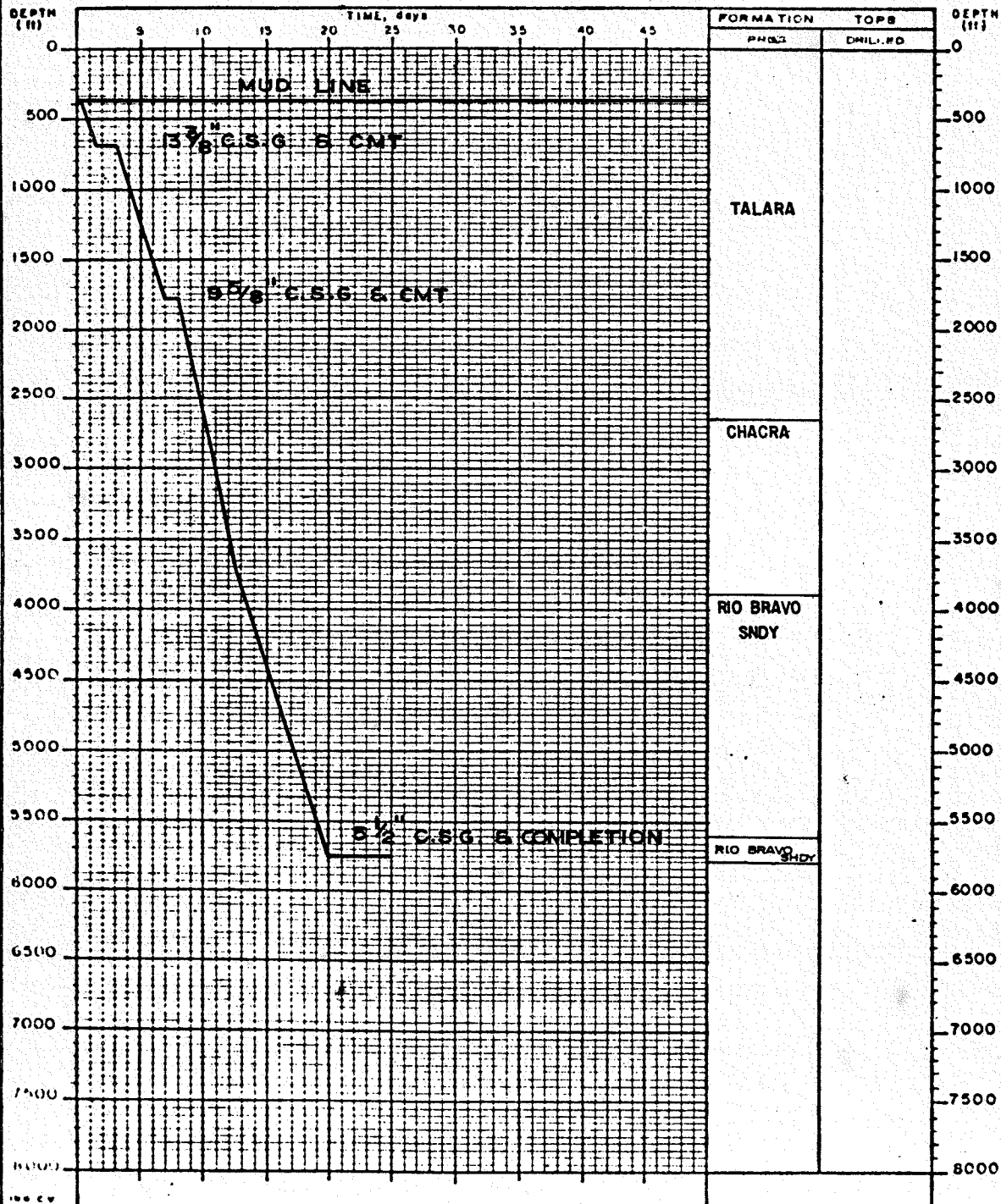
WELL	Z2A-21-568-D-L06 OFFICIAL NUMBER	L06-24 BELCO NUMBER	Lobitos Off. AREA	Development TYPE OF WELL	AFE No.
OBJETIVE	PRIMARY Rio Bravo SECONDARY -----				
RIG : III	National 55-A DRAWWORKS	Gardner Denver PY-7 PUMP No. 1		Gard. Denver PY-7 PUMP No. 2	
DIRECTION OF DEVIATED WELL	N 86° E	ESTIMATED DEVIATION (MAX ANGLE)		ELEVATIONS	K.B. 50
CONDUCTOR SIZE AND ANGLE	18" Vertical	RECOMMENDED K.O.P. 800'			☒ WATER DEPTH 335
ESTIMATED TOTAL DEPTH	5800'	ESTIMATED TO REACH T.D. 20 days			☐ GROUND LEVEL
SURFACE HOLE PROGRAM			BIT SIZE 17"	CASING POINT 700'	
CASING 17 3/8", J-55, 54.5#/ft, LT&C FLOATING EQUIPMENT Guide shoe I.F.V. CENTRALIZERS One on each of the bottom two joints (3)		CEMENT SLURRY 1 350 sx(s) of 4% Gel cement SLURRY 2 300 sk(s) of neat cement with 2% CACL ₂ SLURRY-1 SLURRY-2 DENSITY (lb/gal) 14.1 15.6 YIELD (ft ³ /sx) 1.55 1.18 WAT. REQ. (gal/sx) 7.8 5.2 T.T. (hr. min) 1:30 2:00		REMARKS - Estimated hole : 20" - Cement top: at surface with 4% Gel cement (in conductor) - Pump with a lower rate.	
INTERMEDIATE HOLE PROGRAM			BIT SIZE 12 1/4"	CASING POINT 1800'	
CASING 9 5/8", J-55, 40#/ft, LT&C FLOATING EQUIPMENT Guide shoe I.F.V. CENTRALIZERS One on each of the bottom every two joint (6)		CEMENT SLURRY 1 600 sk(s) of 4% Gel SLURRY 2 150 sk(s) of neat cement SLURRY-1 SLURRY-2 DENSITY (lb/gal) 14.1 15.6 YIELD (ft ³ /sx) 1.55 1.18 WAT. REQ. (gal/sx) 7.8 5.2 T.T. (hr. min) ± 2:30'		REMARKS - Estimated hole : 14" - Cement top : at surface - Set a 16" ø base plate for the 13 3/8" casing.	
PRODUCTION HOLE PROGRAM			BIT SIZE 7 7/8"	CASING POINT 5800'	
CASING 5 1/2", J-55, 17#/ft, LT&C FLOATING EQUIPMENT Guide shoe Diff. fill float collar CENTRALIZERS On the pay zone		CEMENT SLURRY 1 4% Gel cement SLURRY 2 Neat cement in Rio Bravo fm(s) SLURRY-1 SLURRY-2 DENSITY (lb/gal) 14.1 15.6 YIELD (ft ³ /sx) 1.55 1.18 WAT. REQ. (gal/sx) 7.8 5.2 T.T. (hr. min)		REMARKS - The final casing, casing cement and centralizer program will be submitted according with the actual well conditions. - Estimated hole will be + 10 1/2". - Cement top at + 1000' above the top of R. Bravo fm(s)	
WELLHEAD	SIZE : 9 5/8" x 5 1/2" WORKING PRESSURE : 3000 - 5000 PSI ASSEMBLY :				

MUD PROGRAM		Salt saturated MUD TYPE					
DEPTH (ft.)	MUD WEIGHT (lb/ft)	FUNNEL VISCOSITY (sec)	PLAST VISC. (CP)	YIELD POINT (lb/100ft ²)	FLUID LOSS (cc)	SOLIDS (o/o)	OIL (o/o)
0-700	8.9-9.0	46-50	Spud mud - no control				
700-1800	9.0-9.5	38-40	6-7	9-11	below 6-8	7-9	4-6
1800-3800	9.5-10.0	40-42	8-10	12-14	5-7	10-12	4-5
3800-5800	10.0-11.0	42-44	9-11	13-15	4-6	10-12	4-5
REMARKS	- Maintain ph around 11.5 - Maximum pore pressure expected is 1500 psi at 3500 V.D. (nearby wells) - When the gas cut mud, circulate the well and increase the mud weight, only if is strictly necessary. - The mud properties will be changed as well conditions required.						
HYDRAULIC PROGRAM							
DEPTH (ft)	BIT SIZE (in)	NOZZLESS CONVINATION (32 nd)	PUMP PRESS (psi)	PUMP LINER (in)	PUMP RATE (gpm)	ANN PRESS LOSS VEL (FPM)	BIT (psi)
0-700	17	14-14-13	800	*6	420	42	720
700-1800	12 1/4"	12-12-12	1200-1500	5 1/2	345	85	920
1800-3800	7 7/8"	10-10-9	1500	5 1/2	245	135	1200
3800-5800	7 7/8"	10-10-10	1500	5 1/2	245	135	1250
REMARKS	- Use both pumps in parallel - Use 130-140 S.P.M. - If change the 6" pump liner to 5", try to increase the pump press to 1800 psi.						
BIT PROGRAM							
BIT No.	BIT SIZE (in)	BIT TYPE (1 ADC Code)	DEPTH OUT (ft)	FEET (ft)	ROT. TIME (hrs)	WEIGHT ON BIT (1000 lbs)	ROTARY SPEED (RPM)
*1	17	R-1	700	315	10-12	10-15	90-100
**2-3	12 1/4	1-1-4	1800	1100	50-54	30-35	100
6-8	7 7/8	1-1-4	3800	2000	85-90	35-40	110-90
9-13	7 7/8	1-3-6(J-3) 4-3-6 (J-11)	5800	2000	115-120	35-40	110-90
REMARKS	* One 12 1/4" RR bit to open hole for 17" bit. ** Two 7 7/8" or 8 1/2" bits with (13-13-14) to open hole for 12 1/4" bit, plus two 12 1/4" RR bits to ream this section.						
July 23, 84	Raul Garcia						
DATE	PETROLEUM ENGINEERING	CHIEF ENGINEER	DRILLING SUPT				



DRILLING TIME PROGNOSIS

WELL	Z2A-21-568-D-L06 OFFICIAL WELL ID	L06-24 BELCO NUMBER	LOBITOS OFFSH.	DEVELOPM. TYPE OF WELL	AFE NO.
OBJECTIVE	PRIMARY <u>RIO BRAVO</u> SECONDARY _____				
RIG III	NATIONAL 55-A DRAW WORKS	GARDNER DENVER PY-7 PUMP NO. 1	GARDNER DENVER PY-7 PUMP NO. 2		



DATE: JULY 23, 84

PREPARED BY: R.G.P.