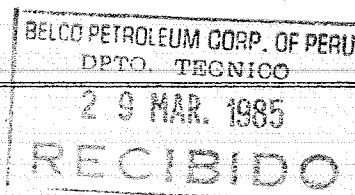


BELCO PETROLEUM

CORPORATION OF PERU
(SUCURSAL DEL PERU)

TELEF. -- NEGRITOS
863-864-865



APARTADO No. 1
TALARA - PERU

March 18, 1985.-
DE.- 02, 1985.-

WELL FILE

To : Drilling Superintendent
From : Drilling Engineering
Ref : Drilling prognosis for the well
Z2A-21-615-D-L06 (L06-3)
Lobitos - Offshore

Attached you will find the Drilling Prognosis for the well in reference to be drilled by Rig III to a total depth of 5850'.

The proposed drilling program can be out lined as follows :

- Spud well with 17'' bit and drill to 650' to set 13 3/8'' casing.
- Drill 12 1/4'' hole to 1700' to set 9 5/8'' casing.
- Drill 7 7/8'' and complete well according to program to be submitted accordingly.
- When run 9 5/8'' and 5 1/2'' casing do not weld casing shoe or the 1st. two joints. Use baker lok or Howco weld.

The drilling time to reach T.D. is 20 days while the total rig time is 23 days including completion.

Jorge Perez N.
Drlg. Eng.

Approved : C. E. Myers
Eng. Supt.

Approved : Gordon Villanueva
by Drlg. Supt.

JPN/rzz
cc: O.M.
Lima Tech.
Drlg. Spt (2)
Geology
Petro-Peru-Lima
S.M.D.Co.
Finance
Well file

BELCO

ENGINEERING

DRILLING PROGNOSIS

WELL	Z2A-21-615-D-L06 OFFICIAL NUMBER	L06-3 BELCO NUMBER	Lob. Offshore AREA	Development TYPE OF WELL	02478 AFE No.
OBJECTIVE	PRIMARY Rio Bravo		SECONDARY		
RIG : III	National 55-A DRAWWORKS	G. Denver PY-7 PUMP No. 1		G. Denver PY=7 PUMP No. 2	
DIRECTION OF DEVIATED WELL N 57° E		ESTIMATED DEVIATION (MAX ANGLE) 36°		ELEVATIONS	K.B. 50'
CONDUCTOR SIZE AND ANGLE 18" x 15°		RECOMMENDED K.O.P. 700'			☒ WATER DEPTH 335'
ESTIMATED TOTAL DEPTH 5850'		ESTIMATED TO REACH T.D. 20 days.			☐ GROUND LEVEL
SURFACE HOLE PROGRAM			BIT SIZE 17"	CASING POINT 650'	
CASING 13 3/8", K-55, 61#/ft ST&C FLOATING EQUIPMENT Guide shoe Insert float valve CENTRALIZERS One on each of the bottom four joints.		CEMENT SLURRY 1 550 sx neat SLURRY 2 SLURRY-1 SLURRY-2 DENSITY (lb/gal) 15.6 YIELD (ft ³ /sx) 1.18 WAT. REQ (gal/sx) 5.2 T.T. (hr. min) 2:0		REMARKS - Average hole diameter 19" - Cement returns is expected.	
INTERMEDIATE HOLE PROGRAM			BIT SIZE 12 1/4"	CASING POINT 1700'	
CASING 9 5/8", J-55, 40#/ft LT&C FLOATING EQUIPMENT Guide shoe Insert float valve CENTRALIZERS One on each of the bottom six joints.		CEMENT SLURRY 1 400 sx 4% Gel SLURRY 2 250 sx neat 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) 2:0 1:30		REMARKS - Average hole diameter 14 1/4". - Cement return is expected. - Do not weld csg. shoe or the 1st. two joints of csg. Use baker lok or Howco weld.	
PRODUCTION HOLE PROGRAM			BIT SIZE 7 7/8"	CASING POINT 5850'	
CASING 5 1/2", J-55, N-80, 17#/ft LT&C. FLOATING EQUIPMENT Guide shoe Diff. fill float collar. CENTRALIZERS On pay zone.		CEMENT * SLURRY 1 SLURRY 2 SLURRY-1 SLURRY-2 DENSITY (lb/gal) YIELD (ft ³ /sx) WAT. REQ. (gal/sx) T.T. (hr. min)		REMARKS * Casing and cement program will be submitted after inspection of open hole logs. - Do not weld csg. shoe or the 1st. two joints of csg. Use baker lok or Howco weld.	
WELLHEAD	SIZE 13 3/8" x 9 5/8" x 5 1/2" x 2 7/8" WORKING PRESSURE 2000 - 3000 - 5000 psi. ASSEMBLY				

MUD PROGRAM

High Salinity-Low Lime
MUD TYPE

DEPTH	MUD WEIGHT	FUNNEL VISCOSITY	PLAST VISC.	YIELD POINT	FLUID LOSS	SOLIDS	OIL
(ft.)	(lb/ft)	(sec)	(CP)	(lb/100ft ³)	(cc)	(%)	(%)
0-650	9.0	Spud mud		No control.			
650-1700	9.0-9.5	40-42	14-16	6-9	below 8	6-8	4
1700-3800	9.5-10.0	40-42	18-22	16-20	below 6	9-12	4
3800-5850	10.0-10.6	42-45	22-25	18-20	below 5	12-14	4

REMARKS

- Mud properties can be altered as well condition require.
- The average pore pressure of the correlation wells is 0.466 psi/ft.
- Maintain ph around 11.5

BIT PROGRAM

DEPTH	BIT SIZE	BIT NO	BIT TYPE	WEIGHT ON BIT	ROTARY SPEED	REMARKS
(ft)	(in)			(1000lbs)	(RPM)	
0-650	17	1	DSJ	15-20	110	Kick off at +700'
650-1700	12 1/4	3	X3A	20-30	110	
1700-3800	7 7/8	3	X3A	25-30	110	
3800-4800	7 7/8	3	X3A	30-35	100	
4800-5850	7 7/8	2	J-3	35-40	90	

TOTAL BITS TO BE USED: 12 bits.

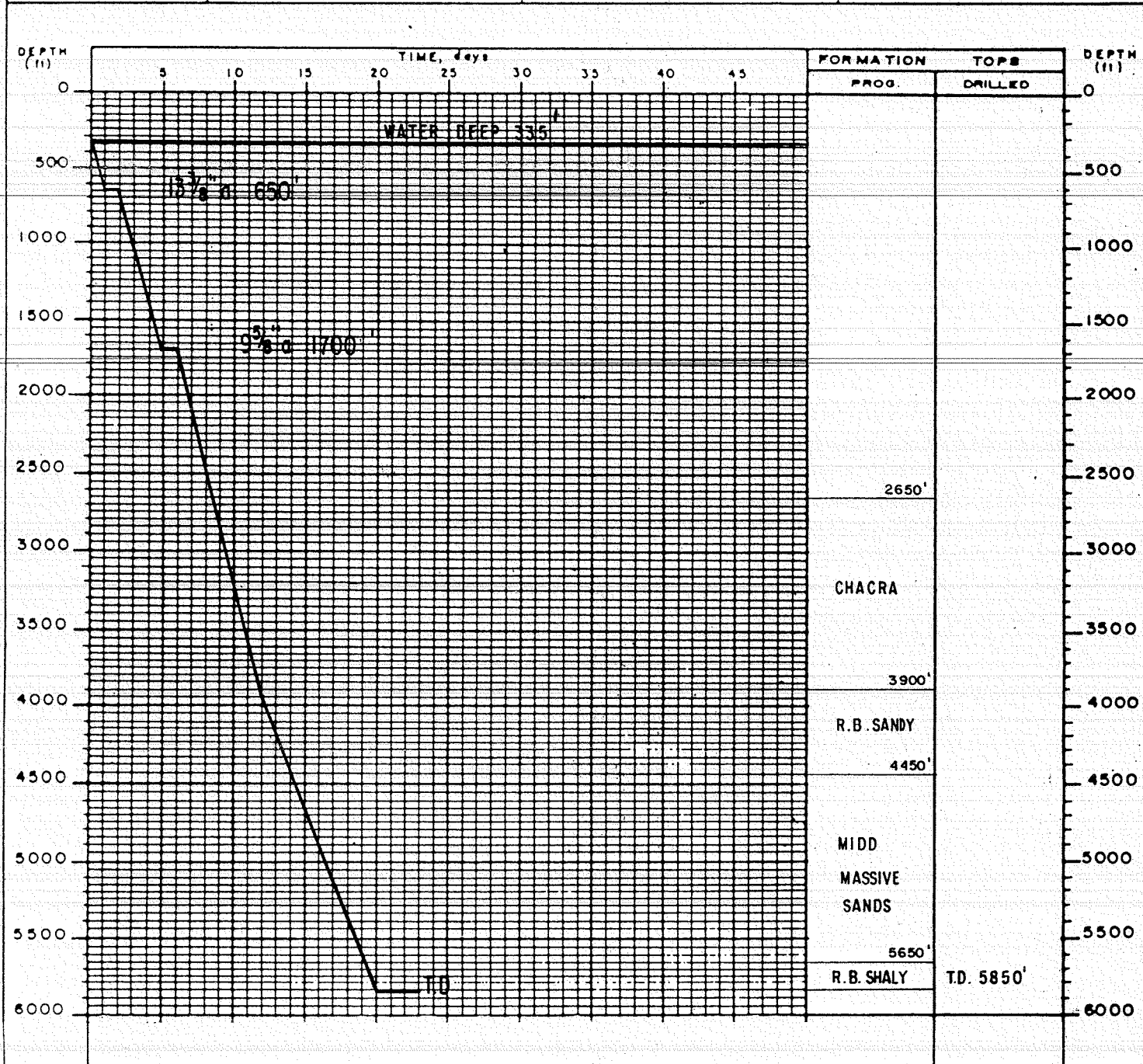
HYDRAULIC PROGRAM

DEPTH (ft)	BIT SIZE (in)	JETS (1/32)	PUMPS				PUMP RATE (GPM)	ΔP BIT (Psi)	ΔP SYST (Psi)	ANN VEL		CRITICAL Vel (fpm)	HHP BIT (hhp)	% HHP BIT (%)	HHP per BIT AREA hhp/in²	MUD		
			Nº 1		Nº 2					Dp (fpm)	Dc (fpm)					MW lb/gal	PV (CP)	YP (lb/100ft³)
			LINER	SPM	LINER	SPM												
0-650	17''	16-16-16	5 1/2	120	5 1/2	120	475	540	670	43	51	118	185	81	0.82	9	6	3
650-1700	12 1/4	14-14-14	5 1/2	120	5 1/2	120	475	970	1300	89	110	210	348	75	2.9	9.5	16	9
1700-3800	7 7/8	11-11-11	5 1/2	75	5 1/2	75	300	1100	1400	176	372	400	231	81	4.7	10	22	20
3800-4800	7 7/8	11-11-11	5 1/2	75	5 1/2	75	300	1100	1400	176	372	411	244	79	5.0	10.3	25	20
4800-5850	7 7/8	11-11-12	5 1/2	75	5 1/2	75	300	1000	1400	176	372	393	233	75	4.75	10.5	25	18



DRILLING TIME PROGNOSIS

WELL	Z2A-21-615-D-L06 OFFICIAL NUMBER	L06-3 BELCO NUMBER	LOBITOS OFF. AREA	DEVELOPMENT TYPE OF WELL	02478 APE N°
OBJETIVE	PRIMARY RIO BRAVO SECONDARY —				
RIG III	NATIONAL 55-A DRAWWORKS	G. DENVER PY-7 PUMP N° 1.		G. DENVER PY-7 PUMP N° 2	



DATE 17 MARZO 1985.

PREPARED BY JPN