

BELCO PETROLEUM

CORPORATION OF PERU
(SUCURSAL DEL PERU)

Telf. - Negritos
863 - 864 - 865

1- RESERV.
2- WELL FILE

Apartado No. 1
Talara - Perú

May 06, 1985.-

P.E-202, 1985-

To ; Drilling and Production Superintendents
From : Petroleum Engineering
Subject : Completion program for well
Z2A-21-618-D-L06 (L06-8)

Attached you will find the completion program for well L06-8, which will be completed in the Rio Bravo formation.

Completion program for this well can be summarized as follows :

- Run and cement 5 1/2" casing.
- Run GR-CCL.
- Shoot frac the Rio Bravo formation in four stages frac-fluid to be used is gelled sea water with 30 lbs/1000 gls WG-11.
- Open the well for clean out, wide open to ensure maximum differential pressure for clean out. Then place well on production test. Once well stops producing frac-water adjust choke to optimize production.
- In the event that the well is unable to flow by itself or when production performance indicates so, clean out frac sand and run artificial lift installation. Program will be submitted accordingly.
- The IPR for this well is 250 BOPD.

The well does not present any potential sand for later recompletion.

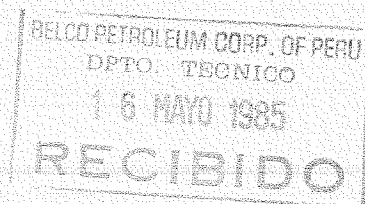
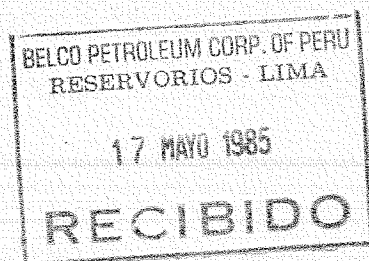
Ivan Rodriguez
Pet. Engineering

V°B°: Carlos Valdizán
Sen. Pet. Eng.

Approved by: C. R. Schmalhausen
Eng. Superintendent

IR/rzz

cc: O.M.-Neg.
Lima Tech.
Prod. Lobitos
Workover
Geology
Well file





CASING AND CEMENT PROGRAM

WELL	ZTA-01-018-D-106		LOG-8		LOMITOS OFFSHORE		AFE No.	
OFFICIAL NUMBER		BELCO NUMBER		AREA				
TOTAL DEPTH		TOTAL VERT. DEPTH		MAX ANGLE		AVERAGE ANGLE		LAST CASING
1702 ft.		1702 ft.		17°		45°		1702 ft. 5 8 inch.
CASING PROGRAM								
CASING DESIGN	SECTION 1	3000 - 3000	3000 ft.	N 30	17 lb/ft	LT & C		
	SECTION 2	3000 - 6000	3000 ft.	S 55	17 lb/ft	LT & C		
	SECTION 3	INTERVAL	LENGTH	GRADE	WEIGHT	THREADS		
	SECTION 4	INTERVAL	LENGTH	GRADE	WEIGHT	THREADS		
SIZE: 5 1/2 in.								
FLOAT EQUIPMENT	SHOE	GUIDE SHOE						6000 ft.
	COLLAR	11000 ft. fill float collar						5860 ft.
	OTHER	TYPE						DEPTH
CENTRALIZERS	INTERVAL	EVERY	24	INTERVAL	EVERY	TOTAL		
	INTERVAL	EVERY	16	INTERVAL	EVERY	TOTAL		
	INTERVAL	EVERY	TOTAL	INTERVAL	EVERY	TOTAL		
CEMENTING PROGRAM								
WASHER	and flush	30 bbl	300 #s MF-1, 15 gal Morflo 11.					
SLURRY 1	CEMENT	1 lb/gal	1.25% CFR-2	0.5 gal 1000 gal	MF-1			
	DENSITY	14.1	WATER REQ	2:0	EST. TOP			
SLURRY 2	CEMENT	500	0.7% halad 9	0.5 gal 1000 gal	MF-1			
	DENSITY	15.6	WATER REQ.	2:25	EST. TOP			
SLURRY 3	CEMENT		ADDITIVE	ADDITIVE	ADDITIVE			
	DENSITY		WATER REQ.	T.T	EST. TOP			
DISPLACEMENT	136 bbls.	sea water	7-8	100 psi - 1500 psi.				
WELLHEAD	SIZE	13 3/8" x 9 5/8" x 5 1/2" x 2 7/8"						
	WORKING PRESSURE	3000 psi - 5000 psi.						
REMARKS	1. Condition the hole before casing run (maintain YP= 10 lb 100 ft ²).							
	2. Set cement basket at 4000' and centralizers.							
	3. Pump and flush.							
	4. Pump cement (1/2 and neat mix) as per program.							
	5. Replace the cement slurry as per program.							
	6. 5 hrs. after cement job run temperature survey.							
7. Do not use radioactive material.								
Wilder Consulting Corporation		V O B O		DATE: May 02-85 HOUR: 18:30		Drilling DISTRIBUTION		



COMPLETION PROCEDURE

WELL	Z2A-21-618-D-L06 OFFICIAL NUMBER	L06-8 BELCO NUMBER	Lobitos Offshore AREA	AFE No.
1.- Run and cement 5 1/2" csg. as per program in the attachment # 1. 2.- Install a 10" x 3000# WP x 6" x 5000# WP tbg. head spool with 2"x500# WP seal wing valves and 6" x 5000# WP ball valve on top as shooting valve. 3.- Run a temperature survey 6 to 12 hrs. after plug down to locate the top of the cement. 4.- Run GR-CCL in the interval 5960' - 3500'. 5.- Test the shooting valve well head and casing with pressure up to 5000# 24 hrs. after plug down. 6.- Perforate the Rio Bravo formation in the 1st. stage according to the program in the attachment # 2. 7.- Take SI-BHP to record the original pressure of the reservoir, only if well head pressure is recorded after perforating. 8.- Frac the first stage according to the program in the attachment 2. 9.- Shoot frac the rest of the stages according to the program. 10.- Leave the well shut-in for about 4 1/2 hours after displacement. 11.- Open the well and put in on production for cleaning (wide open). 12.- Hook-up the well into the production facilities. IR/rzz				
Jorge Correa				
Ivan Rodriguez ENGINEER	 VO B0	DATE: HOUR:	DISTRIBUTION	



PERFORATING AND FRACGING PROGRAM

WELL	Z2A-21-618-D-L06 OFFICIAL NUMBER	L06-8 BELCO NUMBER	Lobitos Offshore, AREA	1 STAGE	
Rio Bravo FORMATION	5867'-5531' INTERVAL	105' MD (82' VD) NET SAND	16 SHOTS		
PERFORATING PROGRAM					
PERFORATIONS	-	5698	5531	CORRECTED COLLARS	Corrected collars
	5867	5692			will be submitted
	5860	5686			directly on the field.
	5854	5680			
	5837	5674			
	5723	5662			
	5717	5570			
	5707	5539			
PERFORATING GUN	3 1/8" selective fire gun w/0° phasing between shots and mechanically excentralized.			JETS	TYPE : SSB-II ENTRY HOLE : IN
FRACGING PROGRAM					
FRACGING FLUID	WG-11; 30 lbs ADDITIVE	GBW- 3, 0.5 ADDITIVE	FRAC-FLO; 1 gl ADDITIVE		
	CLA-STA, 1 Gl ADDITIVE	Surflo B-17, 200 ppm. ADDITIVE	KCl 1% by weight ADDITIVE		
	ADDITIVE REQUIRE PER 1000 GLS OF BASE FLUID, UNLESS OTHERWISE IS INDICATED.				
BASIC FRAC STEP	FRACGING FLUID		PROPPANT		
	PRE - PAD	GLS	MESH	LB / GL	LBS
	Treated sea water PAD	0 - 8000 GLS	MESH	LB / GL	LBS
	Treated sea water CARRY	8000 - 13,000 GLS	20/40 MESH	1 LB/GL	5000 LBS
	Treated sea water CARRY	13,000 - 17,000 GLS	20/40 MESH	2 LB/GL	8000 LBS
	Treated sea water CARRY	17,000 - 21,000 GLS	10/20 MESH	2 LB / GL	8000 LBS
	Treated sea water CARRY	21,000 - 24,000 GLS	10/ 20 MESH	3 LB/GL	9000 LBS
	Treated sea water BLENDER - FLUSH	0 - 300 GLS	MESH	LB / GL	LBS
	Treated sea water DISPLACEMENT	5300 GLS	MESH	LB / GL	LBS
OPERATING CONDITIONS	1 TOTAL STEPS	25-30 BPM RATE	3500 psi PRESSURE	5000 psi. MAXIMUM PRESSURE	
REMARKS	Maintaing 9 5/8" x 5 1/2" casing annulus open while fraccing.				



PERFORATING AND FRACING PROGRAM

WELL		Z2A-21-618-D-L06 OFFICIAL NUMBER		L06-8 BELCO NUMBER		Lobitos Offshore AREA		2 STAGE	
Rio Bravo FORMATION		5045'-4851' INTERVAL		121' MD (87' VD) NET SAND				20 SHOTS	
PERFORATING PROGRAM									
PERFORATIONS	5045	4961	4872				CORRECTED COLLARS	Corrected collars	
	5039	4955	4868					will be submitted	
	5008	4921	4857					directly on the field	
	5002	4915	4851						
	4985	4909							
	4979	4903							
	4973	4884							
	4967	4878							
PERFORATING GUN		3 1/8" selective fire gun with 0° phasing between shots and mechanically excentralized.						JETS	
TYPE :		SSB-II							
ENTRY HOLE : IN									
FRACING PROGRAM									
FRACING FLUID		WG-11; 30 lbs ADDITIVE		GBW-3, 0.55 ADDITIVE		FRAC-FLO; 1 gl ADDITIVE			
		CLA-STA; 1 gl ADDITIVE		SURFLO B-17, 200 PPM ADDITIVE		KCl 1% by weight. ADDITIVE			
ADDITIVE REQUIRE PER 1000 GLS OF BASE FLUID, UNLESS OTHERWISE IS INDICATED.									
BASIC FRAC STEP	FRACING FLUID			PROPPANT					
	PRE - PAD			GLS			MESH LB / GL LBS		
	Treated sea water			0 - 8000			- - -		
	PAD			GLS			MESH LB / GL LBS		
	Treated sea water			8000 - 13,000			20/40 1 5000		
	CARRY			GLS			MESH LB/GL LBS		
	Treated sea water			13,000 - 17,000			20/40 2 8000		
	CARRY			GLS			MESH LB/GL LBS		
	Treated sea water			17,000 - 21,000			10/20 2 8000		
	CARRY			GLS			MESH LB / GL LBS		
Treated sea water			21,000 - 24,000			10/20 3 9000			
CARRY			GLS			MESH LB / GL LBS			
Treated sea water			0 - 300			- - -			
BLENDER - FLUSH			GLS			MESH LB / GL LBS			
Treated sea water			4730			- - -			
DISPLACEMENT			GLS			MESH LB / GL LBS			
OPERATING CONDITIONS		1 TOTAL STEPS		25-30 BPM RATE		3500 psi PRESSURE		5000 psi MAXIMUM PRESSURE	
REMARKS	Maintain 9 5/8" x 5 1/2" casing annulus open while fracturing.								



PERFORATING AND FRACGING PROGRAM

WELL	Z2A-21-618-D-106 OFFICIAL NUMBER	L06-8 BELCO NUMBER	Lobitos Offshore AREA	3 STAGE	
Rio Bravo FORMATION	4816'-4567' INTERVAL	122' MD (88' VD) NET SAND	18 SHOTS		
PERFORATING PROGRAM					
PERFORATIONS	4816	4716	4586	CORRECTED COLLARS	Corrected collars
	4810	4709	--		will be submitted
	4776	4703	4572		directly on the
	4770	4621	4567		field.
	4764	4610			
	4758	4609			
	4753	--			
	4722	4592			
PERFORATING GUN	3 1/8" selective fire gun w/0° phasing between shots and mechanically excentralized.			JETS	TYPE : SSB-II ENTRY HOLE : IN
FRACGING PROGRAM					
FRACGING FLUID	WG-11; 30 lbs ADDITIVE	GBW - 3; 0.6 ADDITIVE	FRAC-FLO, 1 gl. ADDITIVE		
	CLA-STA; 1 gl ADDITIVE	SURFLO B-17; 200 PPM ADDITIVE	KCl 1% by weight. ADDITIVE		
	ADDITIVE REQUIRE PER 1000 GLS OF BASE FLUID, UNLESS OTHERWISE IS INDICATED.				
BASIC FRAC STEP	FRACGING FLUID		PROPPANT		
	PRE - PAD	GLS	MESH	LB / GL	LBS
	Treated sea water PAD	0 - 8000 GLS	MESH	LB / GL	LBS
	Treated sea water CARRY	8,000 - 13,000 GLS	20/40 MESH	1 LB/GL	5000 LBS
	Treated sea water CARRY	13,000 - 17,000 GLS	20/40 MESH	2 LB/GL	8000 LBS
	Treated sea water CARRY	17,000 - 21,000 GLS	10/20 MESH	2 LB / GL	8000 LBS
	Treated sea water CARRY	21,000 - 24,000 GLS	10/20 MESH	3 LB / GL	9000 LBS
	Treated sea water BLENDER - FLUSH	0 - 300 GLS	- MESH	- LB / GL	- LBS
	Treated sea water DISPLACEMENT	4400 GLS	- MESH	- LB / GL	- LBS
OPERATING CONDITIONS	1 TOTAL STEPS	25-30 BPM RATE	3500 psi PRESSURE	5000 psi MAXIMUM PRESSURE	
REMARKS	Maintain 9 5/8" x 5 1/2" casing annulus open while fraccing.				



PERFORATING AND FRACING PROGRAM

WELL	Z2A-21-618-D-L06 OFFICIAL NUMBER	L06-8 BELCO NUMBER	Lobitos Offshore AREA	4 STAGE		
Rio Bravo FORMATION	4475'-4183' INTERVAL	128' MD (91'VD) NET SAND	18 SHOTS			
PERFORATING PROGRAM						
PERFORATIONS	4475	4370	4239		CORRECTED COLLARS	Corrected collars
	4409	4304	4233			will be submitted
	4416	--	4188			directly on the field
	4410	--	4183			
	4394	4262				
	4388	4256				
	4382	4251				
	4376	4245				
PERFORATING GUN	3 1/8" selective fire gun w/0° phasing between shots and mechanically excentralized.			JETS	TYPE: SSB-II ENTRY HOLE: IN	
FRACING PROGRAM						
FRACING FLUID	WG-11; 30 lbs ADDITIVE	GBW-3; 0.75 ADDITIVE	FRAC=FLO; 1 gl ADDITIVE			
	CLA-STA; 1 gl. ADDITIVE	SURFLO B-17, 200 PPM ADDITIVE	KCL 1% by weight ADDITIVE			
	ADDITIVE REQUIRE PER 1000 GLS OF BASE FLUID, UNLESS OTHERWISE IS INDICATED.					
BASIC FRAC STEP	FRACING FLUID		PROPPANT			
	PRE - PAD	GLS	MESH	LB / GL	LBS	
	Treated sea water PAD	0 - 8000 GLS	MESH	LB / GL	LBS	
	Treated sea water CARRY	8000 - 13,000 GLS	20/40 MESH	1 LB/GL	5000 LBS	
	Treated sea water CARRY	13,000 - 17,000 GLS	20/40 MESH	2 LB/GL	8000 LBS	
	Treated sea water CARRY	17,000 - 21,000 GLS	10/20 MESH	2 LB / GL	8000 LBS	
	Treated sea water CARRY	21,000 - 24,000 GLS	10/20 MESH	3 LB / GL	9000 LBS	
	Treated sea water BLENDER - FLUSH	0 - 300 GLS	MESH	LB / GL	LBS	
	Treated sea water DISPLACEMENT	4000 GLS	MESH	LB / GL	LBS	
OPERATING CONDITIONS		1 TOTAL STEPS	25-30 BPM RATE	3500 psi PRESSURE	5000 psi. MAXIMUM PRESSURE	
REMARKS						

BELCO PETROLEUM

CORPORATION OF PERU
(SUCURSAL DEL PERU)

Telf. - Negritos
863 - 864 - 865

Apartado No. 1
Talara - Perú

WELL : Z2A- 21- 618- D- L06 (L06-8)
FRACING MATERIALS

	1st.	2sc.	3th	4th	Total
Water (GLs)	32,000	32,000	31,000	31,000	126,000
WG-11 (LBs)	960	960	930	930	3,780
CIA-STA (GLs)	32	32	31	31	126
FRAC-FLO (GLs)	32	32	31	31	126
GBW - 3 (LBs)	16	16	16	16	64
KCl (LBs)	2,670	2,670	2,580	2,580	10,500
SURFLO B-17 (GLs)	6	6	6	6	24
SAND 20/40 (LBs)	130	130	130	130	52,000
SAND 10/20 (LBs)	170	170	170	170	68,000

IR/rzz