

BELCO PETROLEUM

CORPORATION OF PERU
(SUCURSAL DEL PERU)

TELEF. - NEGRITOS
803-864-865

WELL FILE

PERU PETROLEUM CORP. OF PERU

DEPTO. TECNICO

28 ENE. 1985

RECIBIDO

MCH ✓

APARTADO N° 1
TALARA-PERU

January 18, 1985.-

P.E.- 18, 1985.-

29/1/85

To : Drilling and Production Superintendents
From : Petroleum Engineering
Ref : Completion Program
Well : Z2A-21-599-D-L06 (L06-7)
Lobitos - Offshore

Attached you will find the Completion Program for well L06-7, which will be completed in the Rio Bravo formation.

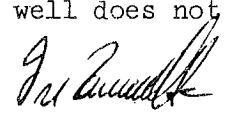
Completion program for this well can be summarized as follows :

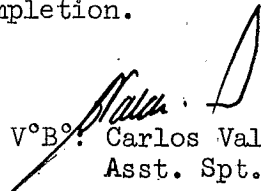
- Run and cement 5 1/2" casing at 5800'.
- Shoot frac the Rio Bravo Fm (5686'-4172') in four stages frac fluid to be used is gelled sea water with 30 lbs/1000 gal (WG-11).
- Open the well for clean out wide open, to ensure maximum differential pressure to clean out frac fluids.

Then place well on production test, once well stops producing frac water, adjust choke size to optimize production.

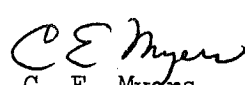
Upon log evaluation Reservoir-Lima has estimated a stabilized production of 500 BOPD, according to evaluation of L06 platform, Engineering Department this estimate appears to be optimistic. Our estimate is 400 BOPD as average for the first month.

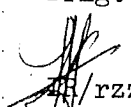
The well does not have any potential sand for later recompletion.


José Zamalloa V.
Pet. Engineering


V°B° Carlos Valdizán
Asst. Spt. P.E.


G. Villanueva : Approved
Drlg. Supt.


Approved : C. E. Myers
Eng. Supt.


RZZ
cc: O.M.

Lima Tech.
Drlg. Spt.
Prod. Spt.
Workover
Geology
Well file



COMPLETION PROCEDURE

WELL	Z2A-21-599-D-L06 OFFICIAL NUMBER	L06-7 BELCO NUMBER	Lobitos Offshore AREA	AFE No.
1.- Run and cement the 5 1/2" production casing as per program in attachment 2. 2.- Install the 10"-3000# W.P. x 6"-5000# WP tbg. head spool with 2"-5000# 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 cement. 4.- Run a GR-CCL log from 5760'-3800'. 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 3. 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 # 3. 9.- Shoot frac the rest of the stages according to the program in the attachment 4 to 6. 10.- Leave the well shut in for about 12 hours after displacement. 11.- Open the well and put it on production for clean out (wide open). 12.- Hook up the well into the production facilities. 13.- Put the well on production test, selecting the optimum choke size. 14.- Depending upon well behavior a recommendation to cleanout the well and run artificial lift will be submitted. IR/rzz				
I. Rodriguez ENGINEER	VO BO	DATE: Jan/15/1985 HOUR: 8:30 A.M.	DISTRIBUTION	



CASING AND CEMENT PROGRAM

WELL		Z2A-21-599-D-L06 OFFICIAL NUMBER		L06-7 BELCO NUMBER		Lobitos Offshore AREA		AFE No.		
5838 ft. TOTAL DEPTH		4473 ft. TOTAL VERT. DEPTH		47° MAX ANGLE		45° AVERAGE ANGLE		9 5/8" in at 1518 ft. LAST CASING		
CASING PROGRAM										
CASING DESIGN SIZE: 5 1/2" m	SECTION 1		5800-2800 INTERVAL		3000 ft. LENGTH		J-55 GRADE		17 lb/ft WEIGHT	LT&C THREADS
	SECTION 2		2800-Surface INTERVAL		2800 ft. LENGTH		N-80 GRADE		17 lb/ft WEIGHT	LT&C THREADS
	SECTION 3		INTERVAL		ft. LENGTH		GRADE		lb/ft WEIGHT	THREADS
	SECTION 4		INTERVAL		ft. LENGTH		GRADE		lb/ft WEIGHT	THREADS
FLOAT EQUIPMENT	SHOE		Guide shoe TYPE						5800 ft. DEPTH	
	COLLAR		Differential fill float collar TYPE						5760 ft. DEPTH	
	OTHER		TYPE						ft. DEPTH	
CENTRALIZERS	5760-3800 INTERVAL		EVERY One joint		49 TOTAL		INTERVAL		EVERY TOTAL	
	INTERVAL		EVERY		TOTAL		INTERVAL		EVERY TOTAL	
	INTERVAL		EVERY		TOTAL		INTERVAL		EVERY TOTAL	
	INTERVAL		EVERY		TOTAL		INTERVAL		EVERY TOTAL	
CEMENTING PROGRAM										
WASHER		Mid-Flush TYPE		20 bbl VOLUME		200# MF-1 + 10 gals Morflo COMPOSITION				
SLURRY 1	250 sxs CEMENT		4 o/o GEL		1.2% CFR-2 ADDITIVE		+0.5 Gal/100 gal NF-1 ADDITIVE		ADDITIVE	
	14.1 lb/gl DENSITY		1.55 ft³/sx YIELD		7.8 gl/sx WATER REQ		2:30 Hr. Min T.T.		3000 ft EST. TOP	
SLURRY 2	550 sxs CEMENT		Neat cement o/o GEL		0.5 Halad 9 + ADDITIVE		0.5 gal/1000 gal NF-1 ADDITIVE		ADDITIVE	
	15.6 lb/gl DENSITY		1.18 ft³/sx YIELD		5.2 gl/sx WATER REQ.		2:15 Hr. Min T.T.		3900 ft EST. TOP	
SLURRY 3	sxs CEMENT		o/o GEL		ADDITIVE		ADDITIVE		ADDITIVE	
	lb/gl DENSITY		ft³/sx YIELD		gl/sx WATER REQ.		Hr. Min T.T.		ft EST. TOP	
DISPLACEMENT		135 VOLUME		Sea water FLUID		7-8 BPM RATE		2200 psi PRESS AT PLUG BUMPING		
WELLHEAD		SIZE 13 3/8" x 9 5/8" x 5 1/2" WORKING PRESSURE: 2000 - 3000 - 5000 Psi								
R E M A R K S	* 1 gal of bactericide + 6 gal Fracflo - CS									
	Enviar mud flush									
	Soltar tapon rojo									
	Bombear mezclas de cemento									
	Soltar tapon negro									
	Desplazar tapon con agua + surfactante + bactericida									
Ivan Rodriguez ENGINEER			Vº Bº			DATE: Jan/13/85 HOUR: 23:45		DISTRIBUTION		



PERFORATING AND FRACING PROGRAM

WELL	Z2A-21-599-D-I06 OFFICIAL NUMBER	L06-7 BELCO NUMBER	Lobitos Offshore AREA	1 STAGE						
Rio Bravo FORMATION	5686-5270 INTERVAL	129' MD (96' VD) NET SAND	23 SHOTS							
PERFORATING PROGRAM										
PERFORATIONS	5686	5542	5308				CORRECTED COLLARS			
	5674	5502	5302							
	5669	5498	5296							
	5663	5412	5290							
	5566	5408	5282							
	5560	5366	5274							
	5554	5360	5270							
	5548	5354								
PERFORATING GUN	3 3/8" selective fire gun						JETS	TYPE: TRU JET ENTRY HOLE: IN		
FRACING PROGRAM										
FRACING FLUID	WG-11 30 lbs ADDITIVE		GBW-3 0.5 lbs ADDITIVE		CLA-STA 1 gal ADDITIVE					
	FRAC-FLO; 1 gal ADDITIVE		KCl 1% of water weight ADDITIVE		SURFLO B-17 3gal/16,000 gal 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 - 12,000 GLS		20/40 MFSH	1 LB/GL	4000 LBS	
	Treated sea water CARRY				12,000 - 17,000 GLS		20/40 MESH	2 LB/GL	10000 LBS	
	Treated sea water CARRY				17,000 - 22,000 GLS		10/20 MESH	2 LB / GL	10000 LBS	
	Treated sea water CARRY				22,000 - 24,000 GLS		10/20 MESH	3 LB / GL	6000 LBS	
	Treated sea water BLENDER -- FLUSH				0 - 300 GLS		- MESH	- LB / GL	- LBS	
	Treated sea water DISPLACEMENT				5200 GLS		- MESH	- LB / GL	- LBS	
OPERATING CONDITIONS		1 TOTAL STEPS	25-30 BPM RATE		3500 PSI PRESSURE		5000 PSI MAXIMUM PRESSURE			
REMARKS										



PERFORATING AND FRACGING PROGRAM

WELL	Z2A-21-599-D-L06 OFFICIAL NUMBER	L06-7 BELCO NUMBER	Lobitos Offshore AREA	2 STAGE				
Rio Bravo FORMATION	5212'-4958' INTERVAL	163' MD (119' VD) NET SAND	23 SHOTS					
PERFORATING PROGRAM								
PERFORATIONS	5212	5138	5003		CORRECTED COLLARS			
	5208	5132	4998					
	5182	5126	4986					
	5176	5074	4976					
	5170	5067	4970					
	5164	5039	4964					
	5158	5033	4958					
	5152	5027						
PERFORATING GUN	3 3/8" selective fire gun			JETS.	TYPE: TRU JET 0.49 ENTRY HOLE: IN			
FRACGING PROGRAM								
FRACGING FLUID	WG-11, 30 lbs ADDITIVE		GBW-3; 0.5 Lbs ADDITIVE		CLA-STA; 1 gal ADDITIVE			
	FRAC-FLO; 1 gal ADDITIVE		KCL 1% of water weight ADDITIVE		SURFLO B-17 3 gal/16000 ADDITIVE gal			
	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 - 9500 GLS		MESH	LB / GL	LBS
	Treated sea water CARRY			9500 - 14,500 GLS		20/40 MFSH	1 LB/GL	5000 LBS
	Treated sea water CARRY			14,500 - 20,500 GLS		20/40 MESH	2 LB/GL	12,000 LBS
	Treated sea water CARRY			20,500 - 26,500 GLS		10/20 MESH	2 LB / GL	12,000 LBS
	Treated sea water CARRY			26,500-29,000 GLS		10/20 MESH	3 LB / GL	7,500 LBS
	Treated sea water BLENDER - FLUSH			0 - 300 GLS		MESH	LB / GL	LBS
	Treated sea water DISPLACEMENT			4900 GLS		MESH	LB / GL	LBS
OPERATING CONDITIONS		1 TOTAL STEPS	25-30 BPM RATE		3500 PSI PRESSURE		5000 PSI MAXIMUM PRESSURE	
REMARKS								



PERFORATING AND FRACING PROGRAM

WELL	Z2A-21-599-D-L06 OFFICIAL NUMBER	L06-7 BELCO NUMBER	Lobitos Offshore, AREA	3 STAGE	
Rio Bravo FORMATION	4914'-4699' INTERVAL	147' MD (106' VD) NET SAND	23 SHOTS		
PERFORATING PROGRAM					
PERFORATIONS	4914	4842	4760	CORRECTED COLLARS	
	4908	4836	4754		
	4902	4830	4732		
	4896	4824	4726		
	4890	4784	4720		
	4884	4778	4704		
	4872	4772	4699		
	4867	4766			
PERFORATING GUN	3 3/8" selective fire gun			JETS	TYPE: TRU JET .49 ENTRY HOLE: IN
FRACING PROGRAM					
FRACING FLUID	WG-11; 30 Lbs ADDITIVE	GBW-3; 0.5 Lbs ADDITIVE	CLA-STA; 1 Gal. ADDITIVE		
	FRAC-FLO; 1 gal ADDITIVE	KCL 2% of water weight ADDITIVE	SURFLO B-17 3gl/16,000 ADDITIVE GLS.		
	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 - 8,500 GLS	MESH	LB / GL	LBS
	Treated sea water CARRY	8,500 - 12,500 GLS	20/40 MESH	1 LB/GL	4,000 LBS
	Treated sea water CARRY	12,500 - 18,000 GLS	20/40 MESH	2 LB/GL	11,000 LBS
	Treated sea water CARRY	18,000 - 23,500 GLS	10/20 MESH	2 LB / GL	11,000 LBS
	Treated sea water CARRY	23,500 - 25,500 GLS	10/20 MESH	3 LB / GL	6,000 LBS
	Treated sea water BLENDER -- FLUSH	0 - 300 GLS	MESH	LB / GL	LBS
	Treated sea water DISPLACEMENT	4,650 GLS	MESH	LB / GL	LBS
OPERATING CONDITIONS	1 TOTAL STEPS	25-30 BPM RATE	3500 PSI PRESSURE	5000 PSI MAXIMUM PRESSURE	
REMARKS					



PERFORATING AND FRACING PROGRAM

WELL	Z2A-21-599-D-L06 OFFICIAL NUMBER	L06-7 BELCO NUMBER	Lobitos Offshore AREA	4 STAGE					
Rio Bravo FORMATION	4626'-4172' INTERVAL	166' MD (118' VD) NET SAND	26 SHOTS						
PERFORATING PROGRAM									
PERFORATIONS	4626	4462	4360	4177	CORRECTED COLLARS				
	4620	4456	4278	4172					
	4598	4404	4272						
	4592	4390	4266						
	4586	4384	4260						
	4487	4378	4254						
	4482	4372	4248						
	4476	4366	4242						
PERFORATING GUN	3 3/8" Selective fire gun				JETS	TYPE: TRU JET .49 ENTRY HOLE: IN			
FRACING PROGRAM									
FRACING FLUID	WG-11; 30 Lbs ADDITIVE		GEW-3; 0.5 LBS ADDITIVE		CLA-STA; 1 gal ADDITIVE				
	FRAC-FLO; 1 gal ADDITIVE		KCL 1% of water weight ADDITIVE		SURFLO B-17 3gal/16,000 ADDITIVE gal				
	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 - 9,500 GLS		MESH	LB / GL	LBS
	Treated sea water CARRY				9,500 - 14,500 GLS		20/40 MESH	1 LB/GL	5,000 LBS
	Treated sea water CARRY				14,500 - 20,500 GLS		20/40 MESH	2 LB/GL	12,000 LBS
	Treated sea water CARRY				20,500 - 26,500 GLS		10/20 MESH	2 LB / GL	12,000 LBS
	Treated sea water CARRY				26,500 - 29,000 GLS		10/20 MESH	3 LB / GL	7,500 LBS
	Treated sea water BLENDER - FLUSH				0 - 300 GLS		- MESH	- LB / GL	- LBS
	Treated sea water DISPLACEMENT				4,100 GLS		- MESH	- LB / GL	- LBS
OPERATING CONDITIONS		1 TOTAL STEPS	25-30 BPM RATE	3,500 PSI PRESSURE	5,000 PSI MAXIMUM PRESSURE				
REMARKS									

WELL : Z2A- 21- 599- D- L06 (L06-7)

FRAC MATERIALS

Water	:	128,000 Gal
WG-11	:	3,900 LBs
GBW-3	:	65 LBs
CLA-STA	:	128 LBS
FRAC-FLO	:	128 LBs
KCL 1%	:	11,000 LBs
Surflo B-17	:	24 gal.
Sand 20/40	:	630 sxs
Sand 10/20	:	720 sxs.

IR/rzz