

BELCO PETROLEUM
CORPORATION OF PERU
(SUCURSAL DEL PERU)

WELL FILE

MAR ☒
JC ☒
Mch 20/VII/84

Teléf. - Negritos
863 - 864 - 865

Apartado No. 1
Talara - Perú

June 20, 1984

E 06 - 84

TO : Drilling and Production Superintendents

FROM : Engineering

SUBJECT : Completion program for well Z2A-21-560-X-L06
(L06-13X) Lobitos Offshore

File

You will find attached the completion program for the well in the reference to be completed in the Rio Bravo formation.

A treated water fraccking job is being recommended for this well.

An initial stabilized production of + 150 BOP from this well is being expected.

Jose Zamalloa
Jose Zamalloa
Petroleum Engineering

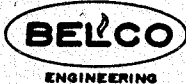
V°B° : *C. A. Valdizan*
Asstt. Supt. P. E.

Thomas O. Mohr
Thomas O. Mohr
Drilling Supt. : Approved

Approved : *C. E. Myers*
C. E. Myers
Engineering Supt.

NC:rvg

c.c.: Opert. Manag.
Lima Tech.
Drill. Supt. (2)
Prod. Supt. (2)
Workover
Well File



COMPLETION PROCEDURE

WELL	Z2A-21-560-X-L06 OFFICIAL NUMBER	L06-13X BELCO NUMBER	LOBITOS AREA	AFE No.
1. Run and cement the 5 1/2" production csg according to the program in the attach N° 2. 2. Install a 10" - 3000# WP x 6" - 5000# WP tbg head spool with 2"-5000# WP seal wing valves and 6" x 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 a GR-CC LOG in the interval 5354' to 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 as per program in attach 3 To 3A. 7. Run A.S.I. BHP to record the original pressure of the reservoir. 8. Frac with TR. water the Rio Bravo formation as per program in the attach 3, to 3. 9. Check the top of the sand six hrs after displacement. 10 Hook-up the well into the production facilities. 11 Open the well 12 hrs after frac job and put it On production for cleaning. 12 Put the well on production test selecting the optimum choke size (start with 1/4") 13 If the well does not flow by itself, make a round trip with 2 7/8" tbg and clean the well down to bottom. 14 Run in the hole the G/L installation as per design in attach 4. 15 Kick off the well and put it on production test.				
N. Carrascal ENGINEER		V0 80	DATE: June 20, 1984 HOUR:	DISTRIBUTION



CASING AND CEMENT PROGRAM

WELL	Z2A-21-560-X-L06 OFFICIAL NUMBER	L06-13X BELCO NUMBER	LOBITOS AREA	AFE No.
5960 ft. TOTAL DEPTH	5950 ft. TOTAL VERT. DEPTH	4 1/2° MAX ANGLE	3° AVERAGE ANGLE	9 5/8 in at 1,200 ft. LAST CASING

CASING PROGRAM						
CASING DESIGN SIZE: 5 1/2 in	SECTION 1	5350-SURF INTERVAL	5350 ft. LENGTH	J-55 GRADE	17 lb/ft WEIGHT	LT & C THREADS
	SECTION 2	INTERVAL	LENGTH	GRADE	WEIGHT	THREADS
	SECTION 3	INTERVAL	LENGTH	GRADE	WEIGHT	THREADS
	SECTION 4	INTERVAL	LENGTH	GRADE	WEIGHT	THREADS
FLOAT EQUIPMENT	SHOE	Guide Shoe TYPE				5350 ft. DEPTH
	COLLAR	Diff. F. Float Collar TYPE				5310 ft. DEPTH
	OTHER	TYPE				DEPTH
CENTRALIZERS	5310' - 3350' INTERVAL	EVERY Three Joints	16 TOTAL	INTERVAL	EVERY	TOTAL
	INTERVAL	EVERY	TOTAL	INTERVAL	EVERY	TOTAL
	INTERVAL	EVERY	TOTAL	INTERVAL	EVERY	TOTAL

CEMENTING PROGRAM					
WASHER	Scavenger TYPE	VOLUME bbl	50 sxs to 11 #/gl COMPOSITION		
SLURRY 1	300 CEMENT	4 GEL	0.75% CFR-2 ADDITIVE	0.5 gl Antifoam/ ADDITIVE	1000 gls water ADDITIVE
	14.1 lb/gl DENSITY	1.55 ft³/sx YIELD	7.8 gl/sx WATER REQ	2 Hr. Min T.T.	2500 ft EST. TOP
SLURRY 2	500 CEMENT	4 GEL	0.5% Halad 9 ADDITIVE	0.5 gl Antifoam/ ADDITIVE	1000 gls water ADDITIVE
	14.1 lb/gl DENSITY	1.55 ft³/sx YIELD	7.8 gl/sx WATER REQ.	2 Hr. Min T.T.	EST. TOP
SLURRY 3	CEMENT	GEL	ADDITIVE	ADDITIVE	ADDITIVE
	lb/gl DENSITY	ft³/sx YIELD	gl/sx WATER REQ.	Hr. Min T.T.	ft EST. TOP
DISPLACEMENT	124 Bls VOLUME	Sea Water FLUID	7 - 8 RATE	1400 to 1600 # PRESS AT PLUG BUMPING	
WELLHEAD	SIZE : 13 3/8" x 5 1/2" x 2 7/8" WORKING PRESSURE : 3000 - 5000 #				
REMARKS	Circulate the well before and after running casing.				
	This program was prepared w/out GR LOG				
N. Carrascal ENGINEER		V° B°	DATE: June 19, 1984 HOUR:		DISTRIBUTION



PERFORATING AND FRACGING PROGRAM

WELL	Z2A-21-560-X-L06 OFFICIAL NUMBER	L06-13X BELCO NUMBER	LOBITOS AREA	1st STAGE				
RIO BRAVO FORMATION	5203' - 5072' INTERVAL	46' M 46' V NET SAND	15 SHOTS					
PERFORATING PROGRAM								
PERFORATIONS	5203	5119			CORRECTED COLLARS	5319		
	5201	5116				5280		
	5158	5113				5240		
	5154	5093				5200 1/2		
	5150	5079				5161		
	5146	5076				5121		
	5142	5072				5081 1/2		
	5138					5042		
PERFORATING GUN	3 3/8 selective fire gun				JETS	TYPE TRU JET XVI ENTRY HOLE: IN		
FRACGING PROGRAM								
FRACGING FLUID Water	WG-11	30#	GBW3	0.5#s	* CLASTA II	1 gl		
	ADDITIVE		ADDITIVE		ADDITIVE			
	FRACFLO	1 gl	KCL 1%	of water weight				
	ADDITIVE		ADDITIVE		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	
	Water		0-4000					
	PAD		GLS		MESH	LB / GL	LBS	
	Water		4000-6500		20/40	1	25	
	CARRY		GLS		MESH	LB/GL	LBS	
	Water		6500-8500		20/40	2	40	
	CARRY		GLS		MESH	LB/GL	LBS	
	Water		8500-10,500		10/20	2	40	
	CARRY		GLS		MESH	LB / GL	LBS	
Water		10,500-11,500		10/20	3	30		
CARRY		GLS		MESH	LB / GL	LBS		
Water		0-300						
BLENDER - FLUSH		GLS		MESH	LB / GL	LBS		
Water		0-4931						
DISPLACEMENT		GLS		MESH	LB / GL	LBS		
OPERATING CONDITIONS		1 TOTAL STEPS	25 BPM RATE	3000 PRESSURE	4500 MAXIMUM PRESSURE			
REMARKS	* CLASTA use in all treatment							



PERFORATING AND FRACGING PROGRAM

WELL	Z2A-21-560-X-106 OFFICIAL NUMBER	L06-13X BELCO NUMBER	LOBITOS AREA	2 nd. STAGE
Rio Bravo FORMATION	4749' - 3741' INTERVAL	129' M 129' V NET SAND	46 SHOTS	

PERFORATING PROGRAM

PERFORATIONS	4749	4541	4240	4026	3995	3911	CORRECTED COLLARS	5319		
	4747	4538	4238	4023	3992	3868		5280		
	4638	4535	4083	4020	3989	3749		5240		
	4583	4531	4080	4015	3933	3745		5200 1/2		
	4580	4436	4042	4011	3929	3741		5161		
	4561	4434	4038	4007	3925			5121		
	4552	4379	4034	4003	3923			5081 1/2		
	4548	4374	4030	3999	3914			5042		
PERFORATING GUN	3 3/8" selective fire gun							JETS	TYPE TRU JET XVI .49 ENTRY HOLE : IN	

FRACGING PROGRAM

FRACGING FLUID Water	WG-11	30#s	GBW 3	0.5#s	*CLASTA II	1 gl
	ADDITIVE		ADDITIVE		ADDITIVE	
	*FRACFLO	1 gl	KCL	1% of	Water Weight	
	ADDITIVE		ADDITIVE		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
	Water PAD	0-4000 GLS	- MESH	- LB / GL	- LBS
	Water CARRY	4000-6500 GLS	20/40 MFSH	1 LB/GL	25 LBS
	Water CARRY	6500-8500 GLS	20/40 MESH	2 LB/GL	40 LBS
	Water CARRY	8500-10500 GLS	10/20 MESH	2 LB / GL	40 LBS
	Water CARRY	10500-11500 GLS	10/20 MESH	3 LB / GL	30 LBS
	Water BLENDER - FLUSH	0-300 GLS	- MESH	- LB / GL	- LBS
	Water DISPLACEMENT	0-3613 GLS	- MESH	- LB / GL	- LBS
	Inject RCN balls after 1st., and 2nd. steps				

OPERATING CONDITIONS	3 TOTAL STEPS	25 BPM RATE	3000 # PRESSURE	4500 # MAXIMUM PRESSURE
REMARKS	* CLASTA II use in all treatment			



PRODUCTION STRING

WELL 22A-21-560-X-LOG
OFFICIAL NUMBER

LOG-13X.
BELCO NUMBER

LOBITOS
AREA

AFE No.

CONVENTIONAL GAS LIFT
INSTALLATION TYPE

WELL DATA

ZERO : 33' RKB
WELL HEAD : 13 $\frac{3}{8}$ " x $9\frac{5}{8}$ " x $5\frac{1}{2}$ "
F. COLLAR : 5341'
INTERVAL : (5203'-5072') & (4749'-3741')
FORMATION : RIO BRAVO
MAX ANGLE : $4\frac{1}{2}^{\circ}$

EQUIPMENT TO BE RUN

± 3750' OF $2\frac{7}{8}$ ", 355, 6.5 #/ft. EVE. T86 FITTED AS FOLLOWS :

- 3" x $2\frac{7}{8}$ " SWAGE AT 3725' RKB
- $2\frac{7}{8}$ " SEATING NIPPLE FOR SD. VALVE AT 3720'
- $5\frac{1}{2}$ " x $2\frac{7}{8}$ " R-4 PACKER AT 3700'
- KBMG-2 MANDREL W/ BK G/L VALVE $\frac{3}{16}$ " PORT SIZE AT 3,600' (3,600'v) PTR0730# AT 60°F
- B MANDREL W/ J-40 G.L. VALVE $\frac{3}{16}$ " PORT SIZE AT 1,900' RKB (1,900'v) PTR0800# AT 60°F

N.C.

REMARKS

- SWAB THE WELL DOWN TO 3000' IF NECESSARY
- DROP SD. VALVE AFTER DISPLACEMENT OF KILL FLUID.

WELL PROFILE

L06 - 13X

MATERIALS FOR FRAC

Sea water	60,000	gls
WG - 11	1,800	#s
CLA-STA	60	gls
GB-W-3	30	#s
KCL	5,000	#s
FRAC FLO	60	gls
Sand 10/20	260	sxs
Sand 20/40	280	sxs
7/8" RCN Balls	50	ea

msk ✓
HC ✓
Mch: —

→ Well File LOG-13X

415060
41506PE BELCO
25521PE BELCO

JUNE 20TH, 1984

TWX NO. 84-42

TO : RLL/CEM
FROM : JCS
REF. : LOG-13X WELL COMPLETION

THIS IS TO CONFIRM OUR PREVIOUS RADIO AGREEMENT WITH THE
COMPLETION OF REFERENCED WELL AS FOLLOWS:

1. RUN 5 1/2 CASING DOWN TO 5300' + OR - .
2. PERFORATE AND FRAC THE RIO BRAVO FORMATION FROM 3740' TO 5204' (DLL-GR INTERVAL). TAKE BHP BEFORE FRAC JOB.
3. SETTLED PRODUCTION EXPECTED AT AROUND 100 BOPD BASED ON QUALITY SANDS REVEALED BY E. LOGS.

JCS
END OF MESSAGE
⊙
41506PE BELCO
25521PE BELCO