

BELCO PETROLEUM
CORPORATION OF PERU
(SUCURSAL DEL PERU)

TELEFONO: 803-804-805

APARTADO N° 1
TALARA-PERU

WELL FILE

PE-391-85

July 26, 1985

TO : Drilling and Production Superintendents
FROM : Petroleum Engineering
REFERENCE : COMPLETION PROGRAM FOR THE WELL
Z2A-21-629-XD-LO6 (LO6-9X)
LOBITOS OFFSHORE

Attached there is the Completion Program for the well in the reference to open and evaluate the Lower Mogollon formation.

A treated sea water fracing job is being recommended for this well.

The program is outlined as follows:

1. Run and cement production casing.
2. Perforate and frac the Lower Mogollon formation.
3. Put the well on production test. A complete record of production tests is required.

Depending upon the production tests results, it will be decided either to assist the well with gas lift or open and evaluate the upper zone, which is the Rio Bravo formation.

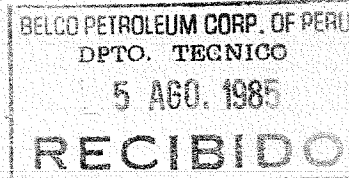

Cesar Espiritu O.
Petroleum Engineer


Eric Vega C.
Sr. Petroleum Eng. (a)


V^{OB}: C. R. Schmalhausen
Asst. Oper. Mgr. - Tech.

CEO/

c.c.: Oper. Mgr.
Lima (Reserv/Geol)
Drlg Dept/Workover
Prod Lobitos
Geology
Well file





COMPLETION PROCEDURE

WELL	Z2A-21-629-XD-LO6 OFFICIAL NUMBER	LO6-9X BELCO NUMBER	LOBITOS OFFSHORE AREA	01470 AFE No.
1. Run and cement the 5 1/2 production casing as per program in Attachment No. 2. 2. Install a 10"-3000# WP x 6"-5000 WP tubing head spool with two 2"-5000" WP expanda 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 Gamma Ray log with Casing Collars Location from 7060' to 6300' and from 5800' to 3700'. 5. Test the shooting valve, wellhead and casing with pressure up to 5000 PSI, 24 hrs after cementing job. 6. Perforate the Lower Mogollon formation as per program in the Attachment No. 3.				
7. Run a SI-BHP to record the original pressure of the reservoir. 8. Frac the Lower Mogollon formation as per program in the Attachment No. 4. 9. Check the top of the sand after fracing job. 10. Leave the well shut in for 12 hrs after displacement. 11. Hook the well into the production facilities. 12. Open the well and put it on production wide open for cleaning. 13. Put the well on production test selecting the optimum choke size (start with 1/4"). 14. According to the results, a new program will be provided.				
C. Espiritu O. ENGINEER	V0 80	DATE: HOUR:	DISTRIBUTION	



CASING AND CEMENT PROGRAM

WELL	Z2A-21-629-XD-L06 OFFICIAL NUMBER	L06-9X BELCO NUMBER	LOBITOS OFFSHORE AREA	01470 AFE No.		
8860 ft. TOTAL DEPTH	7156 ft. TOTAL VERT. DEPTH	42° MAX ANGLE	39° AVERAGE ANGLE	9 5/8 in at 2490 ft. LAST CASING		
CASING PROGRAM						
CASING DESIGN SIZE : in	SECTION 1	7100-6500 INTERVAL	600 ft. LENGTH	N-80 GRADE	20 lb/ft WEIGHT	LT & C THREADS
	SECTION 2	6500-2000 INTERVAL	4500 ft. LENGTH	J-55 GRADE	17 lb/ft WEIGHT	LT & C THREADS
	SECTION 3	2000-SURF INTERVAL	2000 ft. LENGTH	N-80 GRADE	17 lb/ft WEIGHT	LT & C THREADS
	SECTION 4	INTERVAL	ft. LENGTH	GRADE	lb/ft WEIGHT	THREADS
FLOAT EQUIPMENT	SHOE	DIFF. FILL FLOAT SHOE TYPE				7100 ft. DEPTH
	COLLAR	BAFFLE TYPE				7060 ft. DEPTH
	OTHER	- TYPE				ft. DEPTH
CENTRALIZERS	7060-6300 INTERVAL	EVERY Joint	19 TOTAL	- INTERVAL	EVERY -	- TOTAL
	5800-3700 INTERVAL	EVERY 2 joints	26 TOTAL	- INTERVAL	EVERY -	- TOTAL
	INTERVAL	EVERY	TOTAL	INTERVAL	EVERY	TOTAL
CEMENTING PROGRAM						
WASHER	KWG-3111 MUD FLUSH TYPE	20 bbl VOLUME	600 lbs K-31 200 lbs MF-1	60 lbs WG-11 10 gals MORFLO II	COMPOSITION	
SLURRY 1	850 sxs CEMENT	4 o/o GEL	0.8% HALAD 9 ADDITIVE	0.3% CFR-2 ADDITIVE	0.5 gals/M NF1 ADDITIVE	
	14.1 lb/gl DENSITY	1.55 ft³/sx YIELD	7.8 gl/sx WATER REQ	2:00 Hr. Min T.T.	3000 ft EST. TOP	
SLURRY 2	400 sxs CEMENT	neat o/o GEL	0.7% HALAD 9 ADDITIVE	0.1% HR-7 ADDITIVE	0.5 gal/M NF-1 ADDITIVE	
	15.6 lb/gl DENSITY	1.18 ft³/sx YIELD	5.2 gl/sx WATER REQ.	2:00 Hr. Min T.T.	6000 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	164 bbl VOLUME	SEA WATER FLUID	10 BPM RATE	1500 PSI PRESS AT PLUG BUMPING		
WELLHEAD	SIZE 13 3/8" x 9 5/8" x 5 1/2" x 2 7/8" WORKING PRESSURE : 3000-5000 PSI					
R E M A R K S	1. Circulate the well and condition					
	2. Pump 20 bbl of KWG-3111 as spacer, 3. Pump 20 bbl of MUD FLUSH, 4. Drop bottom					
	plug, 5. Pump cement slurries, 6. Drop top plug, 7. Displace with 164 bbl of					
	sea water mixed with 0.2 gals/M gals SURFLO B-17, 1 gal/M gals CLA STA., and					
1 gal/M gals FRACFLO.						
C. Espiritu O. ENGINEER		V° B°	DATE: July 22/85 HOUR: 19:00 hrs.	DISTRIBUTION		

WELL Z2A-21-629-XA-L06 (L06-9X)PERFORATING PROGRAM

FORMATION: Lower Mogollon

INTERVAL: 6995-6380 (140 MNF, 109 VNF, 23 shots)

<u>S H O T S</u>			<u>CCL</u>
6995	6670	6439	*
6962	6632	6384	
6934	6623	6380	
6912	6615		
6906	6610		
6900	6542		
6784	6537		
6768	6524		
6723	6477		
6692	6463		

GUN: 3 3/8" Selective Fire Gun

* Connected Collars will be provided as soon as GR-CCL log is available.

CEO/

WELL Z2A-21-629-XA-LO6 (LO6-9X)FRACGING PROGRAM

FORMATION: Lower Mogollon

INTERVAL: 6995-6380 (140 MNF, 109 VNF, 23 shots).

FRACGING FLUID: Sea water with 30 lb/1000 gals of WG-11, 0.5 lb/1000 gals of GBW-3, 1 gal/1000 gals of CLA STA, 1 gal/1000 gals of FRAC FLO, 0.2 gals/1000 gals of SURFLO B-17.

PROPPANT CONCENTRATION: 1.59 lb/gal or 4.22 sx/VNF.

F L U I D (gals)		P R O P A N T		
		lb/gal	mesh	sx
TREATED SEA WATER PAD	-5000	-	-	-
TREATED SEA WATER CARRY	5000-7000	1/2	20/40	10
TREATED SEA WATER CARRY	7000-11000	1	20/40	40
TREATED SEA WATER CARRY	11000-15000	2	20/40	80
TREATED SEA WATER CARRY	15000-18500	2	10/20	70
TREATED SEA WATER CARRY	18500-19500	3	10/20	30
TREATED SEA WATER FLUSH	0-300	-	-	-

Inject 7 RCN ball sealers.

Repeat the above step and then displace with 6220 gals of treated sea water.

APPROXIMATE RATE: 20-25 BPM

PRESSURE TEST LINE: 5000 PSI

CEO/

WELL Z2A-21-629-XA-LO6 (LO6-9X)

FRACING MATERIALS

TOTAL VOLUME: 45,000 gals.

SAND 20/40 MESH: 300 sx

SAND 10/20 MESH: 200 sx

WG-11: 1500 lb.

GBW-3: 25 lb.

CLA STA: 50 gals.

FRACFLO: 50 gals.

SURFLO B-17: 10 gals.

RCN BALL SEALERS: 10

CEO