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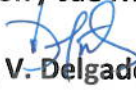
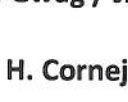
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INTEROFFICE MEMORANDUM
DEVN-088-2013

To:  Pedro Alarcon /  Jae Hwii Gwag /  Jin Seok Yi

From:  H. Janampa,  V. Delgado,  H. Cornejo,  J.C. Muñoz,  C. Canales,  E. Borda

Date: December 09th, 2013

Subject: Proposal to Drill Development Well LO6-34D

It is recommended to drill the proposed well **LO6-34D to development 156 MBO** of reserves in the Mogollon Formation southwest of Lobitos Field. Programmed TD is 8400' MD (-5821' VSS) and well cost estimated is 4,660 MUS\$ (Figures 1, 2, 3)

LO6-34D is proposed as a directional well; with a maximum vertical angle of 60.7° towards S 3.5° W (Figures 4, 5, 6)

The chance of success (COS) is 81%

The proposed location LO6-34D for Mogollon is located in a reservoir block of 350 acres in the same reservoir of well LO16-17 which was completed in Mogollon with an initial rate of 155 BOPD and 184 MBO of cumulative oil. The proposed well is located in a good trend of sands, with 200 feet of vertical gross sand thickness. Last wells completed in Mogollon, LO6-27D and LO6-29D showed good sands development with good petrophysical characteristics, these wells had an initial rate of 219 BOPD and 834 BOPD (Mogollon and Rio Bravo) respectively. (Fig.9 and 10)

The vertical sequence of Mogollon suggest that this formation was deposited as Delta complex, the lower section is composed of Sandstones with low porosity, grading to sands with better porosities around of 11.8% and good oil shows in the upper section, which constitute the main reservoir sands based on petrophysical properties and production (Figure 11). If a good Rio Bravo is encountered, a commingled completion with Mogollon could be considered similar to recently completed well LO6-29D.

Rio Bravo formation is considered as a secondary objective where the more recent wells completed in this formation as the LO6-28D with original pressure and an initial rate of 686 BOPD and LO6-33D with 624 BOPD.

For a complete evaluation, better understanding and modeling of Mogollon reservoir, it is recommended a full logging set of gamma ray, resistivity and neutron-density (Fig.3)

The main risks associated with this well location are:

- Sedimentary changes that could reduce the net sand thickness and petrophysics properties.

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ECONOMIC SUMMARY

CASE	IP (BOPD)	EUR (MBO)	CAPEX (MUS\$)	NPV 10.5% (M\$)	PAY OUT (YRS)	AT PIR	ROR (%)
LOW	160	89	4,660	365	6.67	0.08	15
BASE	280	156	4,660	3,329	1.67	0.71	94
HIGH	420	232	4,660	6,715	0.67	1.44	>100

CONSIDERATIONS

Net Revenue Interest %	84%
Discount Rate %	10.5%
Tax	30%
Variable Cost, US\$/BL	0.91
Fixed MUS\$/Year	36.6
Cost MUSDS	4,660
Oil Price according Portfolio MTP 2013: 100 US\$/BL for 2013 to 2023	

Base case reserves and IPR for this well are estimated 156 MBO & 280 BOPD respectively, the drilling cost estimated is US\$ 4,660 M, NPV is US\$ 3,329 M using portfolio parameters with discount rate of 10.5% (Figures 12 & Tables A & B)

Proposed well is supported with AFE N° 2214330, EIA with Directorial Resolution N° 444-2009-MEM/AAE and risks evaluation according to SIMOP procedure.

Cc: J. Duarte,	C. Hwang	O. Nieto	E. Borda	S. Lee
J. Garzon	R. Gilabert	V. Peralta	Central File	
G. Idiaquez	B. Kim	J. Chuyes	A. Agurto	
E. Gonzales	C. Valdizan	C. Montes	R. Corman	
C. Ramirez	K. Valencia	J. Gwag	L. Torres V	

Attached Documents

Fig.1: Top Mogollon Fm., showing the proposed well LO6-34D
 Fig.2: Top Rio Bravo Fm., showing the proposed well LO6-34D
 Fig.3: Geological Prognosis
 Fig.4 and 5: Seismic Line showing the proposed well LO6-34D
 Fig 6: SW-NE Structural Cross Section for proposed well LO6-34D
 Fig.7: Mogollon Fm. Gross Sand Map for proposed well LO6-34D
 Fig.8: Rio Bravo Fm. Gross Sand Map for proposed well LO6-34D
 Fig.9: NW-SE Stratigraphic correlation of Mogollon Fm. for proposed well LO6-34D
 Fig.10: W-E Stratigraphic correlation of Rio Bravo Fm. for proposed well LO6-34D
 Fig 11: Estimated Oil production of Mogollon and closest producers wells
 Fig 12: Drilling and Cost Time-Depth Chart of well LO6-34D
 Table A: Economic Summary and Oil rate forecast for well LO6-34D
 Table B: AFE for Proposed well LO6-34D

Z-2B LOBITOS FIELD

TOP MOGOLLON FM. – DEPTH STRUCTURE MAP

H. Cornejo / E. Borda

December 2013

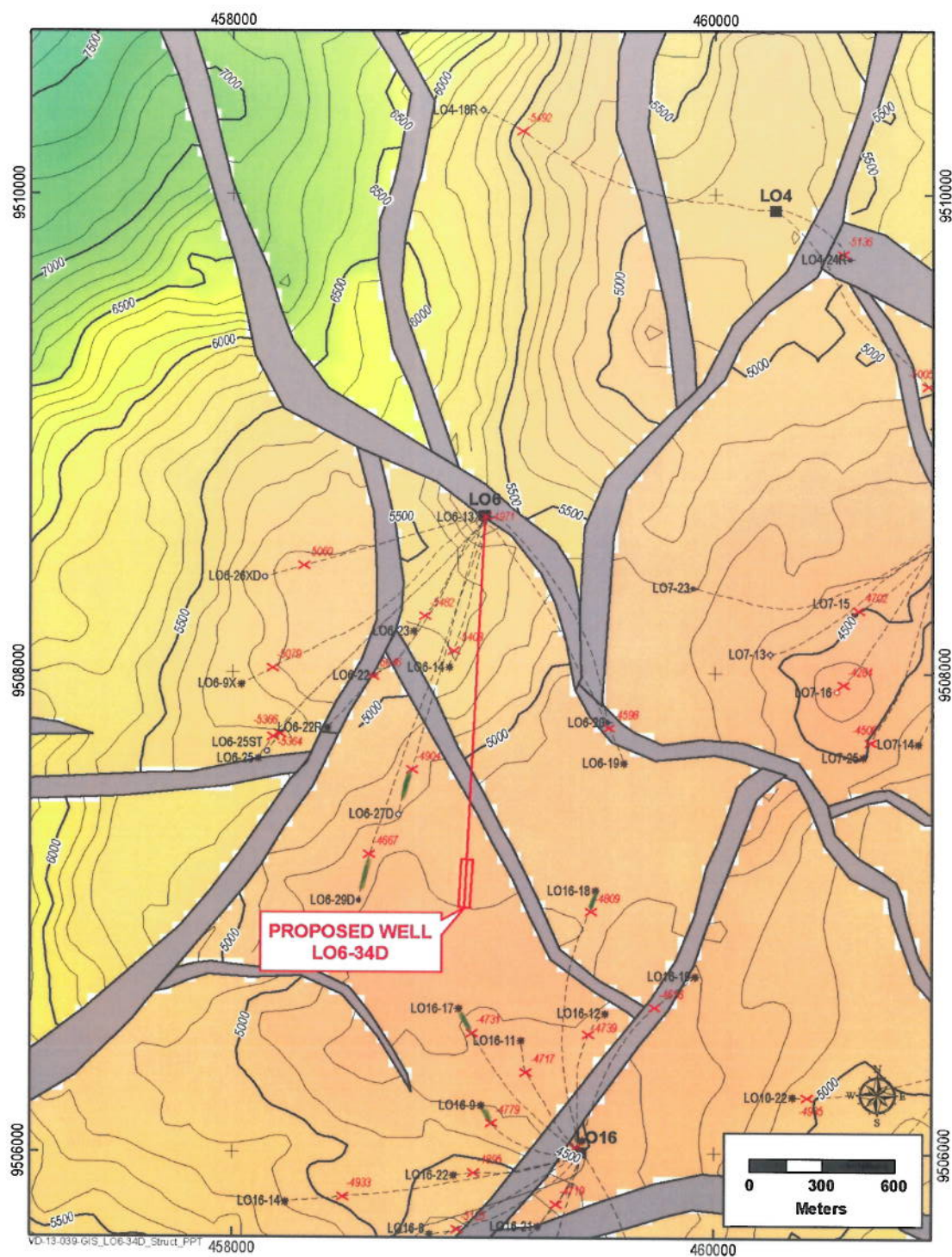


Figure 1

Z-2B LOBITOS FIELD

TOP RIO BRAVO FM. – DEPTH STRUCTURE MAP

H. Cornejo / E. Borda

December 2013

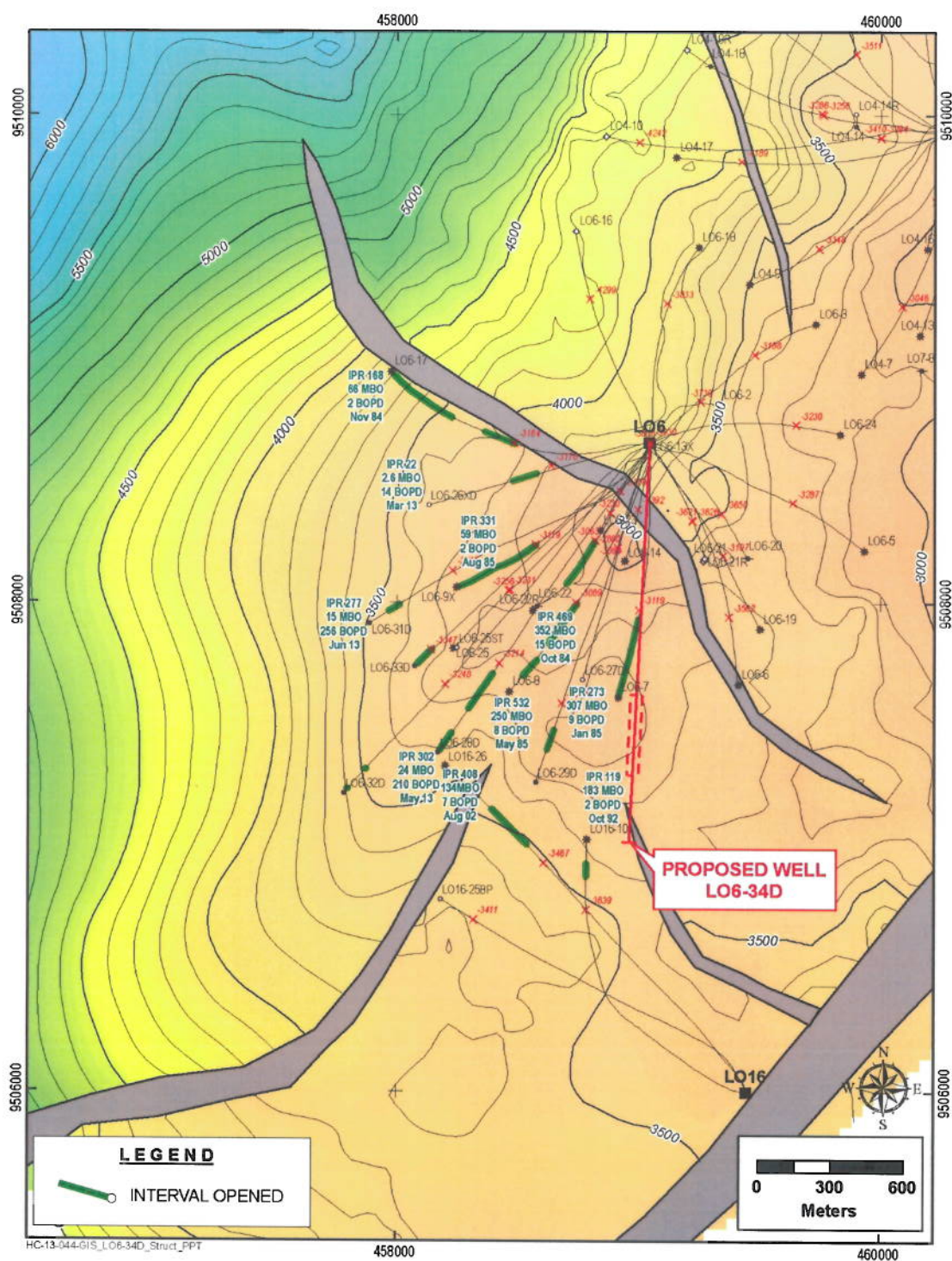


Figure 2

GEOLOGIC PROGNOSIS									
AREA LOBITOS OFFSHORE		OFFICIAL WELL NUMBER		SAVIA PERU SA. first op. LO6-34D		TYPE OF WELL DEVELOPMENT		RIG N° PEPESA-40	
PRIMARY OBJECTIVE MOGOLLON				SECONDARY OBJECTIVE RIO BRAVO					
SURFACE COORDINATES (UTM) (WGS-84) 9'508,654.42 MN 459,050.91 ME				TARGET COORDINATES (UTM) (WGS-84) 9'507,200.67 MN 458,949.29 ME					
E	KB:	DIRECTION OF		T	DRILLED DEPTH	T		ESTIMATED FINAL	
L	50 FT	W	DEVIATE WELL S 3.58° W	A	7106 FT	O		8,400 FT	
E	WATER DEPTH	E	ANGLE CONDUCTOR	R	VERTICAL DEPTH	T		HORIZONTAL DRIFT	
V	335 FT	L	FROM VERTICAL VERT.	G	4740 FT	D		5,406 FT	
A	GROUND LEVEL	L	RECOMMENDED DEPTH	E	HORIZONTAL DRIFT	E		MAX. ANGLE	
T.	FT		OF K.O.P. 480 FT	T	4783 FT	P.		60.7°	
				LIMITS (DIAMETER) TO MAIN OBJECTIVE (LOW. BS) TOP: 100 ft. BASE: 100ft.					
FORMATION / MEMBER				DRILLED TOP (MD/FT)	VERT. TOP (VD/FT)	SUBSEA TOP (SS/FT)	OBSERVATIONS		
S									
T									
R									
A									
T									
I									
G									
R									
A									
P									
H									
I									
C									
S									
E									
Q									
U									
E									
N									
C									
E									
C BIT SAMPLES		EVERY 30 FT. FROM SURFACE TO 5000'				REMARKS			
O TO BE TAKEN		EVERY 10 FT. FROM 5000' TO TOTAL DEPTH							
N RECOMMENDED									
T FOR									
R PALEO-PALYNOLOGY		PALYNOLOGY AT REQUESTED BY LIMA OFFICE							
L RECOMMENDED		DLL-MSFL-GR; FDC-CNL-GR.							
O OPEN HOLE		Pressure Test (10 Points in Rio Bravo)							
G RECOMMENDED									
G AFTER CASING		GR-CCL							
I NEARBY WELLS									
N FOR									
G CORRELATION		LO6-33D, LO6-29D, LO6-28D, LO6-31D, LO6-27D, LO16-17							
E SIDEWALL		SWC * HRCT							
V CORES		NOT CONSIDERED							
A CONVENTIONAL									
L CORES		NOT CONSIDERED							
U GAS									
A LOGGER		MUD LOGGING UNIT.							
T. FORMATION									
TESTING		NOT CONSIDERED							
RECOMMENDED BY		DATE		REVISED BY		DATE		APPROVED BY	
H.Cornejo / J.C. Muñoz/B. Borda		Nov.2013		V. Delgado/H. Janampa		Nov.2013		P. Alarcon	
								Dec. 10, 2013	
								Nov.2013	

Figure 3



SAVIA
PERU

Block Z-2B

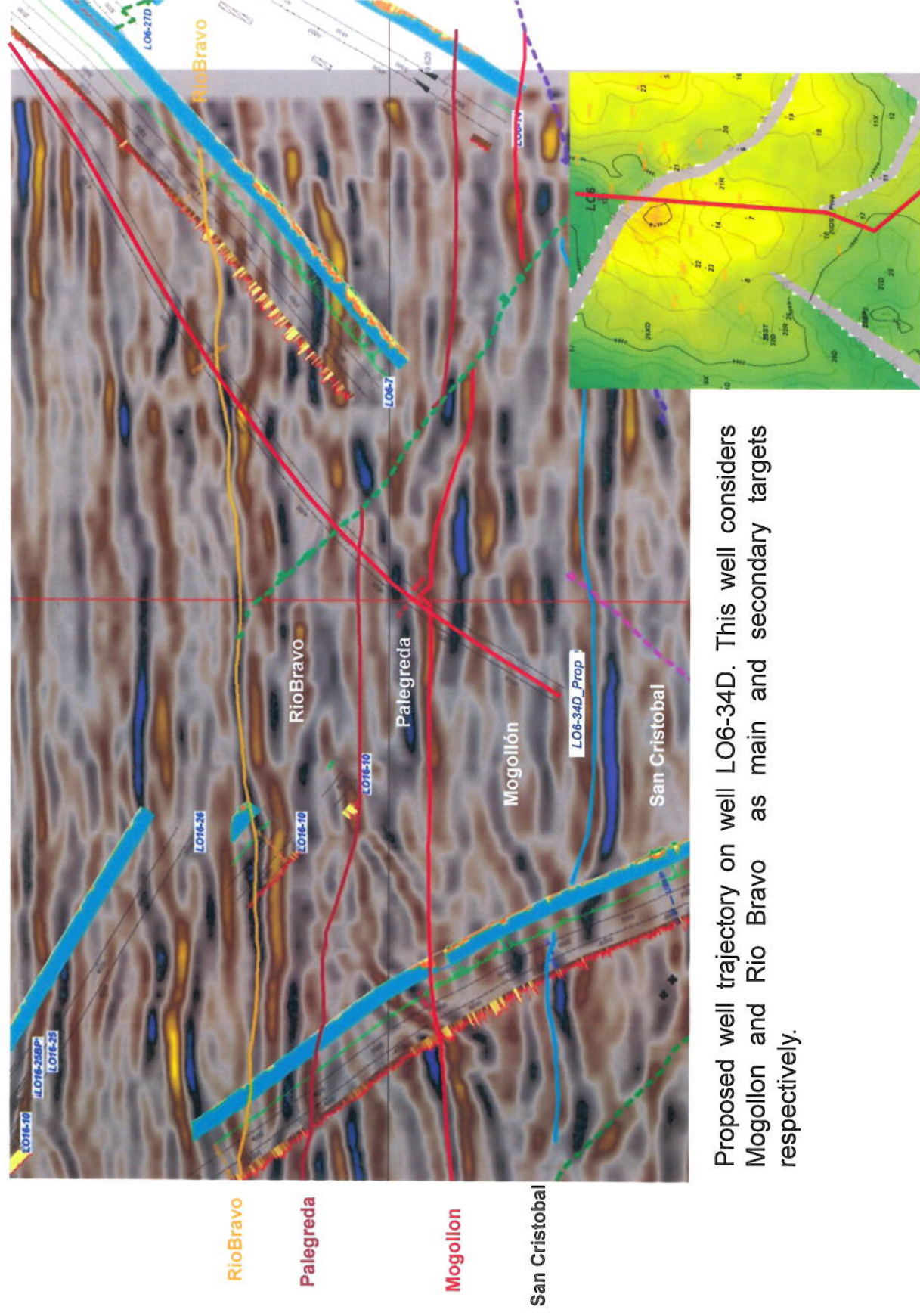
LO16 Project

3D Seismic Arb Line- Geomage PSTM

E.Borda Dec-2013

NE

SW



Proposed well trajectory on well LO6-34D. This well considers Mogollon and Rio Bravo as main and secondary targets respectively.

Figure 4

Block Z-2B
LO16 Project
3D Seismic Arb Line- Geomage PSTM
E.Borda Dec-2013

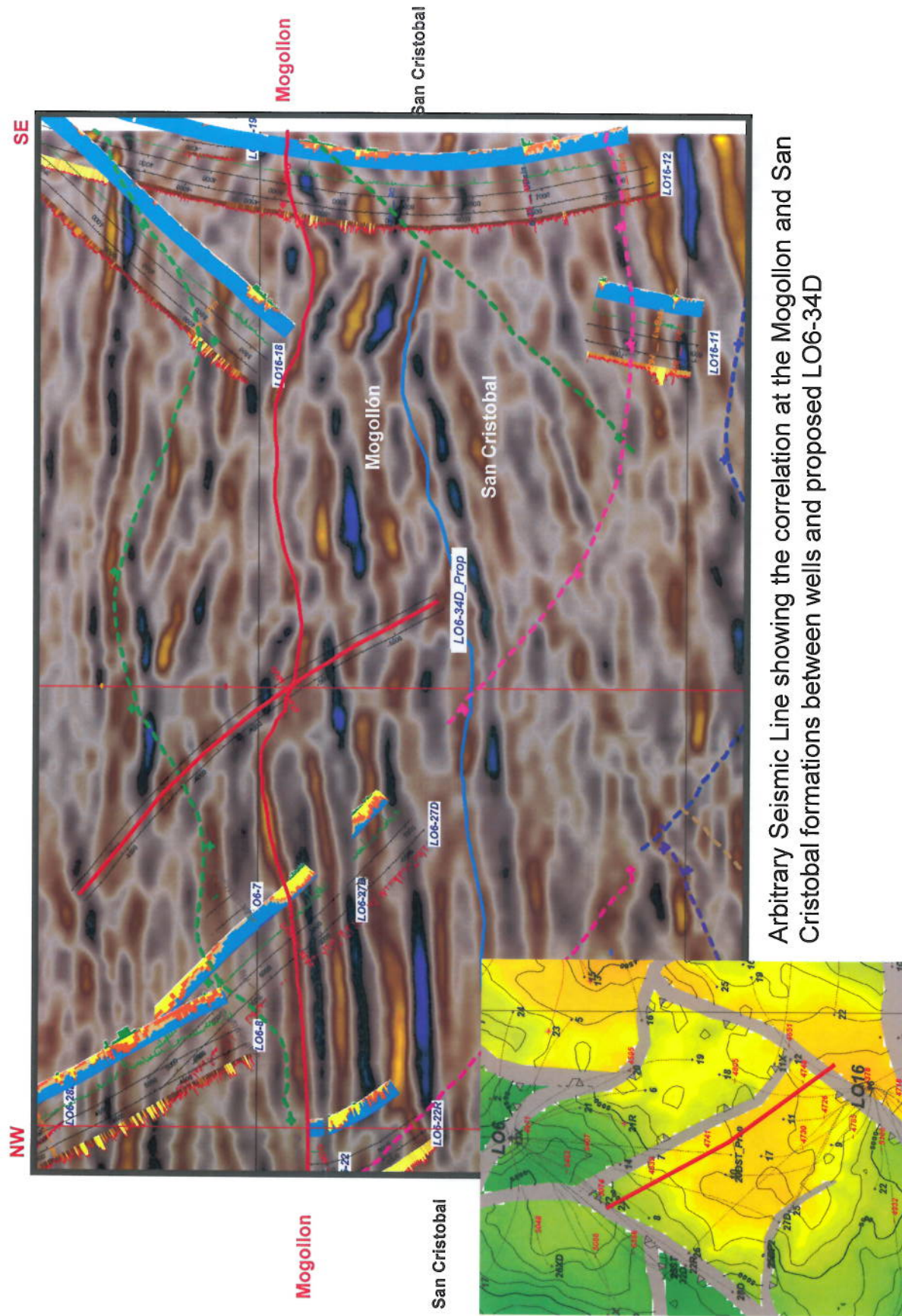


Figure 5

Z-2B LOBITOS FIELD

RIO BRAVO FM. - GROSS SAND MAP

C. Canales / E. Coronado
Dec 2013

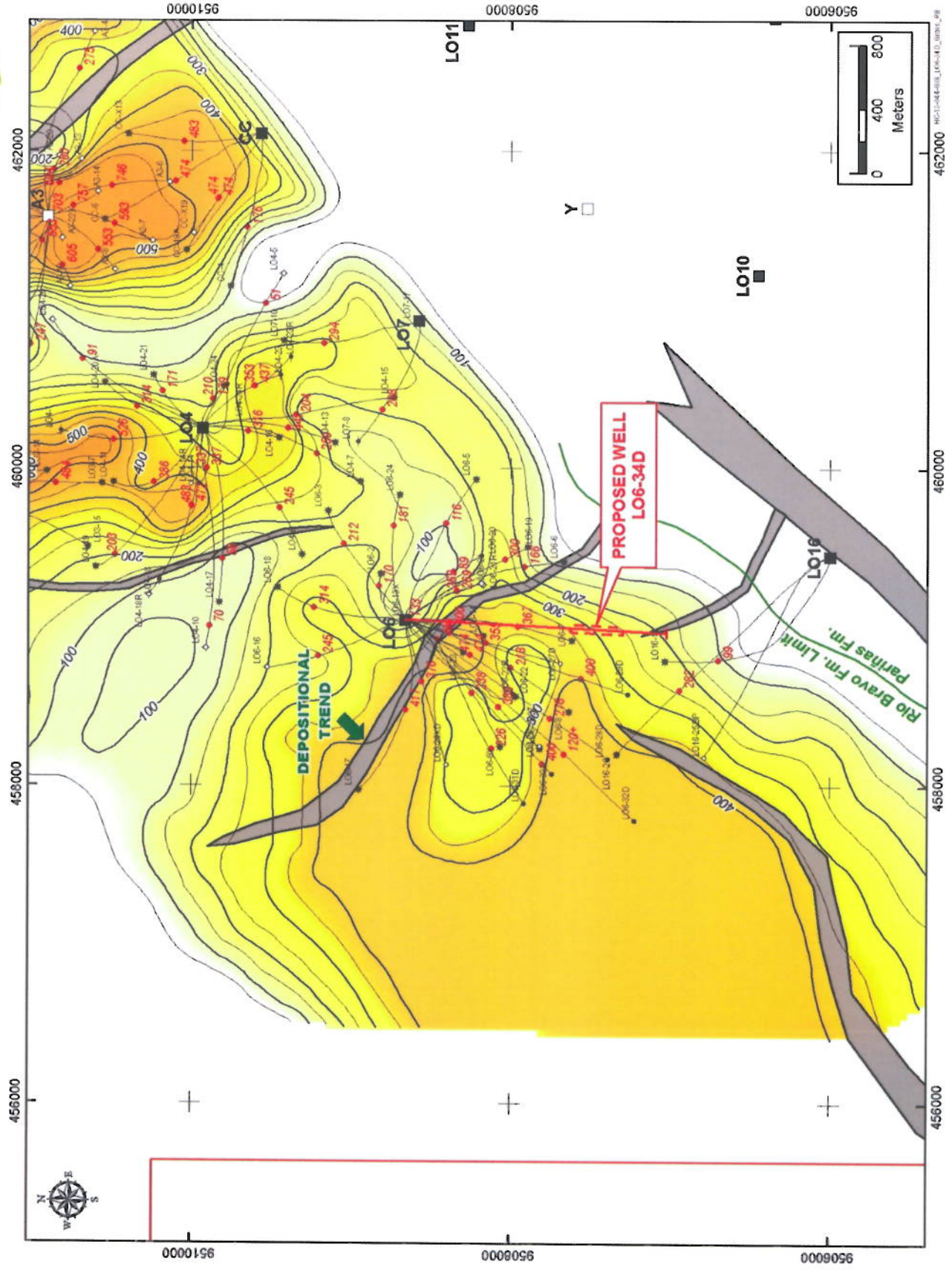


Figure 8

NW-SE STRATIGRAPHIC SECTION A-A' SHOWING MOGOLLON FM.

Graphic Scale

H. Cornejo

Dec 2013

NW **A** **SE** **A'**

LO6-29D **LO6-27D** **LO16-17** **LO16-9** **LO16-16**

**PROPOSED WELL
LO6-34D**

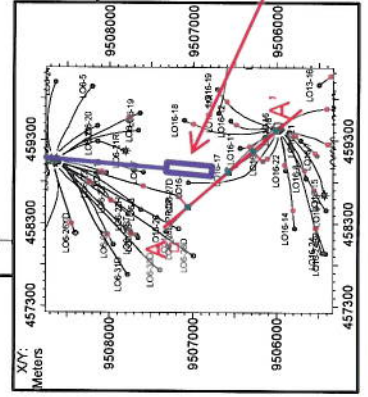
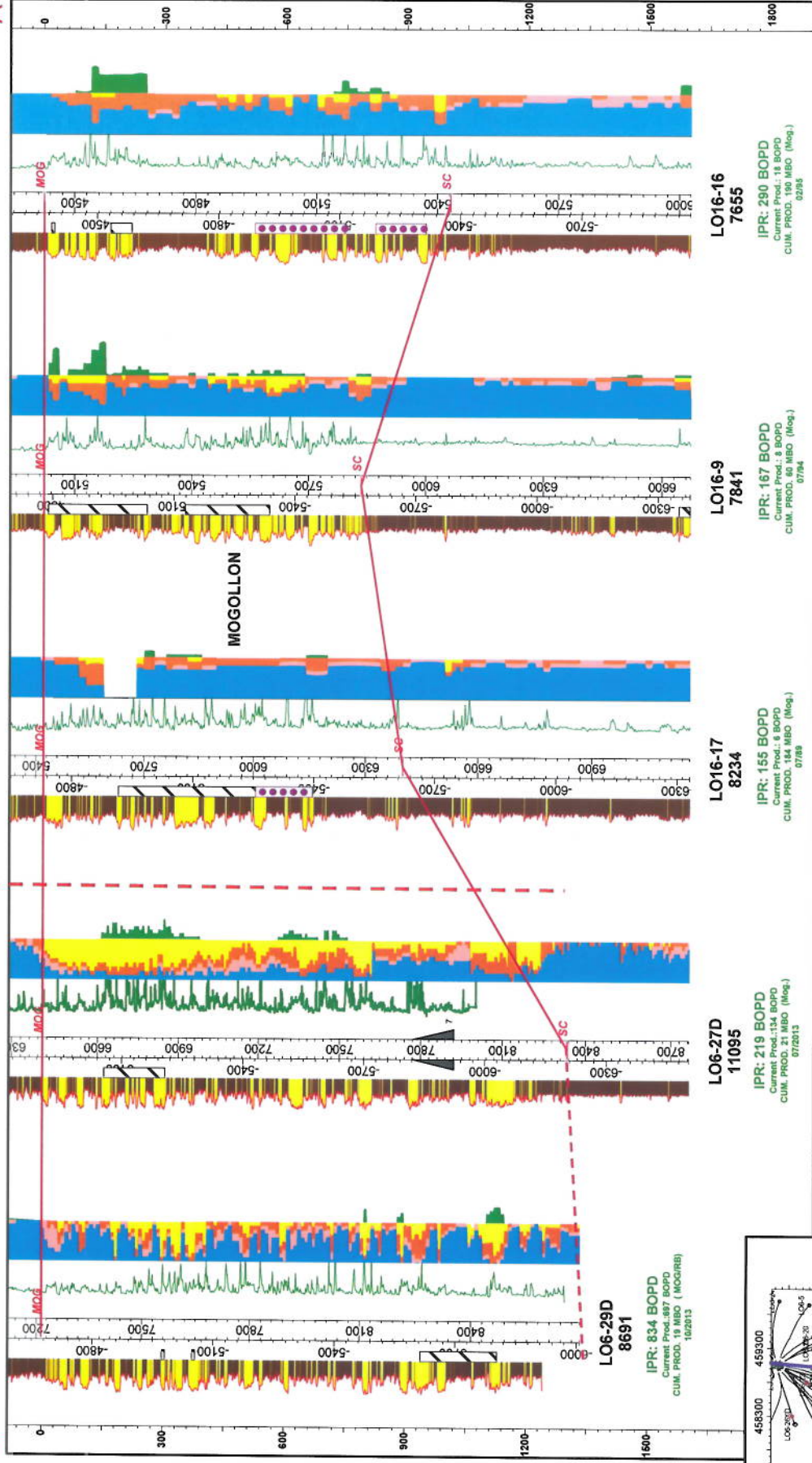


Figure 9

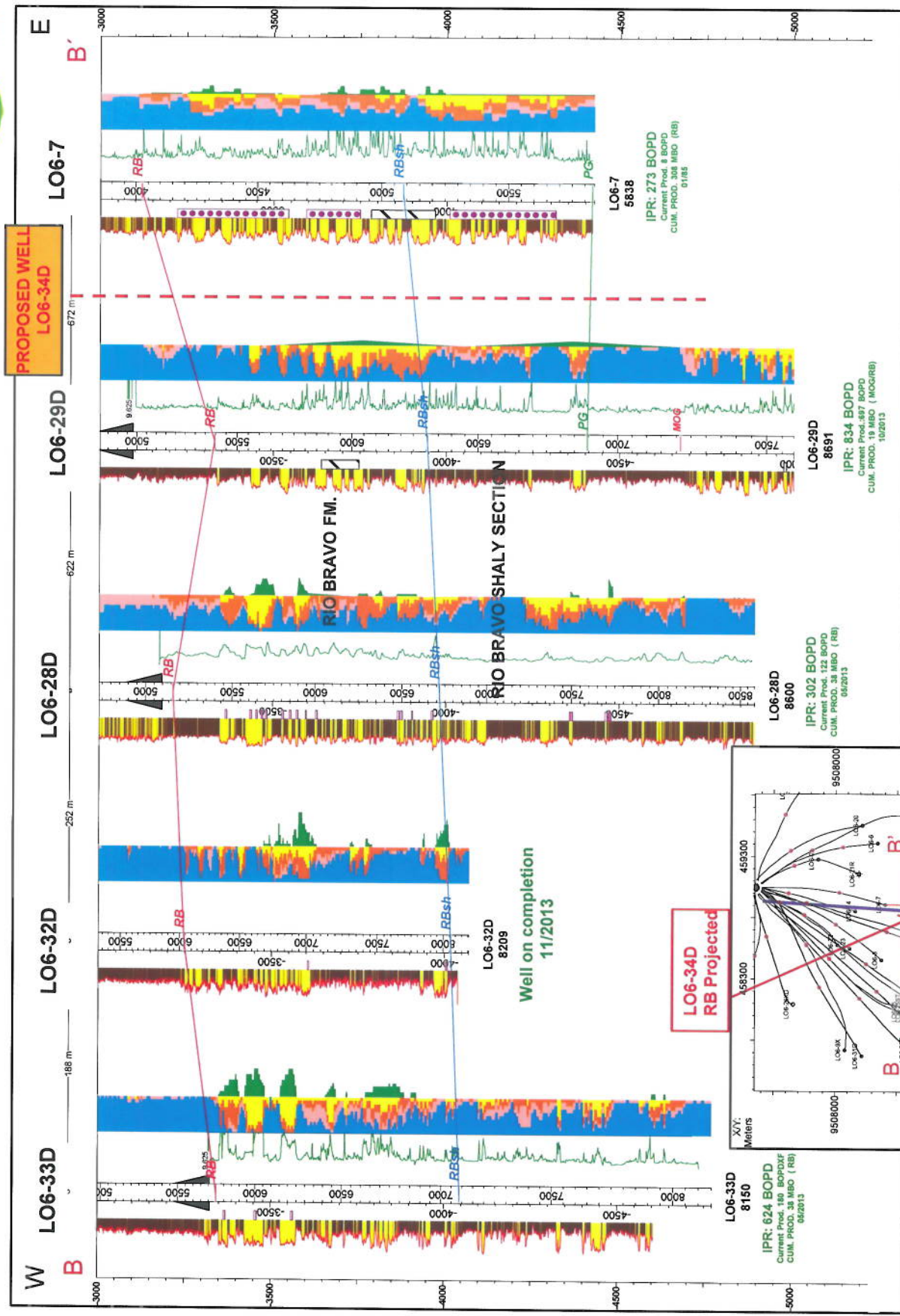
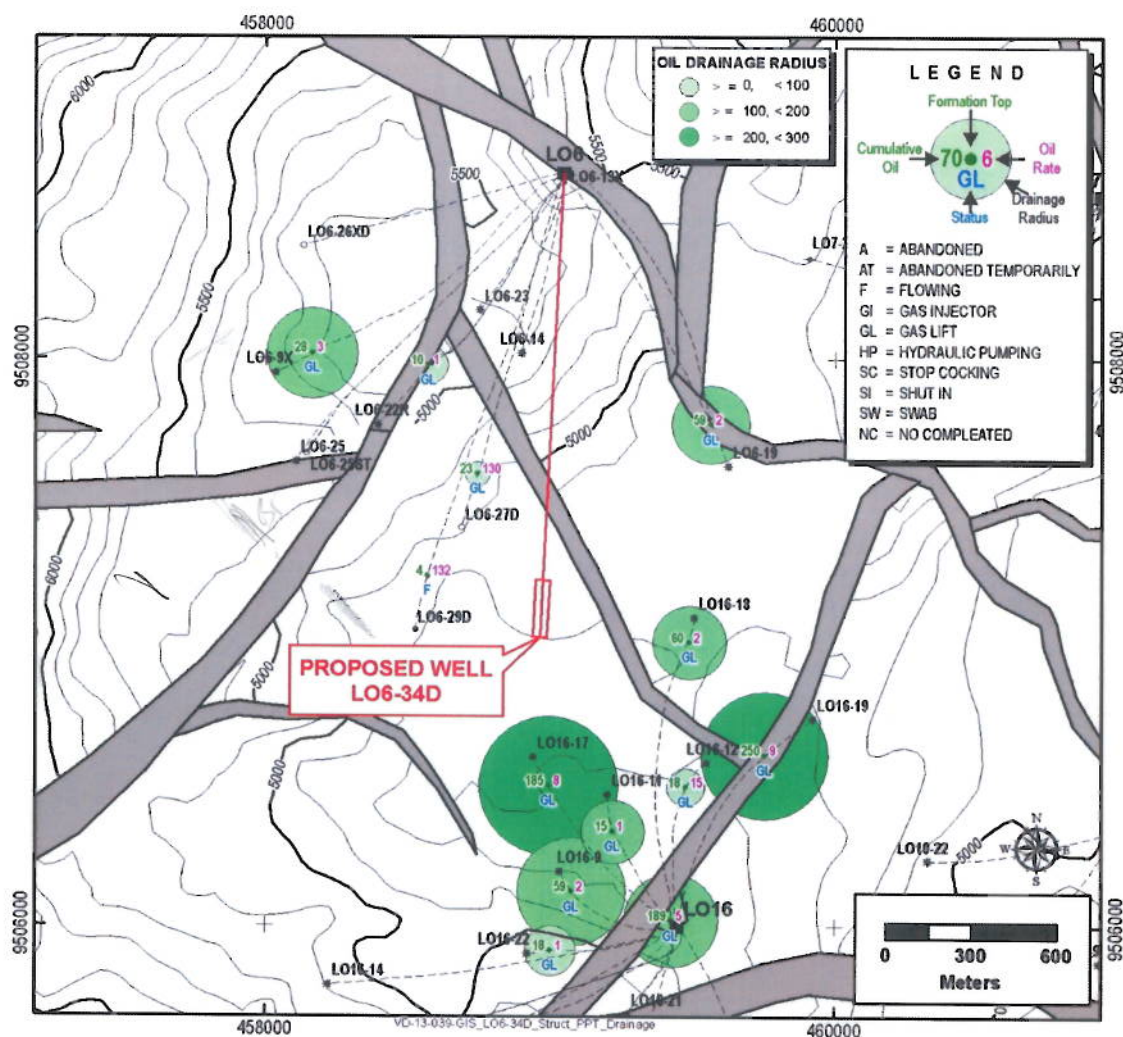


Figure 10

Z-2B LOBITOS FIELD
BUBBLE MAP – MOGOLLON FORMATION
ESTIMATED OIL PRODUCTION AND RESERVES

J. MUÑOZ

Dec. 2013



ESCENARIO	BASE ft	TOPE ft	Fm.	Pr inic. psi	Pr act. psi	Depl. %	EUR Mbbls	Qo bopd
LOW	5871	4740	MOGOLLON	3130	3130	0%	89	160
BASE	5871	4740	MOGOLLON	3130	3130	0%	156	280
HIGH	5871	4740	MOGOLLON	3130	3130	0%	232	420

Figure 11

Z-2B LOBITOS FIELD
DRILLING AND COST TIME-DEPTH CHART
 Drilling Department Dec 2013

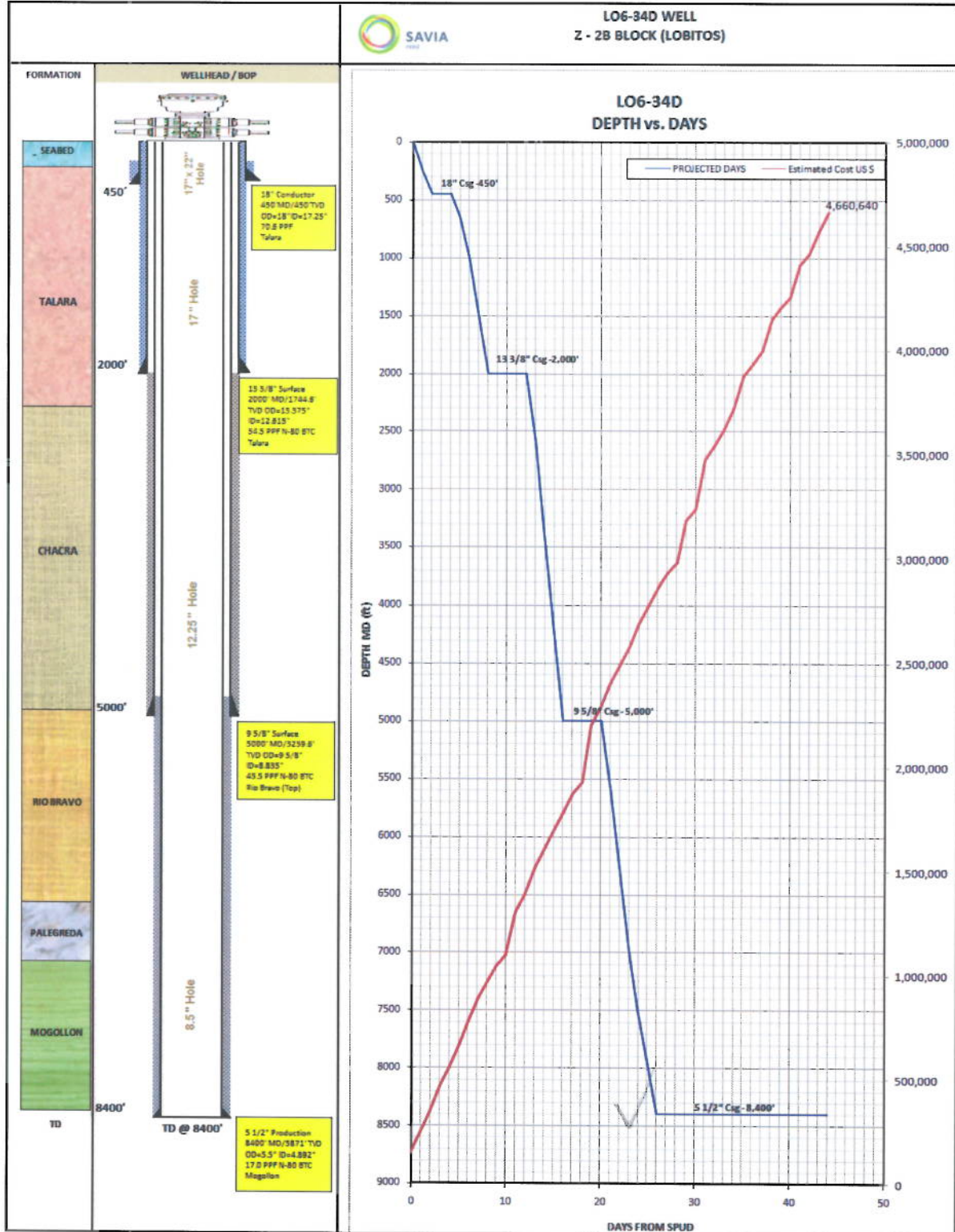


Figure 12

Z-2B LOBITOS FIELD

AFE

Drilling Department

Dec. 2013



LO6-34D


SAVIA

SAVIA PERU S.A.

CIA	ACD	BUDGET ITEM

AFE No.
2214330

FU	WELL DESCRIPTION	OFFICIAL NUMBER	MM / DD / AA
	LO6-34D	SAV-Z2B-24-LO6-34D	

TOTAL ESTIMATED DAYS						
FU	TYPE OF WELL	MOV / COND	DRILLING	COMPLETION	EST FOOTAGE	AREA
	DEVELOPMENT	3	26	18	26	LOBITOS

FU	GEN	CC	AREA

WELL COST BREAKDOWN

SUB	DESCRIPTION	QUANTITY	UNIT COST	SUB-TOTAL	TOTAL US\$
	OUTSIDE SERVICES:				
201	DRILLING RIG				1,004,500
203	DIRECTIONAL DRILLING				292,700
204	MUD LOGGING				49,500
205	MUD ENGINEERING				50,400
206	CEMENT. CONDUCT.				17,760
206	CEMENT. SURF. CSG				26,510
206	CEMENT. INTERM. CSG.				27,510
206	CEMENT. OTHERS				26,510
206	CEMENT. CASING 7"				0
206	CEMENT. CASING 5 1/2"				27,510
207	ELECTRIC LOGGING				190,000
208	PERFORATING				75,000
209	STIMULATION				90,000
211	TUBULAR INSPECTION				8,250
213	DIVING				24,000
212	HYDRAULIC TONGS				54,300
219	WELL TESTING				16,000
221	TOOL SERVICES				50,000
224	METALIC STRUCTURES CUT & WELD				10,000
226	CRANE MAINTENANCE				15,000
228	MACHINE WORK				7,500
229	BARGE OPERATIONS				249,100
231	BOAT OPERATIONS				338,000
237	MATER. & EQUIP. TRANSP.				33,000
240	WATER FURNISHMENT				15,000
244	TOOL RENTAL				68,650
248	CATERING				71,910
249	CONSULTING				58,750
252	ENVIROMENTAL PROTECTION				32,000
	TOTAL OUTSIDE SERVICES:				2,929,360
	MATERIALS & SUPPLIES:				
301	FITTING SCREWED				500
303	VALVES AND PARTS				1,500
304	API FLANGES & RING GASKET				1,000
306	HARDWARE				2,000
325	BITS				137,500
326	TOOLS FOR DRILLING				51,000
327	COMPLETIONS				70,000
328	FLOATING EQUIPMENT - CMT.				23,480
329	PRODUCTION FACILITIES EQUIP.				2,000
335	OTHERS TUBULAR CONNECTIONS				7,500
336	STRUCTURAL CONST. MAT.				2,200
340	WELDING MATERIAL				1,000
341	MAT. CMT. CONDUCT.				18,000
341	MAT. CMT. SURF. CSG.				35,000
341	MAT. CMT. INTERM. CSG.				28,000
341	MAT. CMT. CASING 7"				0
341	MAT. CMT. CASING 5 1/2"				36,000
341	MAT. CMT. OTHERS				12,000
342	STIMULATION MATERIAL				90,000
343	DRILLING / COMPLETION FLUIDS				218,600
344	CONDUCTORS	450	37.52		16,880
344	SURFACE CSG.	2000	35.11		70,220
344	INTERMED. CSG. (9 5/8")	5000	28.38		141,900
344	7" CASING	0	18.33		0
344	5 1/2" CASING	8400	11.53		96,850
344	2 7/8" TUBING	7600	4.68		35,570
346	DIESEL-FUEL		6.00		628,080
347	OIL & GRASES				4,500
	TOTAL MATERIALS & SUPPLIES:				1,731,280
TOTAL PROJECT COST US \$					4,660,640

TABLE B