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SAVIA Perú S.A.
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INTEROFFICE MEMORANDUM
DEVM-043-2014

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

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

Date: 11th June 2014

Subject: **Proposal to Drill Development Well LO16-28D**

It is recommended to drill the development well LO16-28D to develop 213 MBO of reserves in Basal Salina Formation in the southwest of LO16 platform. Programmed TD is 10745' MD (-9100' VSS) and well cost estimated is 5,286 MU$ (Figs. 1, 2, 3, 6).

LO16-28D is proposed as a directional well; with a maximum vertical angle of 38° towards S 27° W (Fig.1). The chance of success (COS) is 70% (Table A).

The proposed location LO16-28D for Basal Salina is located 900 meters of LO16-13 which had an accumulated 570 MBO (1410 IPR). Other well as the LO16-20D found faulted Basal Salina and accumulated 50 MBO (Fig.9, 11).

The depositional model of the Basal Salina, based on cores and sedimentary studies, indicates that this formation was deposited as Turbidity submarine fans. Lithologically, the Basal Salina formation is composed of medium to coarse grained sandstones and conglomerates, interbedded with thin shale breaks and according to sedimentary deposition trend, it is expected to find lithological characteristics similar to well LO13-21 with porosities ranging from 8.5 to 9.5%.

The Mogollon formation is considered as a secondary objective where the well LO16-13 completed in this formation had and initial rate of 250 BOPD and accumulated 140 MBO (Fig 2, 10).

For a complete evaluation, better understanding and reservoir modeling of Basal Salina reservoir, it is recommended a full logging set of gamma ray, resistivity, neutron–density, image log and pressure test points in Basal Salina sands (Fig. 3).

The main risks associated with this well location are:

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

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Another risk is an operational issue, because this well will be completed with 5" liner, it will require a TCP tool for perforating the Basal Salina. Also it is necessary a good coordination with services companies to reduce operational risk.

ECONOMIC SUMMARY

CASE	IP (BOPD)	EUR (MBO)	CAPEX (MUS$)	NPV 10.5% (M$)	PAY OUT (YRS)	AT PIR	ROR (%)
LOW	280	101	5,286	569	5.25	0.11	18
BASE	590	213	5,286	5,617	1.25	1.06	>100
HIGH	1,100	398	5,286	13,923	0.75	2.63	>100

CONSIDERATIONS

Net Revenue Interest %	84%
Discount Rate %	10.5%
Tax	30%
Variable Cost, US$/BL	0.91
Fixed MUS$/Year	36.6
Cost MUS$	5,286
Oil Price according Portfolio MTP 2012: 100 US$/BL from 2014 to 2023	

Base case reserves and IPR for this well are estimated 213 MBO & 590 BOPD respectively, the drilling cost estimated is US$ 5,286 M, NPV is US$ 5,617 M using portfolio parameters with discount rate of 10.5 % (Figures 11, 12 & Tables A & B)

Proposed well is supported with AFE N° 2214294, EIA with Directorial Resolution N° 444-2009-MEM/AAE and risks evaluation according to SIMOP procedure.

Cc:

J. Duarte	C. Valdizan	V. Peralta	F. Paredes	Central File
J. Garzon	R. Gilabert	E. Borda	M. Chavez	
B. Kim	A. Agurto	E. Gonzales	O. Nieto	
G. Idiaquez	C. Ramírez	K. Valencia	J. Chuyes	

Attached Documents

Fig.1: Top Basal Salina Fm., showing the proposed well LO16-28D
Fig.2: Top Mogollón Fm., showing the proposed well LO16-28D
Fig.3: Geological Prognosis
Fig.4: Seismic Line AA' showing the proposed well LO16-28D
Fig.5: Seismic Line BB' showing the proposed well LO16-28D
Fig 6: NW-SE Structural section for proposed well LO16-28D
Fig.7: Upper BS Fm. Net Sand Map for proposed well LO16-28D
Fig.8: Lower BS Fm. Net Sand Map for proposed well LO16-28D
Fig.9: Mogollón Fm. Net Sand Map for proposed well LO16-28D
Fig.10: NW-SE Stratigraphic correlation of Upper Basal Salina Fm. for proposed well LO16-28D
Fig.11: SW-NW Stratigraphic correlation of Mogollón Fm. for proposed well LO16-28D
Fig 12: Estimated Oil production of Upper Basal Salina and closest producers wells
Fig 13: Oil production of Lower Basal Salina
Fig 14: Drilling and Cost Time-Depth Chart of well LO16-28D
Table A: Economic Summary and Oil rate forecast for well LO16-28D
Table B: AFE for Proposed well LO16-28D
Table C: Directional Well Profile, well LO16-28D

SAVIA
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Z-2B LOBITOS FIELD

TOP UPPER BASAL SALINA FM. – DEPTH STRUCTURE MAP

H. Cornejo / E. Borda June 2014

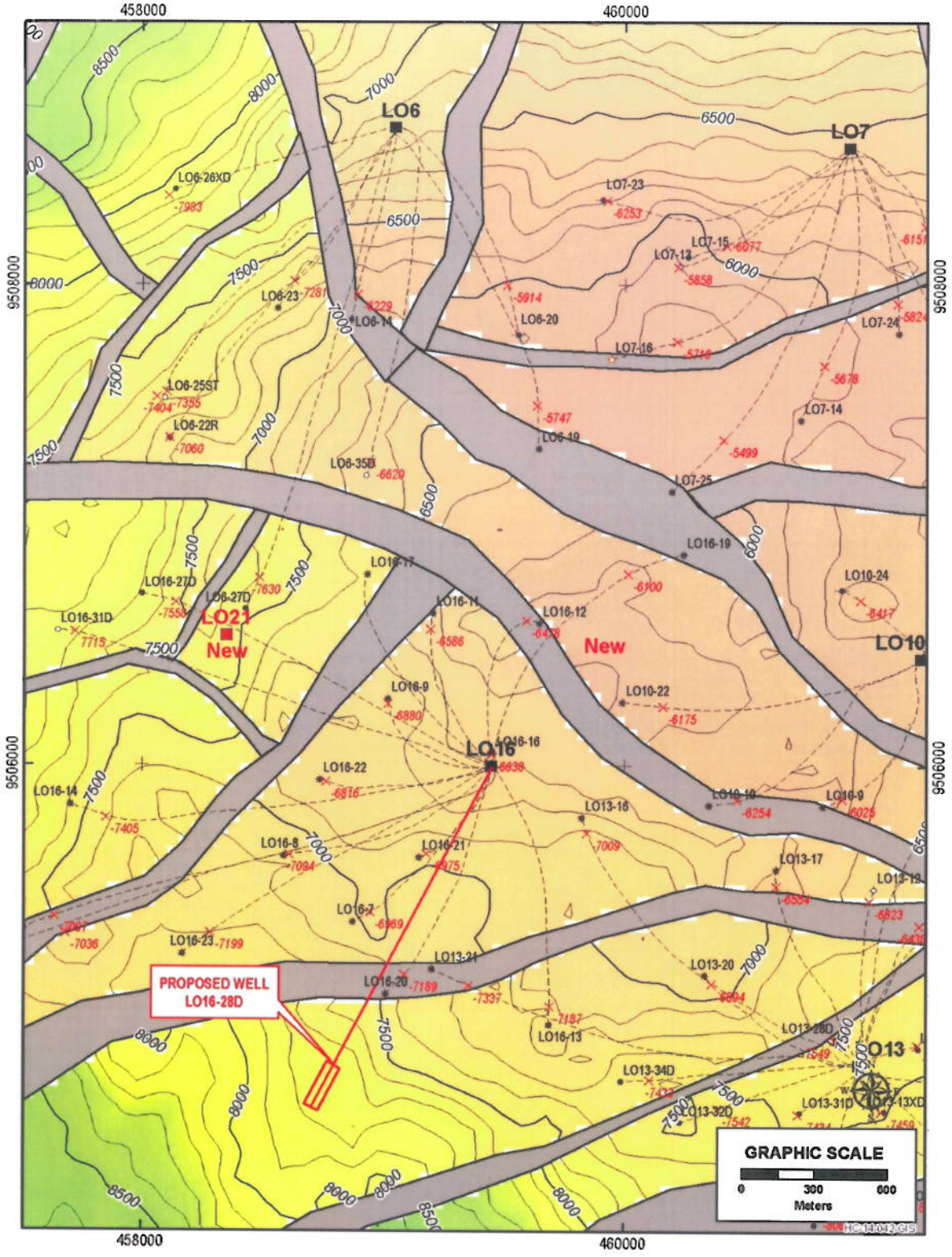


Figure 1

SAVIA PERÚ

Z-2B LOBITOS FIELD

TOP MOGOLLON FM. – DEPTH STRUCTURE MAP

H. Cornejo / E. Borda June 2014

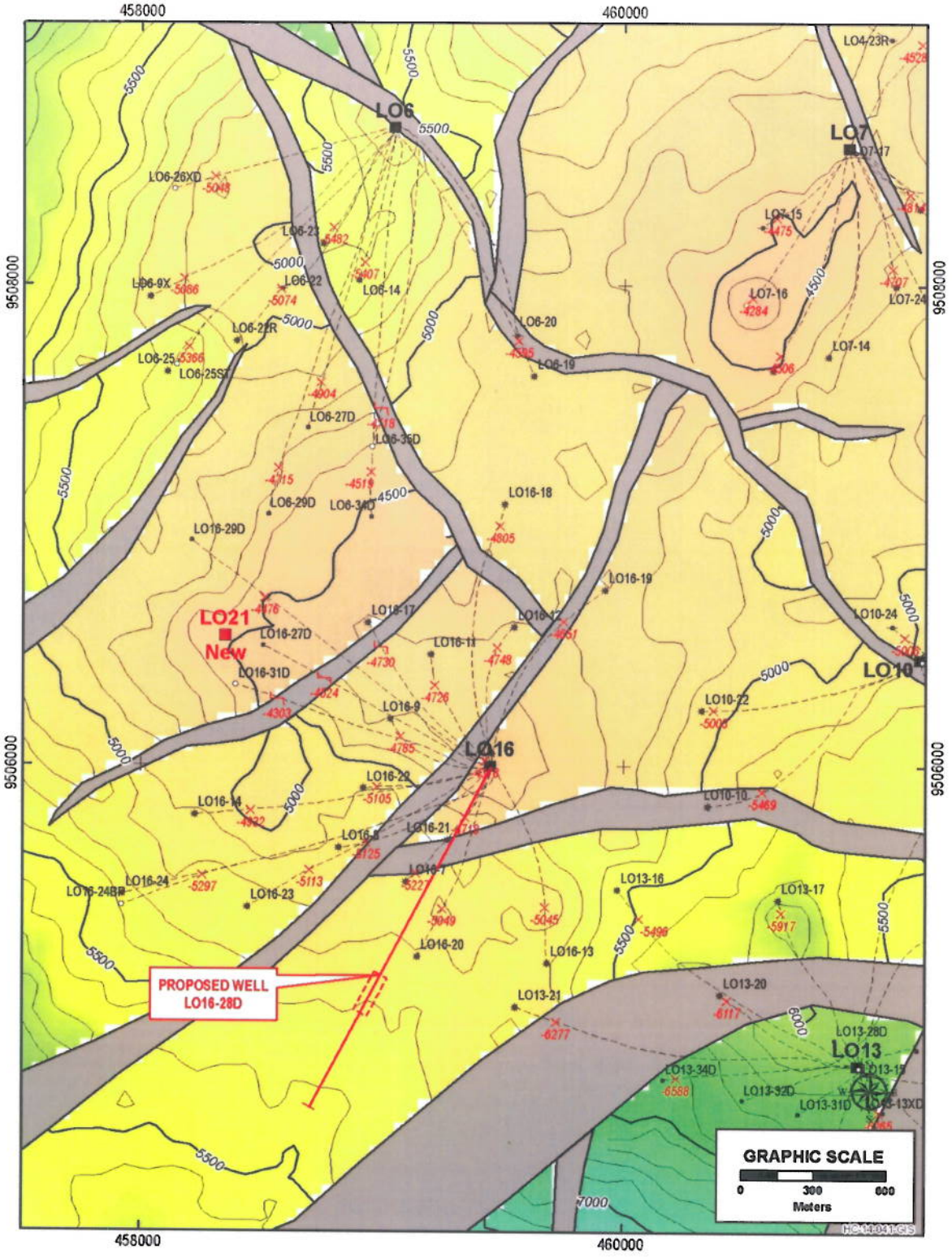


Figure 2

GEOLOGIC PROGNOSIS

AREA	OFFICIAL WELL NUMBER	SAVIA PERU S.A.	TYPE OF WELL	RIG Nº
LOBITOS OFFSHORE		LO16 - 28D	DEVELOPMENT	PEPESA-44

PRIMARY OBJECTIVE	SECONDARY OBJECTIVE
BASAL SALINA	MOGOLLON

SURFACE COORDINATES (UTM) (WGS-84)	TARGET COORDINATES (UTM) (WGS-84)
9'505,991.78 MN 459,450.87 ME	9'504,753.81 MN 458,792.63 ME

ELEV.	KB: 50 FT	WELL	DIRECTION OF DEVIATE WELL: S 27.5° W	TARGET	DRILLED DEPTH: 9216 FT	TO	ESTIMATED FINAL: 10,745 FT
	WATER DEPTH: 309 FT		ANGLE CONDUCTOR FROM VERTICAL: VERT.		VERTICAL DEPTH: 7800 FT	TD	HORIZONTAL DRIFT: 5,317 FT
	GROUND LEVEL: FT		RECOMENDED DEPTH OF K.O.P.: 550 FT		HORIZONTAL DRIFT: 4600 FT	EP.	MAX. ANGLE: 38.15°
			BUILD UP ANGLE AT Drop vert. Angle: 2.5°/100 FT.		LIMITS (DIAMETER) TO MAIN OBJECTIVE. (LOW. BS) TOP: 100 ft. BASE: 100ft.		

STRATIGRAPHIC SEQUENCE	FORMATION / MEMBER	DRILLED TOP (MD/FT)	VERT. TOP (VD/FT)	SUBSEA TOP (SS/FT)	OBSERVATIONS
	TALARA	AT SEA BOTTOM			
	CHACRA	2972	2,650	2,600	
	PARIÑAS	4180	3,600	3,550	
	PALEGREDA	4,435	3,800	3,750	
	MOGOLLON	6,379	5,330	5,280	SECONDARY OBJECTIVE
	SAN CRISTOBAL	7,665	6,430	6,380	
	BASAL SALINA	9,216	7,800	7,750	MAIN OBJECTIVE
	BALCONES	10,553	8,980	8,930	
	TD	10,745	9,150	9,100	

COTN.	BIT SAMPLES TO BE TAKEN	EVERY 30 FT.FROM SURFACE TO 6000' EVERY 10 FT. FROM 6000' TO TOTAL DEPTH
	RECOMMENDED FOR PALEO-PALYNOLOGY	PALEONTOLOGY AT REQUEST BY LEADER OFFICE
LOG	RECOMMENDED OPEN HOLE	GR-RESISTIVIDAD - DENSIDAD - NEUTRON- IMAGEN LOG Pressure Test (10 Points in Basal Salina)
GING	RECOMMENDED AFTER CASING	GR-CCL
	NEARBY WELLS FOR CORRELATION	LO6-25BP, LO6-22R, LO16-14, LO16-22,LO16-17,LO6-29D
EVAL.	SIDEWALL CORES	SWC * HRCT NOT CONSIDERED
	CONVENTIONAL CORES	NOT CONSIDERED
	GAS LOGGER	MUD LOGGING UNIT.
	FORMATION TESTING	NOT CONSIDERED

REMARKS

FOR SECTION 8 1/2" CONSIDER TO RUN GR-RESIST - DEN - NEUTRON IN THE MOGOLLON FM (OPTIONAL)

AT 6250 FT. MD. DROP VERT. ANGLE 1°/100FT. TO REACH 28° TO TD.

RECOMMENDED BY	DATE:	REVISED BY	DATE:	APPROVED BY	DATE:
H.Cornejo / J.C. Muñoz/ E. Borda	Jun. 2014	V. DELGADO / H. JANAMPA	Jun. 2014	P. ALARCON	Jun. 2014

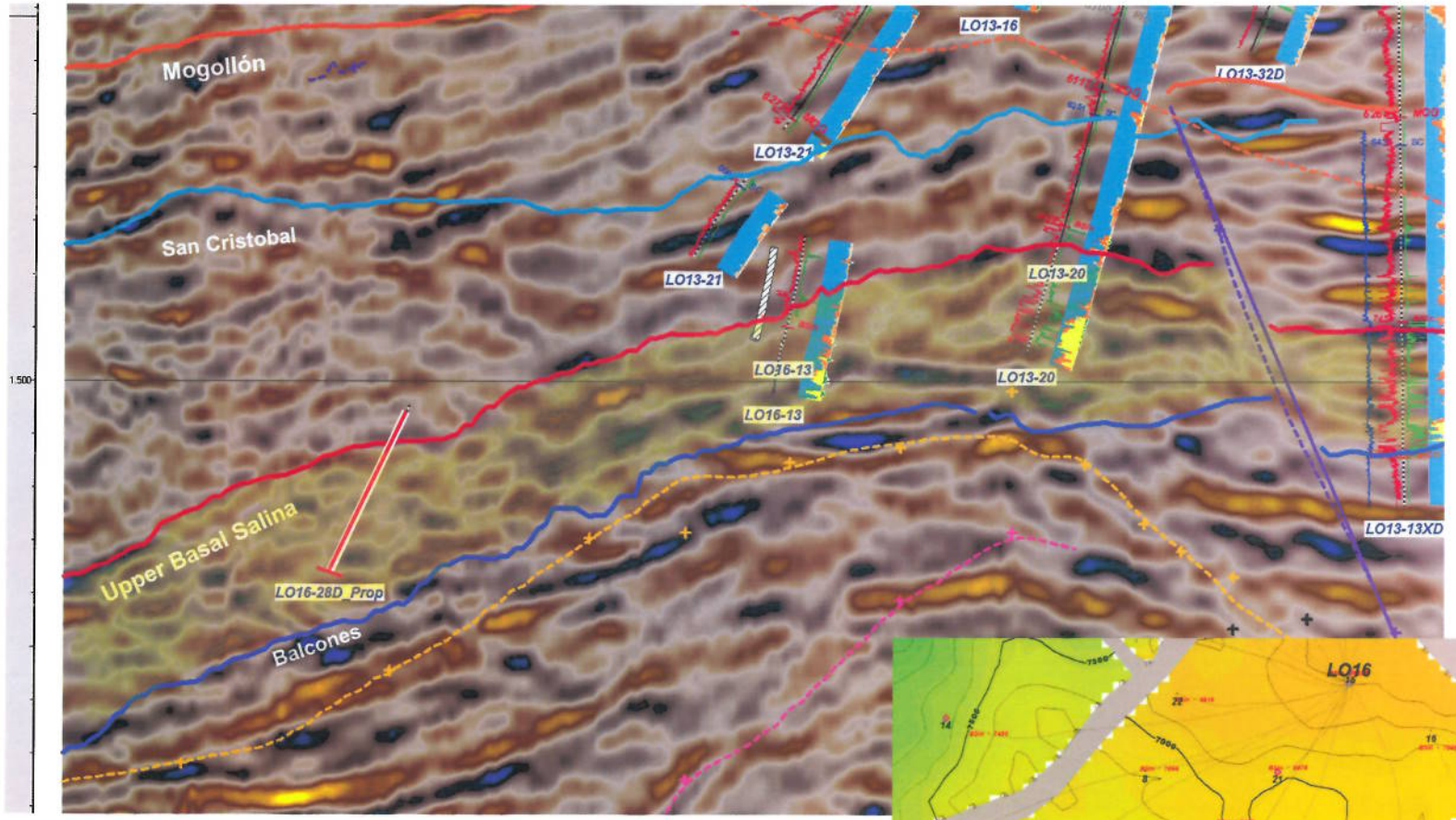
Figure 3

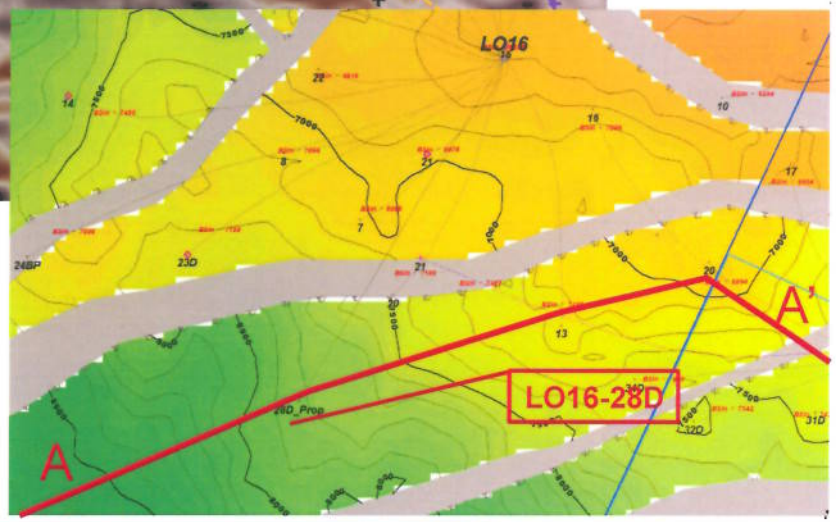
Block Z-2B

3D Seismic Line AA' showing the proposed well LO16-28D

E.Borda June 2014

SW NE





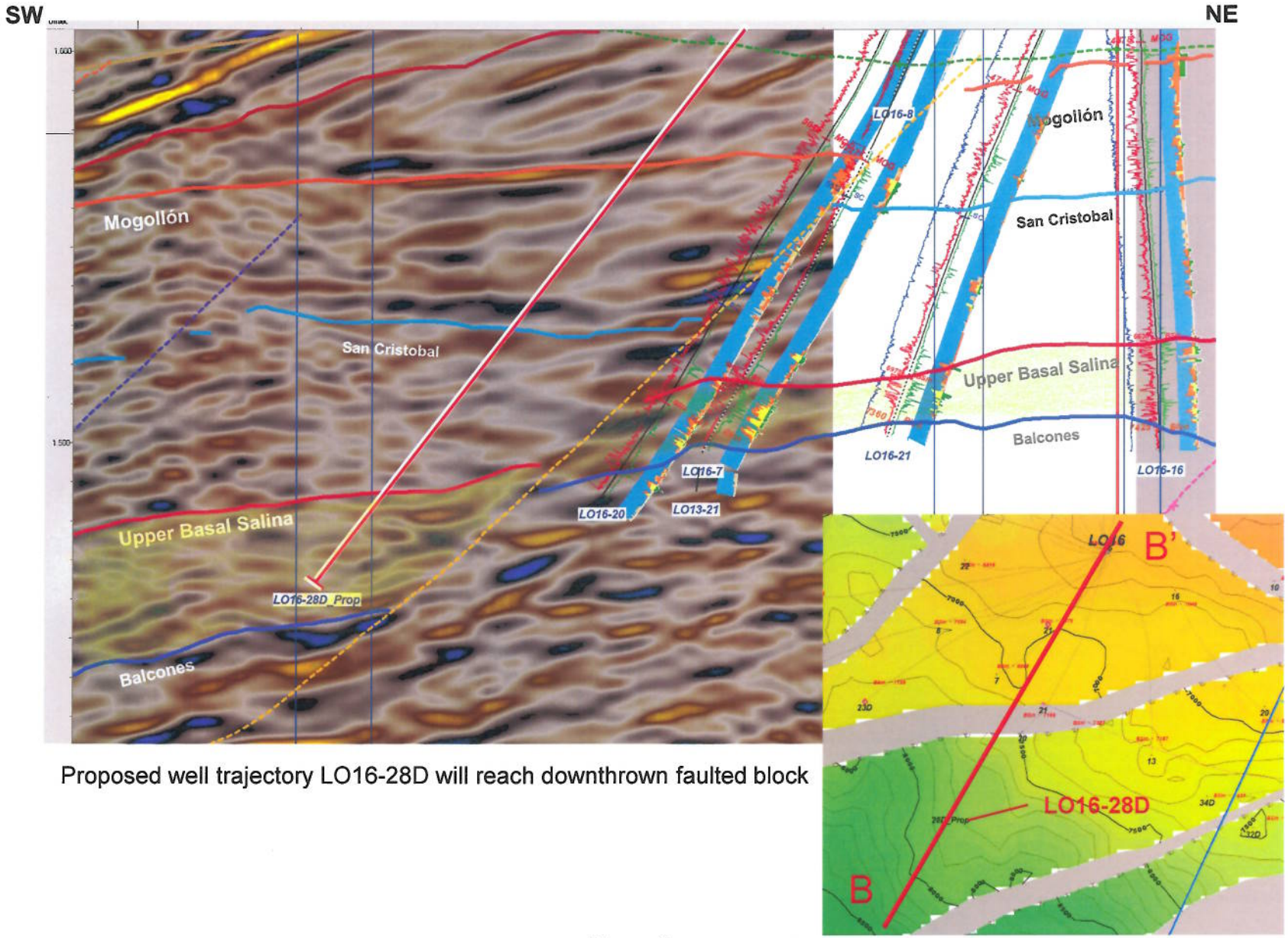
Strike Line showing Basal Salina down dip prospective area to be reached by L016-28D development well.

Figure 4

Block Z-2B

3D Seismic Line BB' showing the proposed well LO16-28D

E.Borda June 2014



Proposed well trajectory LO16-28D will reach downthrown faulted block

Figure 5

LOBITOS FIELD
NW-SE STRUCTURAL SECTION FOR PROPOSED WELL LO16-28D

Graphic Scale

H. Cornejo

June 2014

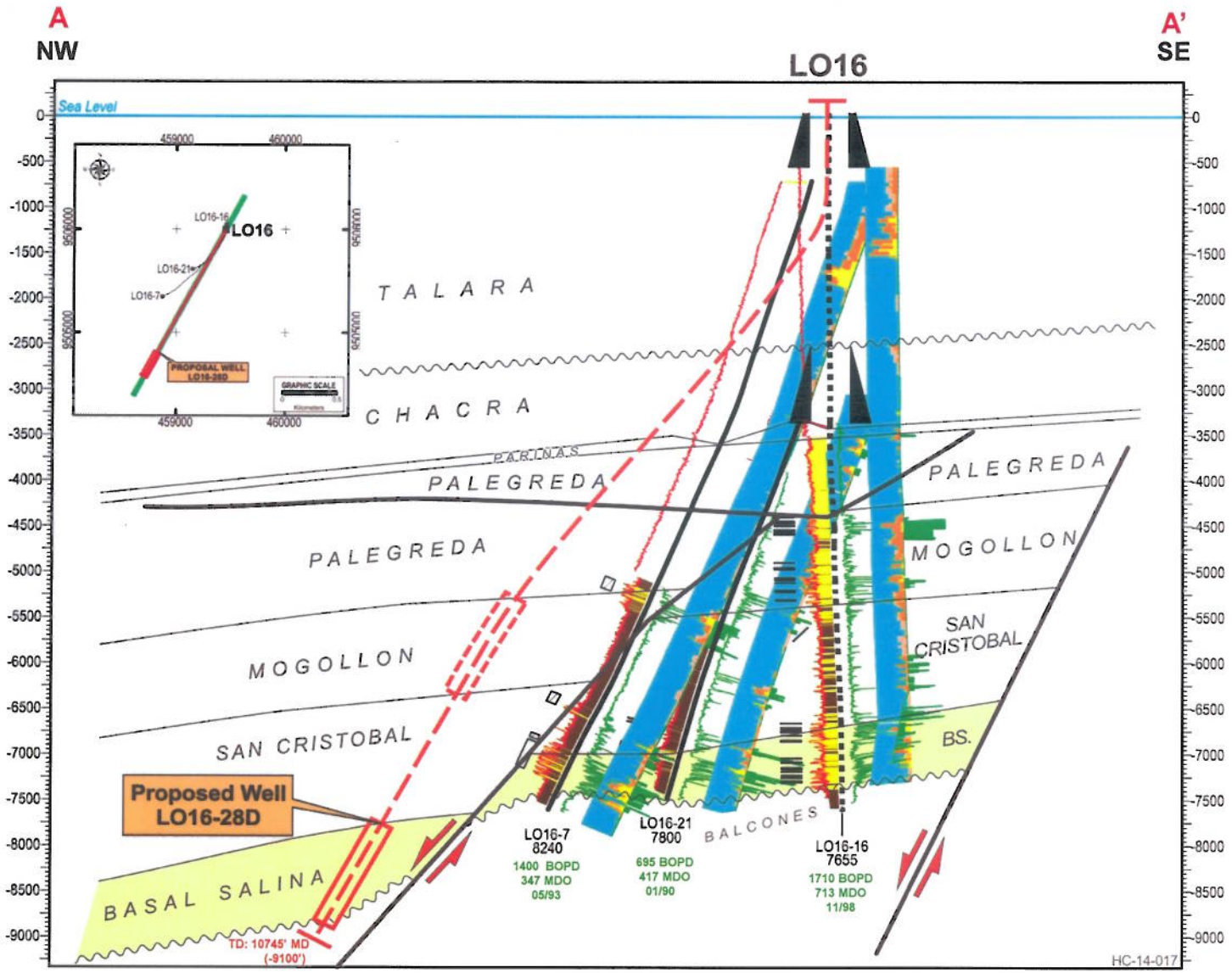


Figure 6

SAVIA PERÚ

Z-2B LOBITOS FIELD

UPPER BASAL SALINA FM. - NET SAND MAP

H. Cornejo / C. Canales June 2014

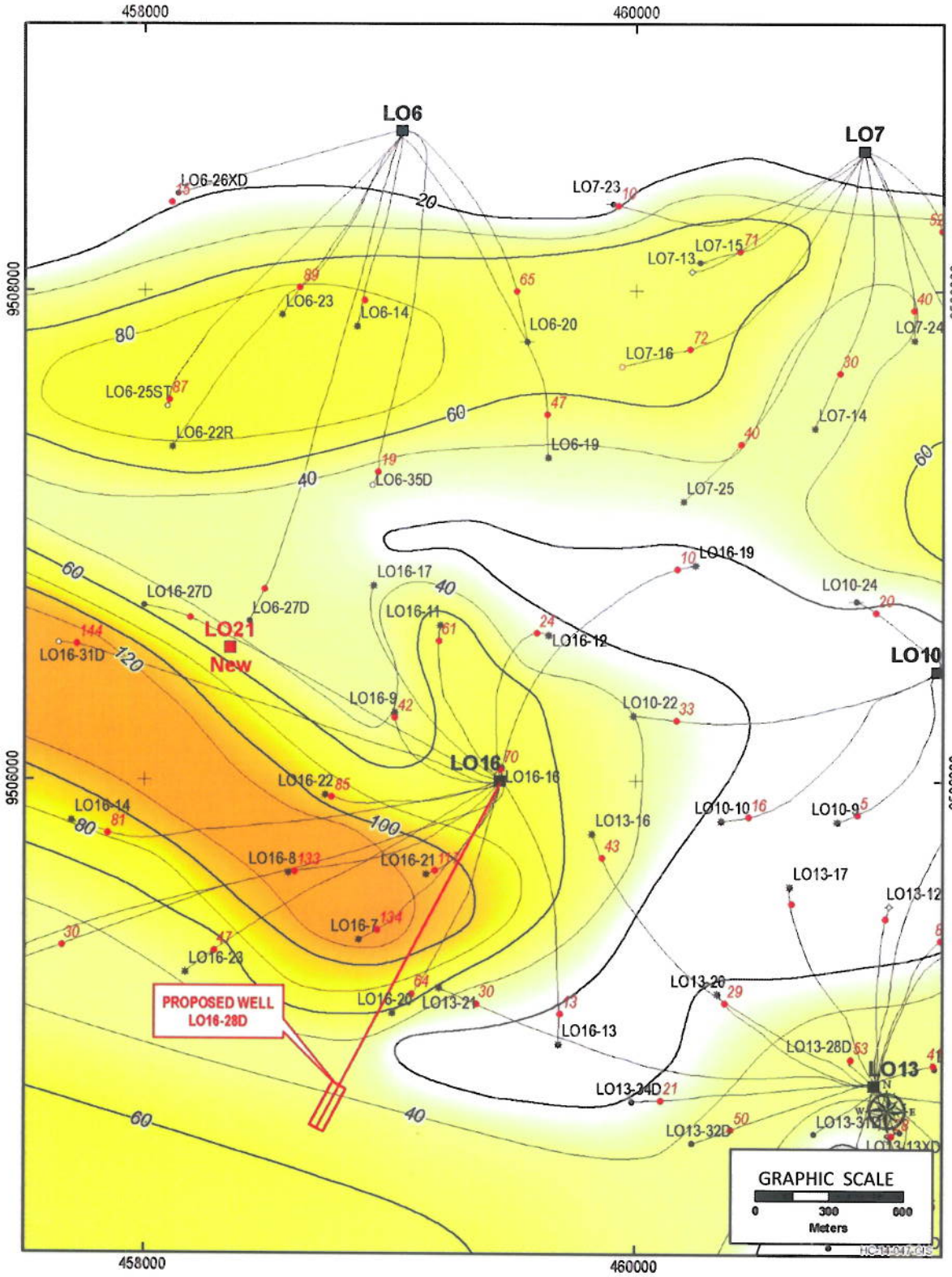


Figure 7

Z-2B LOBITOS FIELD

LOWER BASAL SALINA FM. - NET SAND MAP

H. Cornejo / C. Canales June 2014

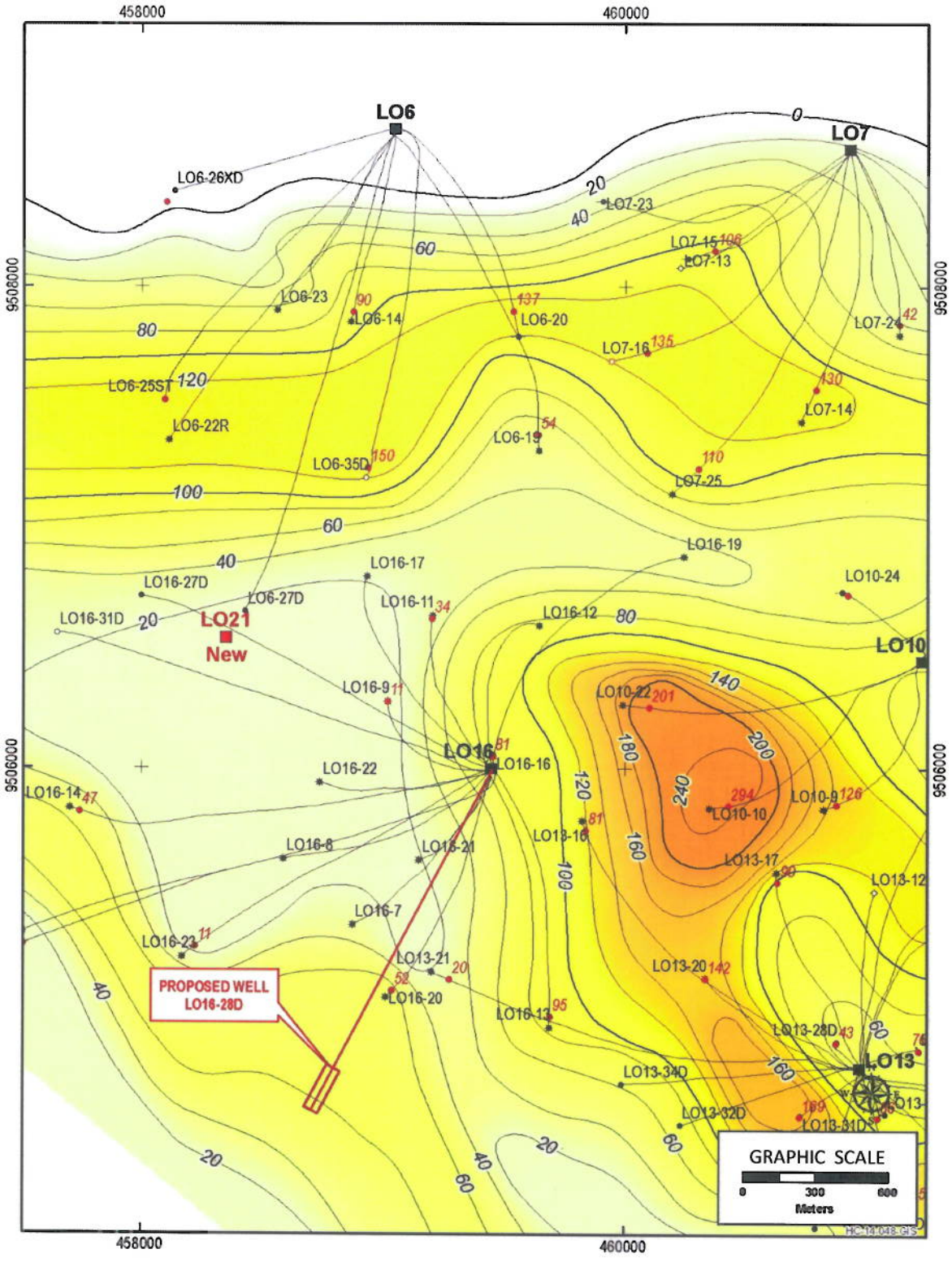


Figure 8

SAVIA PERÚ

Z-2B LOBITOS FIELD

MOGOLLON FM. - NET SAND MAP

H. Cornejo / C. Canales June 2014

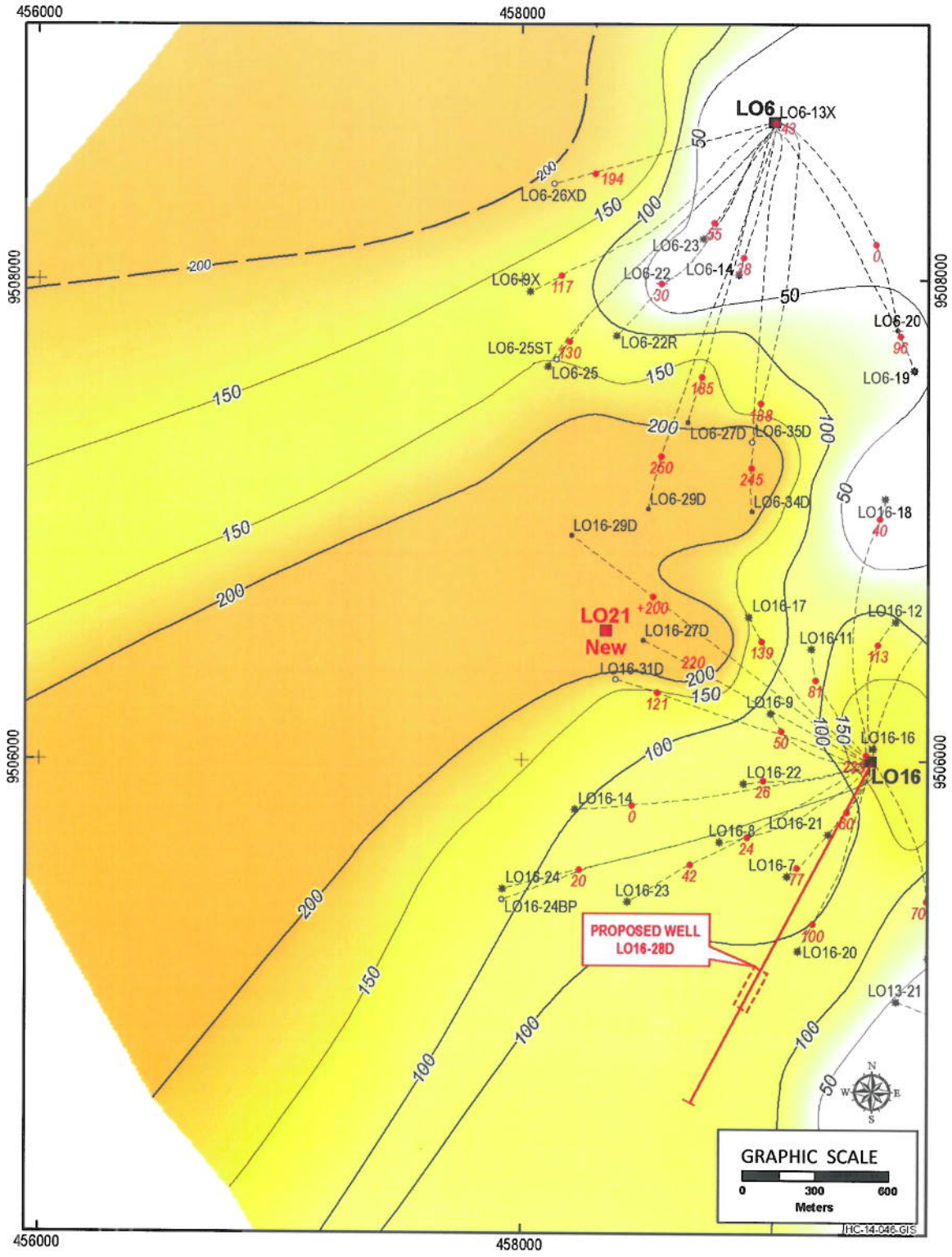


Figure 9

NW-SE STRATIGRAPHIC SECTION SHOWING THE PROPOSAL WELL LO16-28D – BASAL SALINA FM

Graphic Scale

H. Cornejo

June 2014

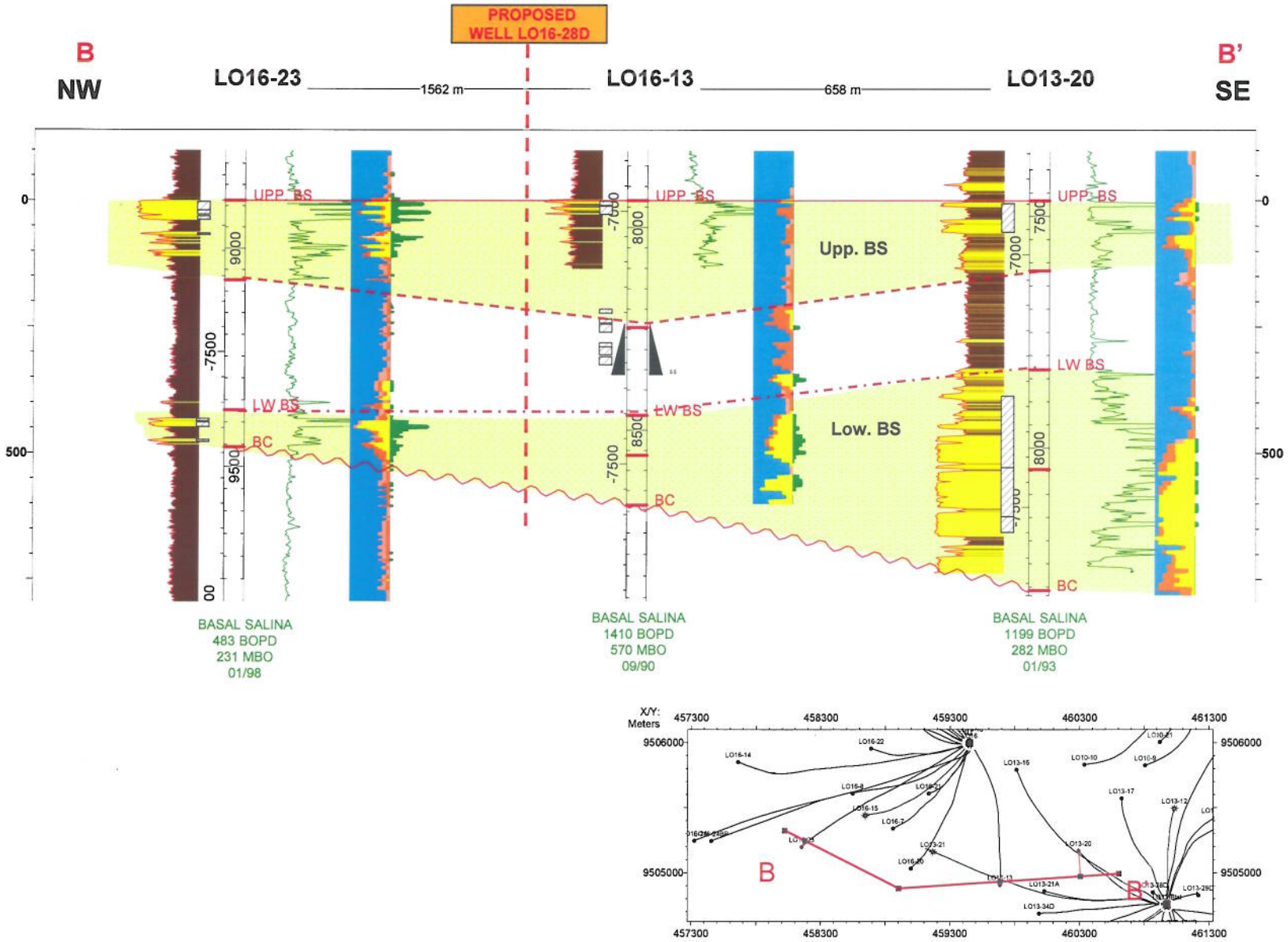


Figure 10

SW-NW STRATIGRAPHIC SECTION SHOWING THE PROPOSAL WELL LO16-28D MOGOLLON FM

Graphic Scale

H. Cornejo

June 2014

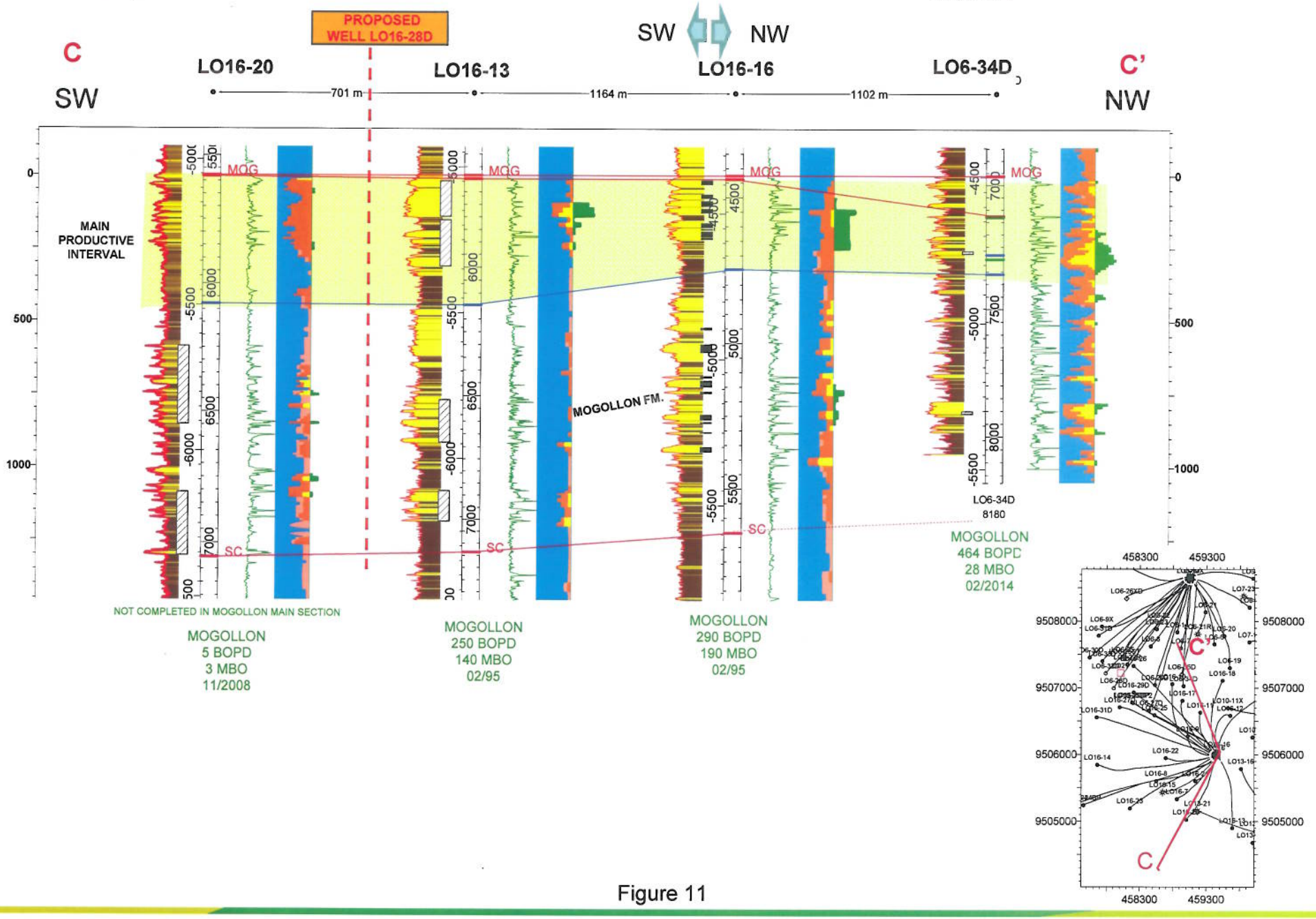
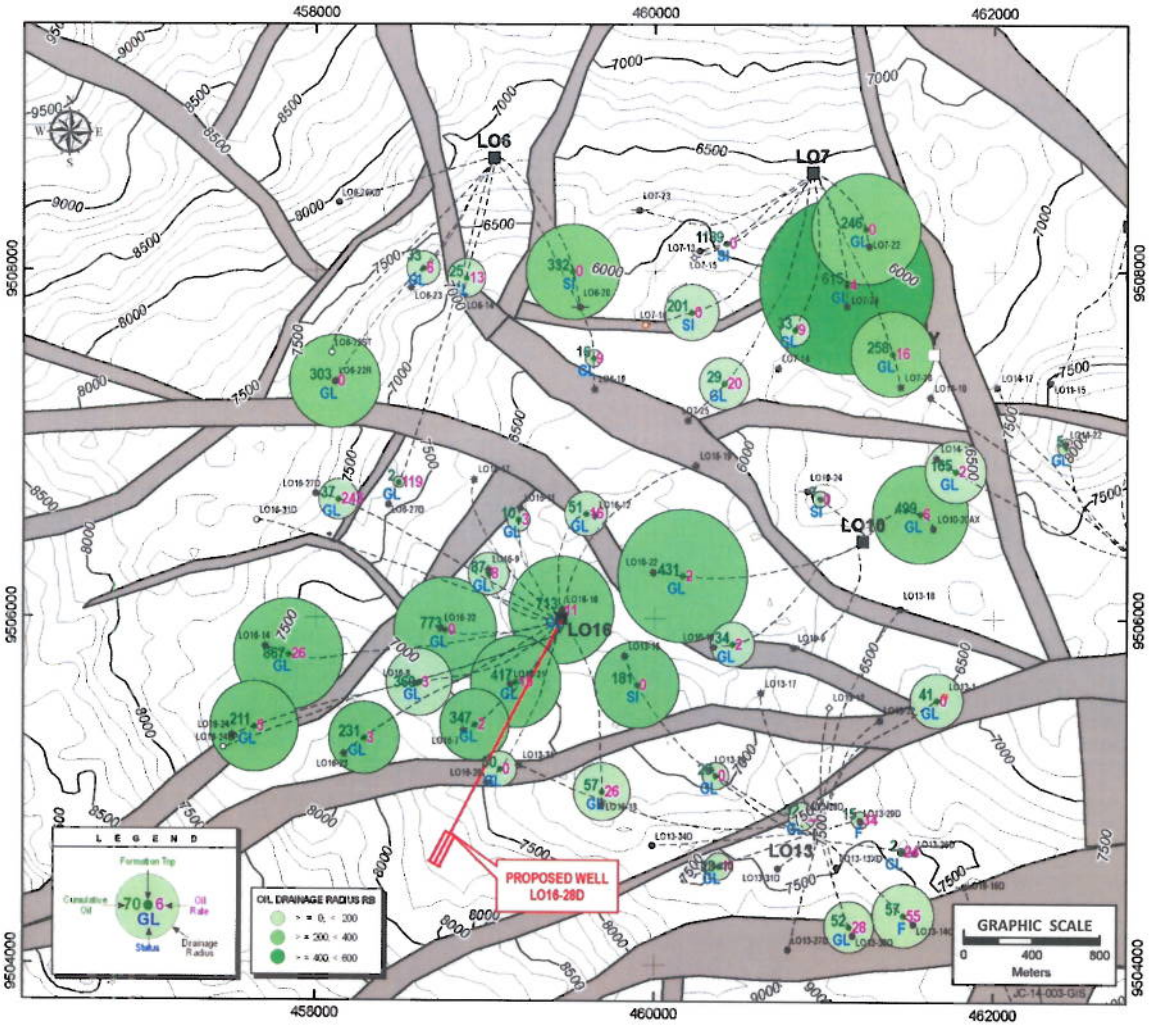


Figure 11

Z-2B LOBITOS FIELD

BUBBLE MAP – UPPER BASAL SALINA FORMATION
ESTIMATED OIL PRODUCTION AND RESERVES

J. MUÑOZ June 2014



ETAPA	BASE ft	TOPE ft	Fm.	Pr inic. psi	Pr act. psi	Depl. %	EUR Mbls	Qo bopd
LOW	8980	7800	BASAL SALINA	4698	4698	0%	101	280
BASE	8980	7800	BASAL SALINA	4698	4698	0%	213	590
HIGH	8980	7800	BASAL SALINA	4698	4698	0%	398	1100

Figure 12

Z-2B LOBITOS FIELD

BUBBLE MAP – LOWER BASAL SALINA FORMATION
OIL PRODUCTION

J. MUÑOZ June 2014

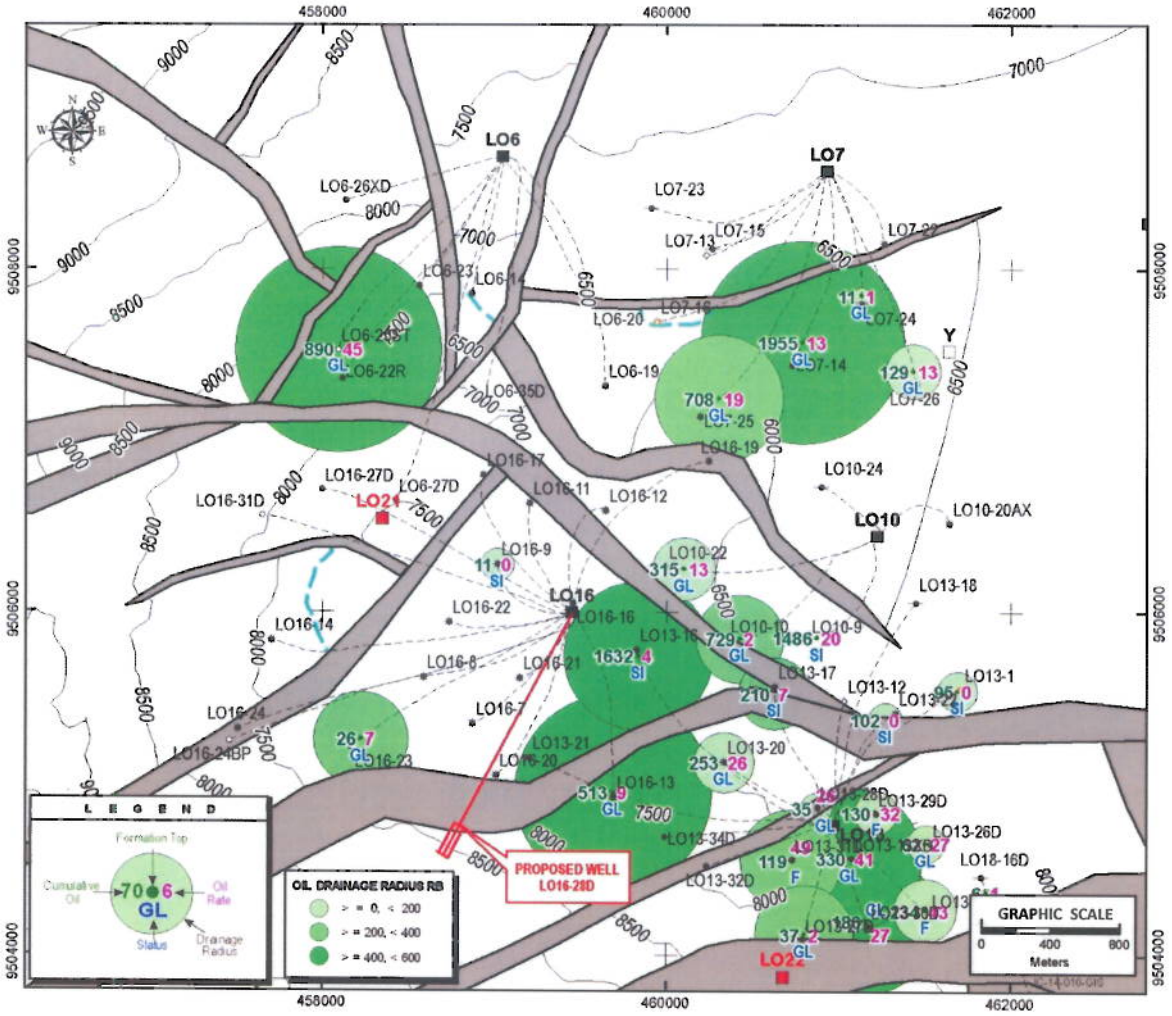


Figure 13

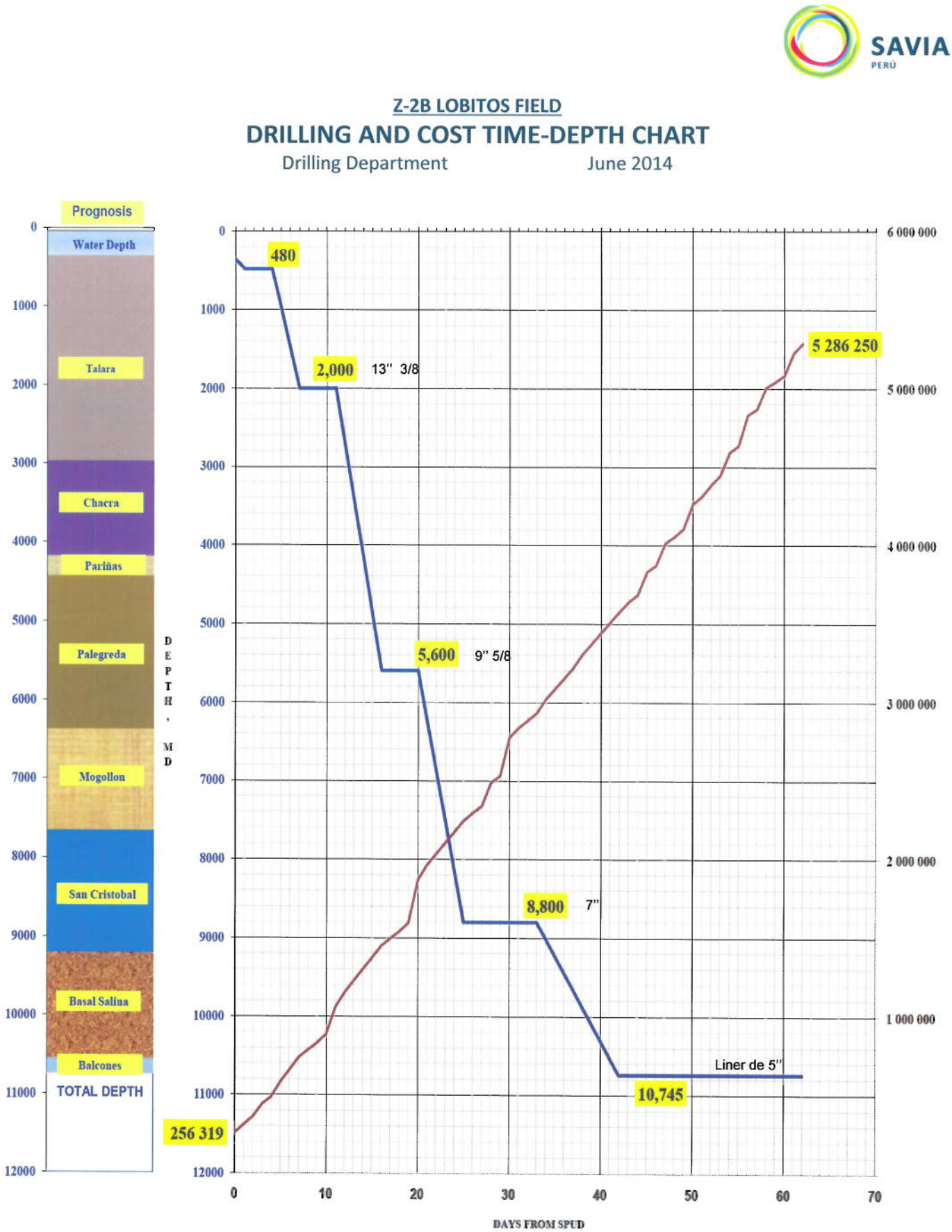

Z-2B LOBITOS FIELD
DRILLING AND COST TIME-DEPTH CHART
Drilling Department
June 2014
Prognosis
Water Depth
Talara
Chacra
Pariñas
Palegreda
Mogollon
San Cristobal
Basal Salina
Balcones
TOTAL DEPTH
DEPTH, MD
480
2,000
13" 3/8
5,600
9" 5/8
8,800
7"
Liner de 5"
10,745
256 319
5 286 250
DAYS FROM SPUD

Figure 14

Z-2B LOBITOS FIELD

ECONOMIC SUMMARY AND OIL RATE FORECAST

J. Muñoz June 2014

Economic Summary (Savia)

LO16_28D_BASE

(Nominal values)

Interests & Settings

	Net Revenue	Net Expl	Net Dev	Net Opex
Company (% of Total)	84.00	0.00	100.00	100.00
Company (% of Contr)	100.00	0.00	100.00	100.00
Partner (% of Contr)	0.00	0.00	0.00	0.00
Contr	84.00	0.00	100.00	100.00
NOC	0.00	0.00	0.00	0.00
Model	Peru License R Fact (2003)			
Global Params	Savia Perú			
Escalation Date	2014/01			
Discount Date	2014/01			
Economic Limit	2023/12			

Economic Indicators

Disc. Rate (%)	BT NPV (M$)	AT NPV (M$)	BT PIR (fraction)	AT PIR (fraction)	DPI (fraction)	AT ME (M$)	AT IE (fraction)
0.00	12,104.00	8,049.00	2.29	1.52	2.52	-5,286.00	1.52
10.00	9,055.00	5,705.00	1.71	1.08	2.08	0.00	0
10.50	8,940.00	5,617.00	1.69	1.06	2.06	-5,286.00	1.06
11.1	8,806.00	5,514.00	1.67	1.04	2.04	0	0

	[@10.0 %]	[@10.5 %]	[@11.1%]		
AT ROR (%)	158.28	158.28	158.28	Contr Take (%)	51.87
AT Payout (months)	15.00	15.00	16.00	NOC Take (%)	0.00
F&D ($/BOE)	29.48	29.48	29.48	Gov't Take (%)	48.13
Lifting Costs ($/BOE	2.15	2.12	2.09		

Cash Flow Breakdown

	(M$)	($/BOE)	(M$) [@10.5 %]	($/BOE) [@10.5%]	(%)
Net Revenue	17,929.00	100.00	14,727.00	82.14	100.00
Less:					
Bonuses & Fees	0.00	0.00	0.00	0.00	0.00
Operating Costs	539.00	3.01	386.00	2.15	3.01
Tariffs	0.00	0.00	0.00	0.00	0.00
Prod & Asset Taxes	0.00	0.00	0.00	0.00	0.00
Capital Costs	5,286.00	29.48	5,286.00	29.48	29.48
Plus: Other Income/Expense	0.00	0.00	0.00	0.00	0.00
Before Tax Cash Flow	12,104.00	67.51	9,055.00	50.51	67.51
Less Income Tax	4,055.00	22.62	3,350.00	18.68	22.62
After Tax Cash Flow	8,049.00	44.89	5,705.00	31.82	44.89

Reserves and Investments

		Project	Contr	Comp WI	Company
Oil	(MSTB)	213.00	179.00	213.00	179.00
Gas	(MMSCF)	0.00	0.00	0.00	0.00
NGL	(MSTB)	0.00	0.00	0.00	0.00
Tax	(MSTB)	0.00	0.00	0.00	0.00
Total	(MBOE)	213.00	179.00	213.00	179.00

		Project	Contr	NOC	Company
Acquisition	(M$)	0.00	0.00	0.00	0.00
Exploration	(M$)	0.00	0.00	0.00	0.00
Development	(M$)	5,286.00	5,286.00	0.00	5,286.00
Abandonment	(M$)	0.00	0.00	0.00	0.00
Total	(M$)	5,286.00	5,286.00	0.00	5,286.00

Comp Cash Flow

All values are Company (Comp) Share unless specified otherwise.

Date	Sales Volume Oil MSTB	Price Oil $/Bbl	Net Revenue Oil M$	Sales Volume Total MBOE	Net Price [BOE] $/BOE	Net Revenue [BOE] M$	(-) Operating Costs M$	(-) Capital Costs M$	Amortization M$	Taxable Income M$	(=) Before Tax Cash Flow M$	(-) Income Taxes M$	(=) After Tax Cash Flow M$	= After Tax Cash Flow [10.5 %]
2014(12)	56.00	100.00	4,740.00	56.00	41.67	4740	67.00	5,286.00	1398	3276	-613	1097	-1710	-1710
2015(12)	55.00	100.00	4,644.00	55.00	100.00	4644	87.00	—	1369	3188	4557	1068	3489	3158
2016(12)	28.00	100.00	2,357.00	28	100.00	2357	62.00	—	695	1600	2295	536	1759	1441
2017(12)	19.00	100.00	1,571.00	19	100.00	1571	54	—	463	1054	1518	353	1165	863
2018(12)	14.00	100.00	1,173.00	14	100	1173	49	—	346	778	1124	261	863	579
2019(12)	11.00	100.00	933.00	11	100	933	47	—	275	611	886	205	682	414
2020(12)	9.00	100.00	773.00	9	100	773	45	—	228	500	728	167	560	308
2021(12)	8.00	100.00	658.00	8	100	658	44	—	194	420	615	141	474	235
2022(12)	7.00	100.00	573.00	7	100	573	43	—	169	361	530	121	409	184
2023(12)	6.00	100.00	506.00	6	100	506	42	—	149	315	464	105	359	146
Total	213.00	100.00	17,929.00	213.00	—	17,929.00	539.00	5,286.00	5286	12104	12104	4055	8049	5617

Peep 2013.1

CONSIDERATIONS

Net Revenue Interest %	84%
Discount Rate %	10.5%
Tax	30%
Variable Cost, US$/BL	0.91
Fixed MUS$/Year	36.6
Cost MUS$	5,286

Oil Price according Portfolio MTP 2012: 100 US$/BL from 2014 to 2023

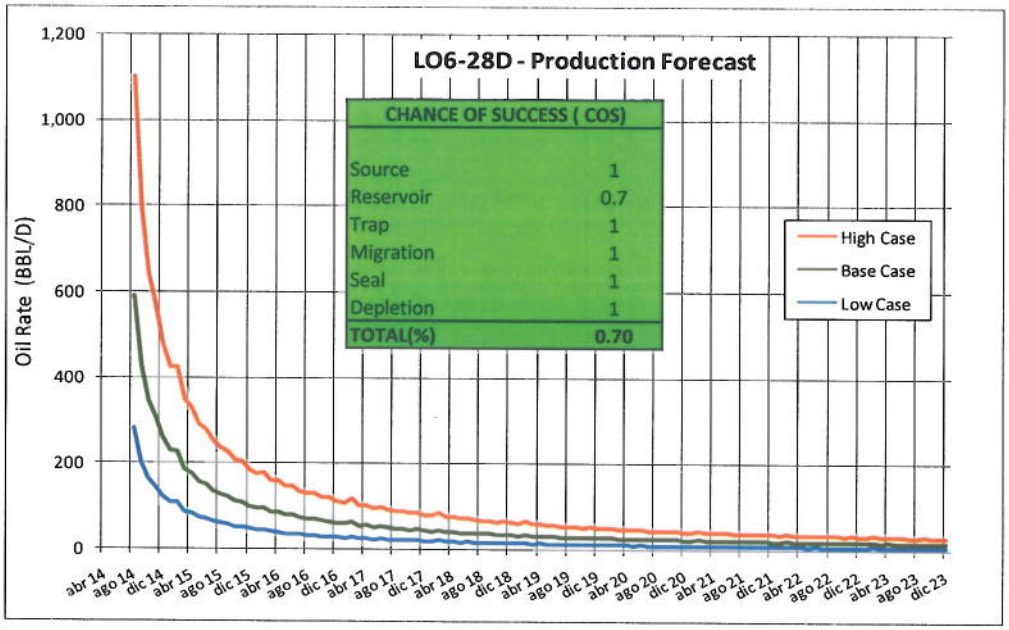


TABLE A

Z-2B LOBITOS FIELD

AFE

Drilling Department June 2014

SAVIA PERU S.A.

CIA	ACD	BUDGET ITEM
06		

AFE No.
2214294

FU	WELL DESCRIPTION	OFICIAL NUMBER	MM / DD / AA
18	LO16-28D	SAVIA-Z2B-24-LO16-28D	

TOTAL ESTIMATED DAYS

FU	TYPE OF WELL	MOV / COND	DRILLING	COMPLETION	EST. FOOTAGE	AREA
19	DEVELOPMENT	7	42	20	10745	LOBITOS

FU	GEN	CC	AREA
20		081	

WELL COST BREAKDOWN

SUB	DESCRIPTION	QUANTITY	UNIT COST	SUB-TOTAL	TOTAL US$
	OUTSIDE SERVICES:				
201	DRILLING RIG	27 42			1 469 500
203	DIRECTIONAL DRILLING				435 780
204	MUD LOGGING	43	1600		68 800
205	MUD ENGINEERING				226 100
206	CEMENT CONDUCTOR				17 100
206	CEMENT. SURF. CSG (13 3/8")				23 600
206	CEMENT. INTERM. CSG (9 5/8")				22 900
206	CEMENT. OTHERS				17 360
206	CEMENT 7" CSG.				20 900
206	CEMENT. 5" LINER				17 400
207	ELECTRIC LOGGING				320 000
208	PERFORATING				120 000
209	STIMULATION				40 000
211	TUBULAR INSPECTION				13 250
212	HYDRAULIC TONGS				67 900
213	DIVING				25 500
219	WELL TESTING				8 000
221	TOOL SERVICES				28 750
224	METALIC STRUCTURES CUT & WELD				6 500
226	MACHINE WORK				7 500
229	BARGE OPERATIONS				282 200
231	BOAT OPERATIONS				327 750
237	MATER. & EQUIP. TRANSP.				13 800
240	WATER FURNISHING				5 000
243	CHARTER				0
244	TOOLS RENTAL				128 300
248	CATERING				66 240
249	CONSULTING				15 180
252	ENVIRONMENTAL PROTECTION				10 500
	TOTAL OUTSIDE SERVICES:				**3 785 810**
	MATERIALS & SUPPLIES:				
301	FITTING SCREWED				200
303	VALVES AND PARTS				800
304	API FLANGES & RING GASKET				800
306	HARDWARE				1 000
326	BITS				93 000
326	TOOLS FOR DRILLING				63 790
327	COMPLETION EQUIPMENT				129 500
328	FLOATING EQUIPMENT - CMT.				17 300
329	PRODUCTION FACILITIES EQUIP.				3 000
335	OTHERS TUBULAR CONNECTIONS				12 000
336	STRUCTURAL CONST. MAT.				10 000
340	WELDING MATERIAL				700
341	MAT. CMT. CONDUCT.				1 010
341	MAT. CMT. SURF. CSG. (13 3/8")				19 000
341	MAT. CMT. INTERM. CSG. (9 5/8")				26 650
341	MAT. CMT. 7" CSG.				23 690
341	MAT. CMT. 5" LINER				15 280
341	MAT. CMT. OTHERS				5 640
342	STIMULATION MATERIAL				40 000
343	DRILLING / COMPLETION FLUIDS				78 660
344	CONDUCTORS	480	37.50		18 000
344	SURFACE CSG. (13 3/8")	2000	35.00		70 000
344	INTERM. CSG. (9 5/8")	5600	28.00		156 800
344	7" CSG.	8800	18.00		158 400
344	5" LINER	2205	12.00		26 460
344	4.5" LINER	0	16.70		0
344	2 7/8" TUBING	8500	5.90		50 150
346	DIESEL-FUEL				471 110
347	OIL & GRASES				7 500
	TOTAL MATERIALS & SUPPLIES:	1			**1 500 440**
			TOTAL PROJECT COST US $		**5 286 250**

TABLE B

Directional Well Profile – LO16-28D Well.

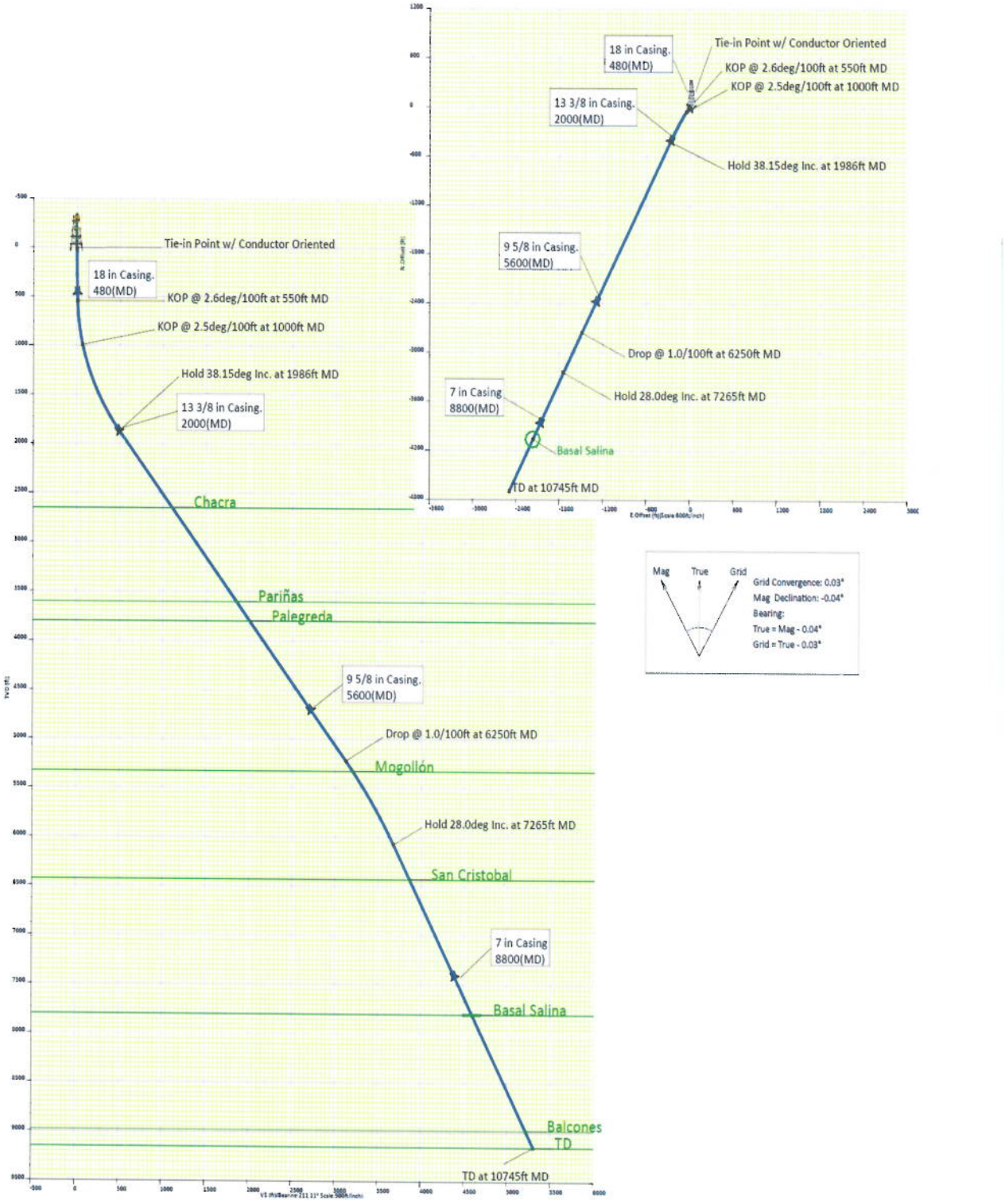


TABLE C