

PETRO-TECH



PERDANA S.A.

EDM-010-98

WELL FILE

INTEROFFICE MEMO

TO: Jack Archer

FROM: Marco A. Raez

RE.: GEOLOGICAL PROGNOSIS - WELL LO16-24

DATE: January 12, 1998

Attached please find the Geological Prognosis of the reference well, which is recommended to be drilled towards SW of Platform LO16. The objective Basal Salina is expected to be at 9500 ft. MD (-6900 ft. SS).

This well is 80 acres spacing from the recently completed LO16-23, which proved the presence of the Upper and Lower sections of the Basal Salina. The well LO16-14 located in the same block have an excellent productivity in the Upper Basal Salina.

The geological characteristics of both reservoirs of the Basal Salina obtained from lithological and electrical logs in wells drilled in the southern flank of platform LO16, shows that the Basal Salina is improving its reservoir characteristics in that area, being the proposed location LO16-24 a good candidate to increase production and reserves.

The successful of this well will open new projects in the Southeast area of the Lobitos Field.

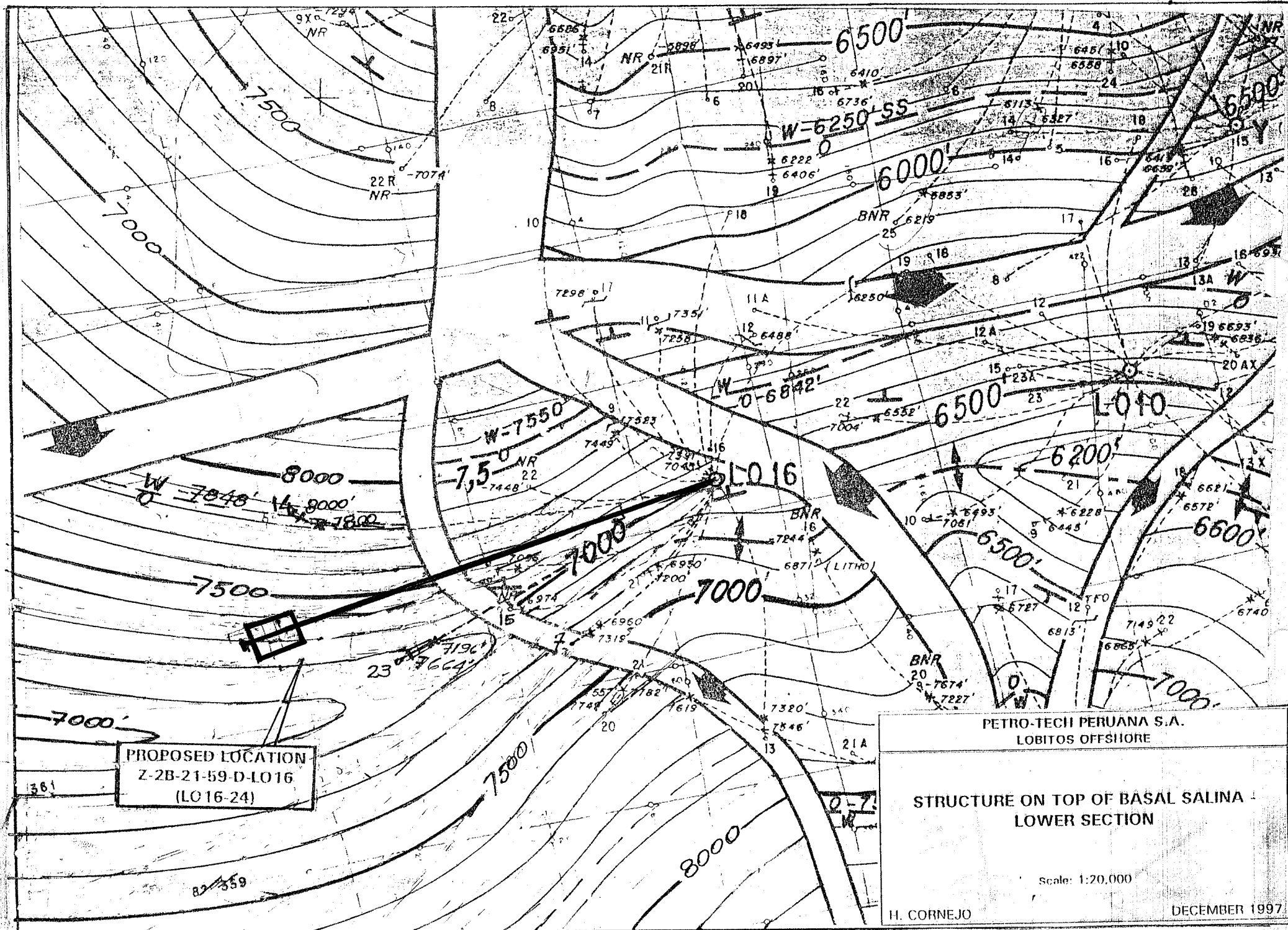
Regards,

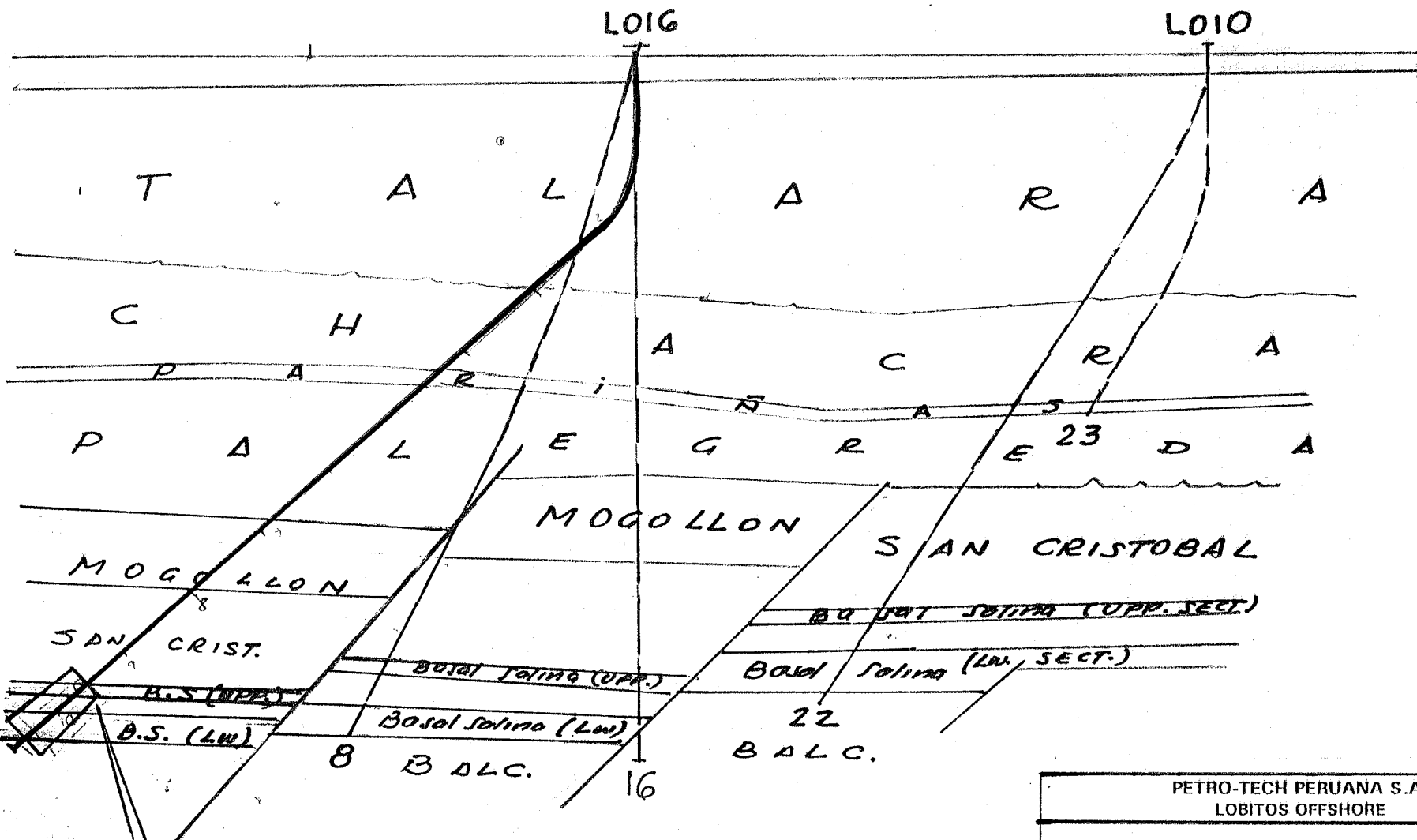
Marco A. Raez

HC:kvh

cc: John Norrod ☒
Carlos Valdizán ☒
Jim Hunt ☒
John Meyers ☒
Rafael Samaniego ☒
Fred Majocha ☒
Alberto Erazo ☒ V. Briceño ☒
César Morales ☒
Well File ☒
300.2.1

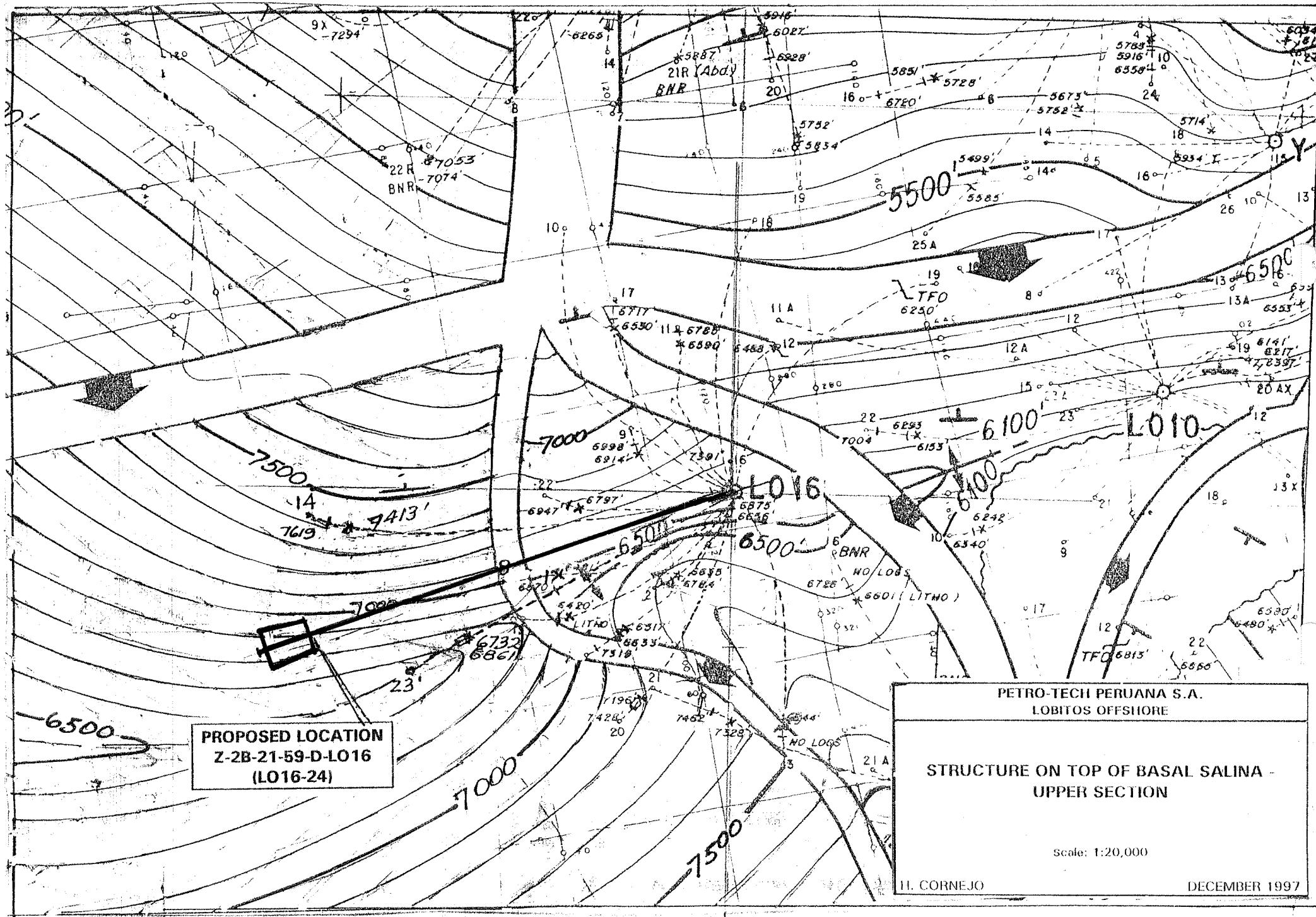
PETRO-TECH PERUANA S.A.				GEOLOGIC PROGNOSIS	
AREA LOBITOS OFFSHORE		OFFICIAL WELL NUMBER Z-2B-21-059-D-LO16		PETRO-TECH N° LO16-24	
				TYPE OF WELL DEVELOPMENT	
				RIG N° PTX-3	
OBJECTIVE		PRIMARY: BASAL SALINA		SECONDARY: MOGOLLON	
SURFACE COORDINATES (UTM) 9°506,365.92 mN 459,711.14 mE				TARGET COORDINATES (UTM) 9°505,741.08 mN 457,943.30 mE	
E L E V A T I O N	KB:	DIRECTION OF DEVIATED WELL S 70 1/2° W		DRILLED DEPTH: 9,500 FT.	
	WATER DEPTH 309 FT.	(INITIAL) CONDUCTOR ANGLE FROM VERTICAL 0°		ESTIMATED FINAL DRILLED DEPTH: 10,600 FT.	
	GROUND LEVEL FT.	RECOMMENDED DEPTH OF K.O.P. 1000 FT.		VERTICAL DEPTH: 6,950 FT.	
		BUILD UP ANGLE AT 4°/100'		HORIZONTAL DRIFT: 6,150 FT.	
				HORIZONTAL DRIFT TO TOTAL DEPTH: 6,900 FT.	
				MAX. ANGLE: 49°	
				TARGET LIMITS (DIAMETER): TOP: 400 FT. BASE: 600 FT.	
S T R A T I G R A P H I C S E Q U E N C E	FM/MEMBER	DRILLED TOP	SUBSEA TOP	OBSERVATIONS	
	TALARA	FROM SEA	BOTTOM		
	CHACRA	2,900	2,550		
	PARIÑAS	4,300	3,500	SHALY FACIES	
	PALEGREDA	4,550	3,650		
	MOGOLLON	6,800	5,100		
	SAN CRISTOBAL	7,900	5,900		
	BASAL SALINA	9,500	6,900	MAIN OBJECTIVE (80 ACRES FROM LO16-23)	
	BALCONES	10,400	7,500		
	TD	10,600	7,650		
C O N T R O L L O G G I N G E V A L U A T I O N	BIT SAMPLES TO BE TAKEN	EVERY 30 FT. FROM SURF. TO 4000 AND EVERY 10 FT. FROM 4000 TO TOTAL DEPTH		REMARKS *1 PALEONTOLOGICAL PROCESSING AS FOLLOWS: EVERY 120 FT. FROM SURF. TO 7000 FT. EVERY 60 FT. FROM 7000 FT TO TD. PALYNOLOGICAL PROCESSING EVERY 500 FT. FROM 8500 FT TO TD.	
	RECOMMENDED FOR PALEO-PALYNOLOGY	SEE REMARKS *1			
	RECOMMENDED OPEN HOLE	DLL-MSFL-GR, FDC-CNL-GR			
	RECOMMENDED AFTER CASING	GR-CCL			
	RECOMMENDED NEARBY WELLS FOR CORRELATION	LO16-23, LO16-14, LO16-8, LO16-7			
	SIDEWALL CORES	SWC <input type="checkbox"/>	HRCT <input type="checkbox"/>		
	CONVENTIONAL CORES	NOT CONSIDERED			
	GAS LOGGER	NOT CONSIDERED			
	FORMATION TESTING	NOT CONSIDERED			
	RECOMMENDED BY:		DATE		
HUGO CORNEJO		08-Jan-98		MARCO A. RAEZ	
				DATE 08-Jan-98	





PROPOSED LOCATION
Z-2B-21-59-D-LO16
(LO16-24)

PETRO-TECH PERUANA S.A. LOBITOS OFFSHORE	
SW-NE STRUCTURAL CROSS SECTION FOR PROPOSED WELL Z-2B-21-59-D-LO16 (LO16-24)	
Scale: 1:20,000	
H. CORNEJO	DECEMBER 1997



PETRO-TECH



PERUANA S.A.

RES-009-98

INTEROFFICE MEMO

To: Jack Archer

From: Julio Mego C.

Re: Reservoir Evaluation-Proposed Well LO16-24

Date: January 12, 1998

Attached please find the Reservoir Analysis and Economic Evaluation of the proposed well LO16-24, which should start to be drilled soon. This evaluation has been done with the Geology Prognosis of the mentioned well prepared by the Geology Area.

It is expected an initial oil production of 800 B/D for the first month and a final recovery of 600 MSTB.

Summary of the result is as follows:

Drilling & Completion Cost, MUS\$:	1,860
Present Worth at 12%, MUS	2,670
AROR, %	82
Pay Out, years	0.9
Minimum Oil Reserves, MSTB at Break Even Point.	218

The economical evaluation shows that the prospect is good. The success of this well would confirmed additional locations in this block.


Julio Mego C.

cc: According to Geological distribution.

PROPOSED WELL LO16-24

RESERVOIR ANALYSIS AND ECONOMIC EVALUATION

The proposed well LO16-24 is the second well to be drilled from Program Return to Platform LO16. The main objective of this well is located in the **Basal Salina reservoir**, S 70 1/2 W of platform LO16, where the wells LO16-14 and LO16-20 are producing and the well LO16-23 was completed.

The Basal Salina is expected at 6,150 feet HD S 70 1/2 W from Platform LO16 at -6,900 feet subsea.

A. Structure and Reservoir Continuity

The well LO16-23, recently drilled, confirm the structural map, this means that there are not structural risks. The presence of sands is supported by the Basal Salina found in wells LO16-14 and LO16-23. A complete Basal Salina is expected (Lower and Upper sections).

B. Reservoir Fluids

Though, there are not results of well LO16-23, which is being completed, the preliminary interpretation indicates that there are no problems with fluids contained. The top of Lower Basal Salina is expected to be found at 500 feet above the O/W contact (-7848 feet) found in well LO16-14. There is not a G/O. It is expected to find a complete section with oil (Lower and Upper Basal Salina).

C. Reserves

The Basal Salina reservoir block does not have define its limit toward West and South and it is not possible to calculate its volumetric reserves. For Lower Basal Salina it is estimated 600 MSTB as EUR, with an initial oil production of 800 B/P for the first month.

The last recorded pressure in well LO16-14 (Upper Bs.Sn.) was of 3,647 psig. (0.483 psi/ft.) in July 1996. From these sands have been produced around 540 MBO through wells LO16-14 and LO16-20, which could had caused some depletion. The pressure recorded in well LO16-23 (0.56 psi/ft) in the lower Basal Salina indicates that the reservoir does not have depletion.

D. Economic Evaluation

Parameters Considered for the Economic Evaluation

Oil Price, \$/Bbl.	16
Rate of Discount, %	12
Tax Rate, %	30
Production Cost, MUS\$/year	100
Production Share, (Petro-Tech), %	84


Summary of the Economic Evaluation

Evaluation of the well LO16-24 is as follows:

	Prod. w/o Risk	Break Even Point
Oil Reserves, MSTB.	600	218
Total Investment, MUS\$	1,861	1,861
Present Worth at 12%, MUS\$	2,671	0
Rate of Return, %	82	12
Pay Out, years	0.90	3.12
PW/TI Ratio, \$/\$	1.47	0

Conclusion

- Considering the geological interpretation, the proposed well does not exhibit risks in relation to its fluids contain. The only risk would be a variation of continuity of sands or not- mapping small faults.
- Economic evaluation shows that the drilling of this well is economically attractive.

 VP/JMC

Jan. 09, '98