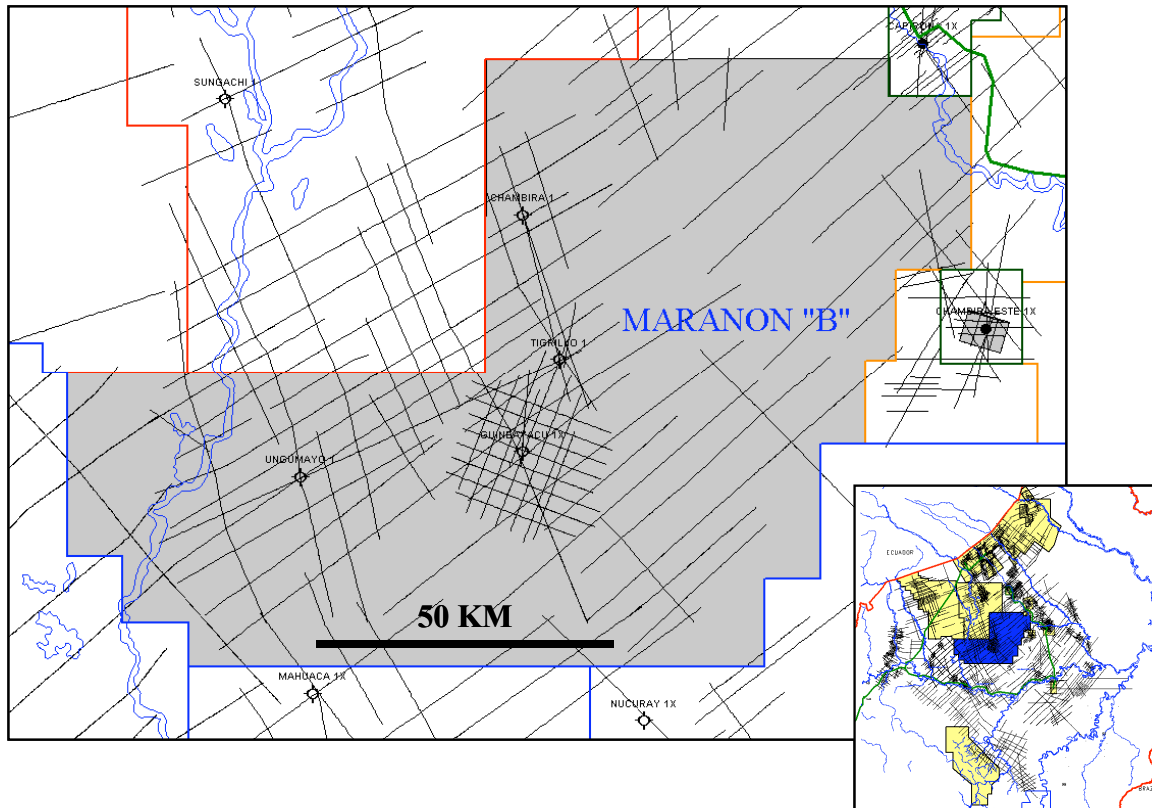


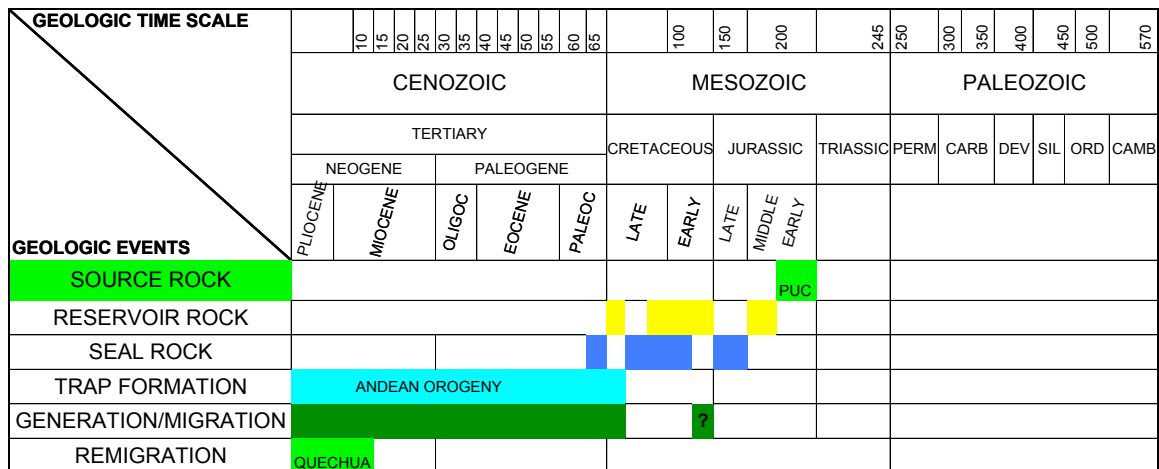
PERU
ONSHORE EXPLORATION OPPORTUNITIES IN THE MARAÑÓN BASIN

Marañón B-04

Block Location Map
(showing available SEGY seismic and well locations)



Petroleum Systems Chart



Prospects and Leads

PROSPECTS				9,722 Km ²						
	Name	Description & Status	Area Km ²	Petroleum System			PTD m.	Porosity	Thickness m.	Net Pay m.
				Source Rock	Seal	Reservoir				
1	ZANCUDO	Undrilled. Late Cretaceous/Early Paleogene Origin?	37	Pucara	Raya	Cushabatay	5,200	12-15%	400	30
2	TIGRILLO	Ancestral growth. Bypass 40m pay. Mechan. Problems	13	Pucara	Raya	Cushabatay	4,950	12-15%	350	30
3	CHAMBIRA	Ancestral growth. TD Raya	16	Pucara	Raya	Cushabatay	4,850	12-15%	300	30
4	UNGUMAYO	Ancestral growth. TD Agua Caliente	232	Pucara	Raya	Cushabatay	5,200	12-15%	400	30

Block Overview

Block B-04 is 9,723 km² in size and is located in the center of the Marañon Basin. There were primarily two campaigns of seismic conducted over the Block: a regional grid acquired by Getty in the 1970's and a detailed grid over the Guineayacu well with several regional tie lines acquired by Repsol in 2001. A total of four wells have been drilled on the Block: Ungumayo (Getty, 1975), Tigrillo (Getty, 1975), Chambira (Getty 1975) and Guineayacu (Repsol, 2002). Less than 10 km to the east of the NE corner of the Block are the Capirona Oil Fields (5 MMBO recoverable), and Chambira Este (10 MMBO recoverable) which were discovered by Petroperu in the 1970's and 1980's respectively.

The Block lies along the eastern edge of the Lower Mesozoic Basin, which includes sediments of the Sarayaquillo (Jurassic) and the Pucará (Jurassic to Triassic) Formations. This package thickens dramatically from west to east, is found onlapping basement and is unconformably overlain by the Cretaceous. The easternmost portion of the Block has the Cretaceous lying directly on basement.

The source rock for the Block is the Pucará Formation, which has sourced both the Capirona and Chambira Este Fields. The kitchen area for the Pucará is located to the west in the vicinity of the present-day Huallaga Basin, with Block B-04 being situated within the pathway of easterly migrating Pucará oil. The primary reservoir of the Block is anticipated to be the Cushabatay Formation and the shales of the Raya Formation will provide the seal. Both Formations are regionally continuous throughout the Block.

Of the wells that have been drilled on the Block only the Guineayacu and Tigrillo wells penetrated the Cushabatay Formation. Guineayacu tested the Cushabatay and recovered 12 barrels of 36^o API gravity oil and 115 barrels of formation water. The Tigrillo well penetrated over 60 meters of Cushabatay. A log analysis of the upper 14 meters indicates that it has considerably lower water saturation than the lower section, and represents a strong petrophysical show, particularly in the upper 5 meters. The operator attempted to take a sidewall core within this zone but hole conditions did not allow for any testing below the Raya.

The remaining wells, Ungumayo and Chambira, were terminated in the Agua Caliente and the Raya respectively. With the later, the operator misidentified the top of the Cushabatay and the well was abandoned before it was penetrated.

Two other wells significant to Cushabatay exploration in Block B-04 are Pauyacu and Mahuaca, both located to the south of the Block. Pauyacu (not shown on the map) tested the Cushabatay and recovered 26 barrels of fresh water cushion, 44.7 barrels of gas and oil cut mud and 116.3 barrels of saltwater, thus again indicating the presence of oil in the Cushabatay. Mahuaca on the other hand tells a different story. The well drilled one of the larger structures in the area (being some 300+ km² in size) and tested the uppermost Cushabatay where it was found to be tight. The difference between Mahuaca and the Tigrillo and Guineayacu structures is that Mahuaca is a very young feature whereas the other two have an ancestral growth component. The importance of this is two-fold. Firstly, early formed structures can capture migrating oil from the principal generative phase of the Pucará. Although hydrocarbon remigration is an important component to the trapping story in other areas of the Marañon Basin, Block B-04 is located in one of the deepest portions of the Basin and, as a result, there would be little oil for remigration because of its structural low position. Secondly, early migration of hydrocarbons into the reservoir would help preserve porosity and permeability as the reservoir was exposed to increasing depths of burial through the Tertiary. Both these factors may be used to explain the lack of hydrocarbons and porosity in the Mahuaca well.

As indicated by the current mapping, there are four remaining undrilled structures: Hortenciacocha (157 km²), Urituyacu (50 km²), Zancudo (37 km²) and Pastaza, which consists of three small culminations (8, 14, and 25 km² respectively). Of these, all but Zancudo have similar characteristics to Mahuaca and are therefore considered to be higher risk leads and are not tabulated above. Zancudo on the other hand meets the criteria as defined by the other structures with Cushabatay oil recoveries, having both present day structure and paleostructure. Paleostuctures exist at several levels for this structure and are reflected in the Base Cretaceous to Basement, Pozo to Chonta Limestone and Middle Tertiary to Chonta Limestone Isochrons.

Equally important as the Zancudo prospect are the drilled structures where the wells did not penetrate the Cushabatay. From the analysis done on this Block, the Raya appears to be acting as a regional seal to vertical hydrocarbon migration thereby precluding the possibility of the Upper Cretaceous hydrocarbon bearing reservoirs. This being said, Chambira and Ungumayo remain as undrilled structures. Chambira has all the necessary criteria as described for Zancudo. Ungumayo on the other hand is indicated to have been represented as a paleostructure only in the Base Cretaceous to Basement Isochron. Its sheer size, however (232 km²) makes it an attractive target.

Finally, with Cushabatay success in any one of the mentioned prospects, the Cushabatay log response can be calibrated to what was encountered in the Tigrillo well. Should there be a positive correlation, the Tigrillo structure should be redrilled.