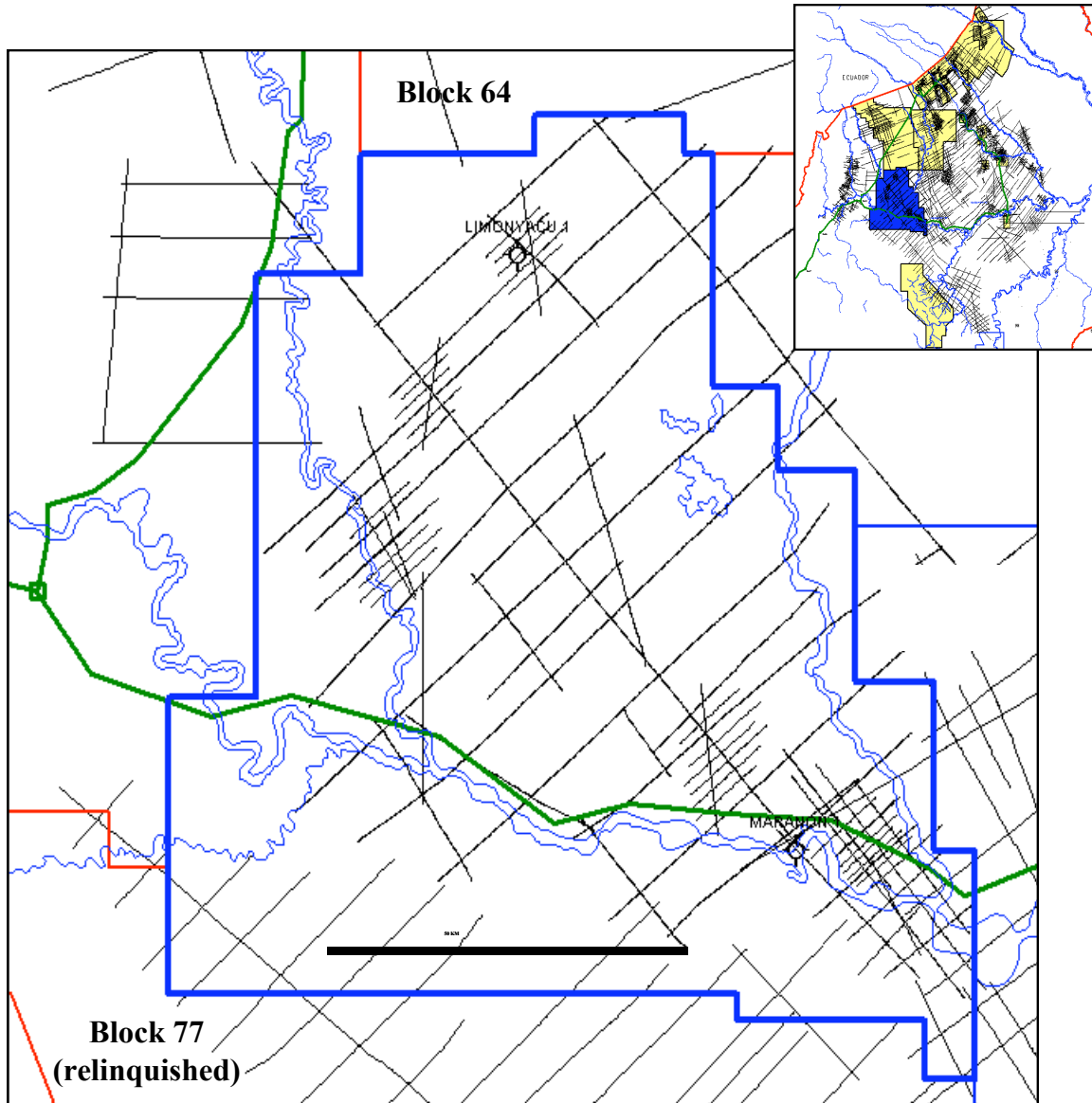


PERU
ONSHORE EXPLORATION OPPORTUNITIES IN THE MARAÑÓN BASIN

Marañón C-04

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



Petroleum Systems Chart

GEOLOGIC TIME SCALE	10 15 20 25 30 35 40 45 50 55 60 65										100 150 200			245 250 300 350 400 450 500 570								
	CENOZOIC					MESOZOIC			PALEOZOIC													
	TERTIARY					CRETACEOUS			JURASSIC		TRIASSIC	PERM	CARB	DEV	SIL	ORD	CAMB					
	NEOGENE		PALEOGENE						LATE	EARLY	LATE	MIDDLE	EARLY									
GEOLOGIC EVENTS																						
SOURCE ROCK														PUC								
RESERVOIR ROCK																						
SEAL ROCK																						
TRAP FORMATION	ANDEAN OROGENY																					
GENERATION/MIGRATION																						
REMIGRATION	QUECHUA																					

Prospects and Leads

PROSPECTS AND LEADS			9,733 Km ²							
	Name	Description & Status	Area Km ²	Petroleum System			PTD m.	Porosity	Thickness m.	Net Pay m.
				Source Rock	Seal	Reservoir				
1	MORONA PROSPECT	Undrilled. Ancestral pre- Pozo structure offset to NE	126	Pucara	Raya	Cushabatay	5,200	12-15%	450	30
2	UNGURAHUI PROSPECT	Undrilled. Ancestral large pre- Pozo structure offset to NE. Pre-Mid-Tertiary structure offset to SW	47	Pucara	Raya	Cushabatay	5,250	12-15%	450	30
3	LIMONYACU PROSPECT	TD: Chonta?. Ancestral pre- Pozo structure slightly offset to NE, similar to pre-Mid-Tertiary structure	67	Pucara	Raya	Cushabatay	5,250	12-15%	400	30
4	LIMONYACU NE LEAD	Four-way dip closure	88	Pucara	Raya	Cushabatay	5,200	12-15%	400	30
5	MORONA SUR LEAD	N plunging nose. Possible tilted O-W contact, hydrodynamic trap.		Pucara	Raya	Cushabatay	5,200	12-15%	450	30
6	RIMACHI LEAD	Four-way dip closure.	8	Pucara	Raya	Cushabatay	4,800	12-15%	400	30
7	PATRIA LEAD NORTH	Four-way dip closure. Evidence of paleostructures in Patria area	10	Pucara	Raya	Cushabatay	5,200	12-15%	400	30
8	PATRIA LEAD SOUTH		4	Pucara	Raya	Cushabatay	5,200	12-15%	400	30
9	PATRIA SOUTH LEAD		36	Pucara	Raya	Cushabatay	5,000	12-15%	400	30
10	PICURO LEAD	Four-way dip closure. Northern 1/3 of structure on Block C	8	Pucara	Raya	Cushabatay	3,500	12-15%	400	30
11	THRUST BELT AREA	Thin-skinned tectonics, duplexing of Pucara imbricates with roof faults in the evaporitic sequence between Sarayaquillo and Pucara.		Pucara	Anhy	Stacked Pucara imbricates	NA	12%	400	100+
12	DEEP PUCARA PLAY	Stratigraphic/structural trap in Low/Mid Pucara	462	Pucara	Anhy	Chambara	NA	12%	500+	30+

Block Overview

Block C-04 is 9,733 km² in size and is located along the western central flank of the Marañon Basin. There were three principal campaigns of seismic conducted over the Block: a regional grid acquired by Oceanic in the 1970's which was later reprocessed by Oxy in the 1990's, five prospect delineation grids shot by Oxy in the 1990's, and one similar type grid shot by Repsol in 2001. A fourth grid exists but it consists of only a few lines located in the southwestern portion of the Block. This survey was acquired by Amerada Hess in the 1970's and most of the lines are located south of Block C-04. Two wells have been drilled on the Block: Marañon 1X (Texas Petroleum Co., 1955), and Limonyacu 1X (Oxy, 1995). The Block 1-AB oil pipeline is located just to the NE of the Block and the Block 8 oil pipeline runs east to west through the southern half of the Block.

The Block lies within the eastern foredeep of the Marañon thrust front where a fully preserved section of Cretaceous rocks unconformably overlies rocks of Lower Mesozoic age which include sediments of the Sarayaquillo (Jurassic), Pucará evaporites (Jurassic), Pucará carbonates and clastics (Jurassic to Triassic) and Mitu (Triassic) Formations. This sequence in turn unconformably overlies rocks believed to be of Paleozoic age. Basement is not observed seismically on the Block due to its depth.

The source rock for the Block is the Pucará Formation, which has sourced the majority of the Block 8 fields far to the east of Block C-04. The kitchen area for the Pucará is probably just to the west of the Block and quite possibly along its western half. This being true, Block C is situated within the pathway of easterly migrating Pucará oil. The primary reservoir of the Block is anticipated to be the Cushabatay Formation with secondary targets in the Cretaceous Vivian and Jurassic Pucará. Seals would be shales of the Raya Formation for the

Cushabatay and shales of the Cachiyacu Formation for the Vivian. For the Pucará, the seals would be the overlying evaporites and, where they are not present, the Sarayaquillo redbeds.

The Marañon well was the first well drilled on the Block and was abandoned just below 3,000 meters while still in the Tertiary. The Limonyacu well was drilled through what was interpreted at that time to be the Vivian with no significant sands being encountered. Much debate has prevailed since the well was abandoned as to whether it had actually penetrated the Vivian at all. The reason for this being is that this well would be unique to the Marañon Basin in having no Vivian sand and particularly anomalous considering that the Vivian outcrops extensively to the west along the flanks of the Basin. Subsequent biostratigraphic work by Repsol indicates the well penetrated into at least the Chonta. All this being said, the lack of reservoir and the fact that the well did not penetrate what should be considered to be the principal objective, the Cushabatay, the well proved nothing with respect to the petroleum potential of the Block. Consequently, this Block should be viewed in the same way as one that is undrilled.

The current evaluation of the Block has defined four sizeable prospects, and a large number of leads over which additional seismic needs to be acquired. Three of the prospects are of a similar nature and have well defined fourway dip closures within all levels of the Cretaceous. One of these prospects is Limonyacu and its Cushabatay target. The other two are Ungurahui and Morona, which are located SW of Limonyacu. To the northeast of Limonyacu is the Limonyacu NE lead, which is defined as of now by only two lines of seismic. This combination of prospects and leads forms a SW-NE alignment of structures with substantial areal extent and vertical relief. All have an ancestral structural component to them that can be readily seen on both Pozo to Chonta Limestone and Mid-Tertiary Marker to Chonta Limestone isochrons. Should one structure prove to be productive then discoveries in the others should follow.

The fourth prospect is the regional Pucará play, which is a deep combination stratigraphic/structural play that is over 450+ km² in size. The Pucará onlaps the underlying Paleozoic and pinches out from west to east. This represents the stratigraphic component of the play. Intersecting this is a NW plunging structural nose giving the play its structural component. The vertical seal would be the evaporitic rich sabkha facies of the Pucará and the onlap surface of the Paleozoic would provide the lateral seal. The expected reservoir would be dolomitic carbonates of the Pucará whose existence has been confirmed by the Shanusi X-1 well south of the area.

In the southern half of the Basin there are a variety of different styled leads. Of these, Patria South and Picuro are large structural closures which require further definition through additional seismic. Of the two, only Patria Sur has an ancestral structural component. A number of other closures such as Rimachi and Patria have also been mapped as minor culminations along NW plunging structural noses. The closures on their own have little interest due to their small size but, in combination with a possible hydrodynamically tilted north to south oil/water contact, large reserves could be trapped along these noses. An example of a hydrodynamically-affected accumulation in a similar geological setting would be the Villano Field in Ecuador. The field is located along the western flank of the Oriente Basin close to the surface recharge area for the Cretaceous, as are the Block C-04 prospects in the Marañon Basin. The crestal well in the Villano field was abandoned due to insufficient pay thickness. Years later a flank well was drilled encountering a much thicker pay section, the result of a west to east hydrodynamically tilted oil/water contact.

The southwest corner of Block C-04 touches on the Marañon Basin Fold and Thrust Belt. Recently reprocessed Amerada Hess seismic data just reaches the eastern edge of this geological province. Although the coverage is minimal, it does give some insight into the structural style of this zone that, with additional data, may result in the mapping of significant structural closures at Pucará level. One interpretation has a series of duplexes within the Pucará section that may be part of a much larger complex. The eastward dipping roof fault of this complex is within the Pucará evaporites, beneath which are stacked imbricates containing Pucará carbonates. There is probably limited potential in this zone in Block C-04 as most of the zone lies outside the Block. The adjacent acreage however is open and available for negotiation with PeruPetro.