



Gobierno de Reconciliación
y Unidad Nacional

El Pueblo, Presidente!



MINISTERIO DE ENERGÍA Y MINAS

Dirección General Hidrocarburos

OIL EXPLORATION IN NICARAGUA

February 2012



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Legal Framework

Petroleum Exploration and Exploitation in Nicaragua is ruled by the Law No. 286 “Special Law for Hydrocarbon Exploration and Exploitation, its Regulation and other related Laws, in force.

PETROLEUM ACTIVITIES

Petroleum exploration in Nicaragua started in 1930, when the first well was drilled in the Pacific Onshore.

Period 1960 to date:

Total 2D seismic acquired:	39 690 Km.	
31,973 Km. 2D	Pacific and Caribbean Offshore	1960-1974
3,095 Km. 2D	Caribbean Offshore	1999/2000
4,620 Km. 2D	Pacific Offshore	2004/2008

Total 3D seismic acquired:	4 915 km²	
	Caribbean Offshore	2010-2011.

Total wells drilled:	37	
26 Exploratory Wells in the Caribbean Offshore		1965-1974
8 Exploratory Wells in the Pacific Offshore		1965-1978
3 Exploratory Wells in the Pacific Onshore		2007-2008
2 Sidetrack Wells in the Pacific Onshore		2009

Areas Awarded for Oil Exploration and Exploitation

Pacific Onshore of Nicaragua: 3 422 km²

3 422 km² Industrias Oklahoma-Nicaragua, S. A.

Caribbean Offshore of Nicaragua: 13 657 km²

4 000 km² Noble Energy Nicaragua Limited

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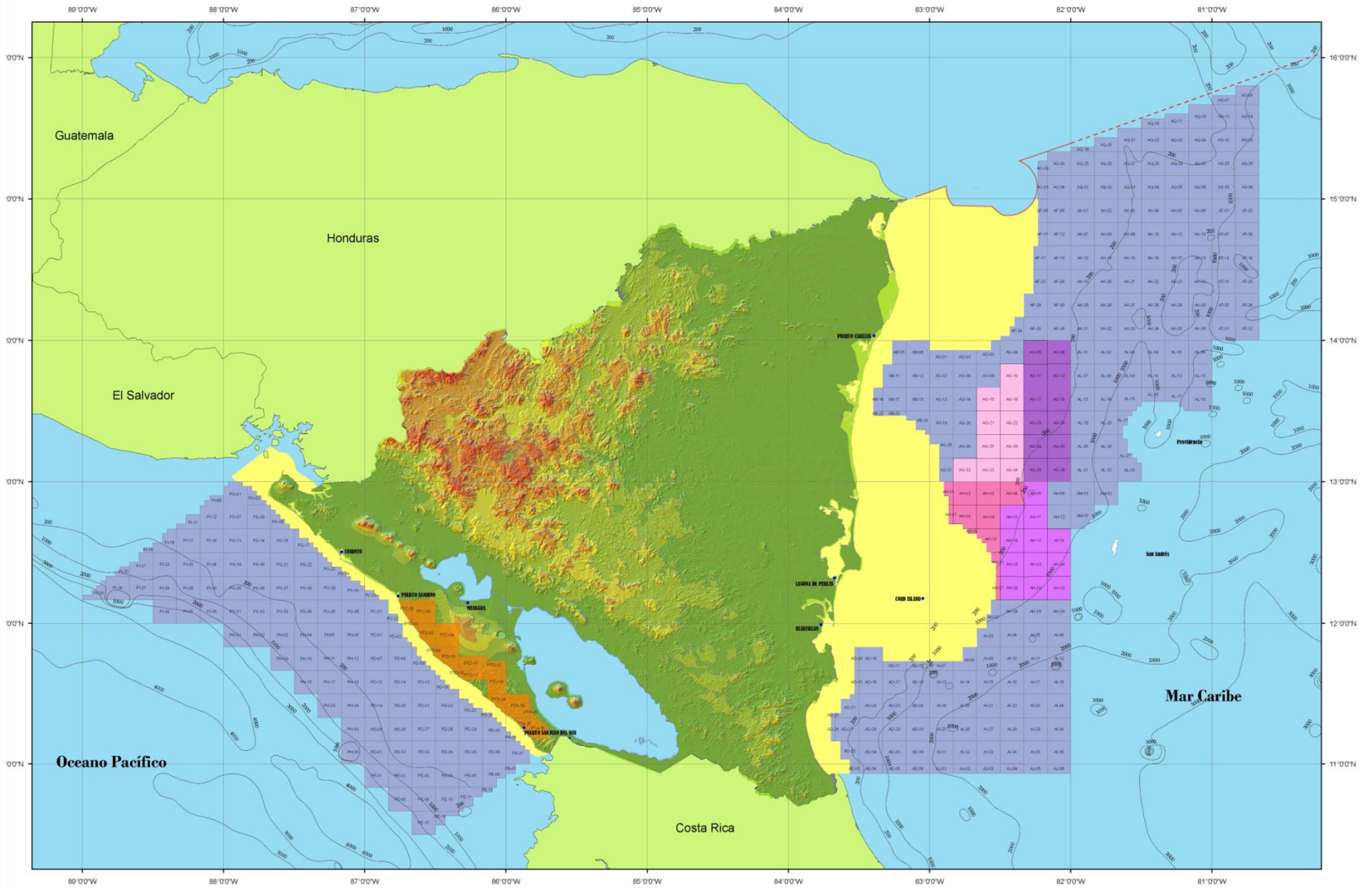
3 342 km² Infinity Energy Resources, Inc.

2 268 km² Infinity Energy Resources, Inc.

AVAILABLE AREA FOR PETROLEUM EXPLORATION ACTIVITIES

LOCATION	AREA	GEOGRAPHIC COORDINATES
Caribbean Margin Offshore	68.489.00 km ²	80°40'00" W and 83°43'00" W 10°56'00" N and 15°54'00" N
Pacific Margin Offshore	33.515,00 km ²	85°49'00" W and 89°00'00" W 10°30'00" N and 13°05'00" N

TOTAL AREA: 102,004 Km²



LEYENDA

- Indoklanicsa
- Areas de NO ACTIVIDAD
- Areas Disponibles
- Infinity Energy Resources
- Infinity Energy Resources
- Noble Energy
- Noble Energy

AREAS DISPONIBLES PARA EXPLORACION Y EXPLOTACION DE HIDROCARBUROS EN NICARAGUA



MINISTERIO DE ENERGIA Y MINAS
DIRECCIÓN GENERAL DE HIDROCARBUROS

Nota: las areas aqui reflejadas no representan los limites maritimos reales del país.

Enero 2010
<http://www.mcm.gob.ni>

Escala Gráfica

0 20 40 80 120 Km

Datum: D_WGS_1984
Esferoide: GCS_WGS_1984

WHY INVEST IN NICARAGUA

Nicaragua has a good geographic location, which provides an easy access to the largest markets in the world.

Nicaragua offers a flexible legal framework and a good petroleum potential; as well as an stable business environment.

Law No.286 provides an income tax of 30% exemptions on imports of goods and services during the exploration stage, as well as other public and municipal taxes.

PETROLEUM POTENTIAL OF NICARAGUA

Hydrocarbon generations in the basins are documented by onshore oil seep and the oil and gas shows in the offshore wells. The exploration wells have proved that hydrocarbons were generated in both Margins of Nicaragua.

Seismic interpretation identified good reservoirs from Eocene and Oligocene sequences in both margins as well as structural and stratigraphic traps.

A good source rock is expected to be in the deepest part of both basins related with Upper Cretaceous age and might have been related with Jurassic Top. The Lower Eocene can act as good seal rock.

Location Map of Oil & Gas Indications Wells

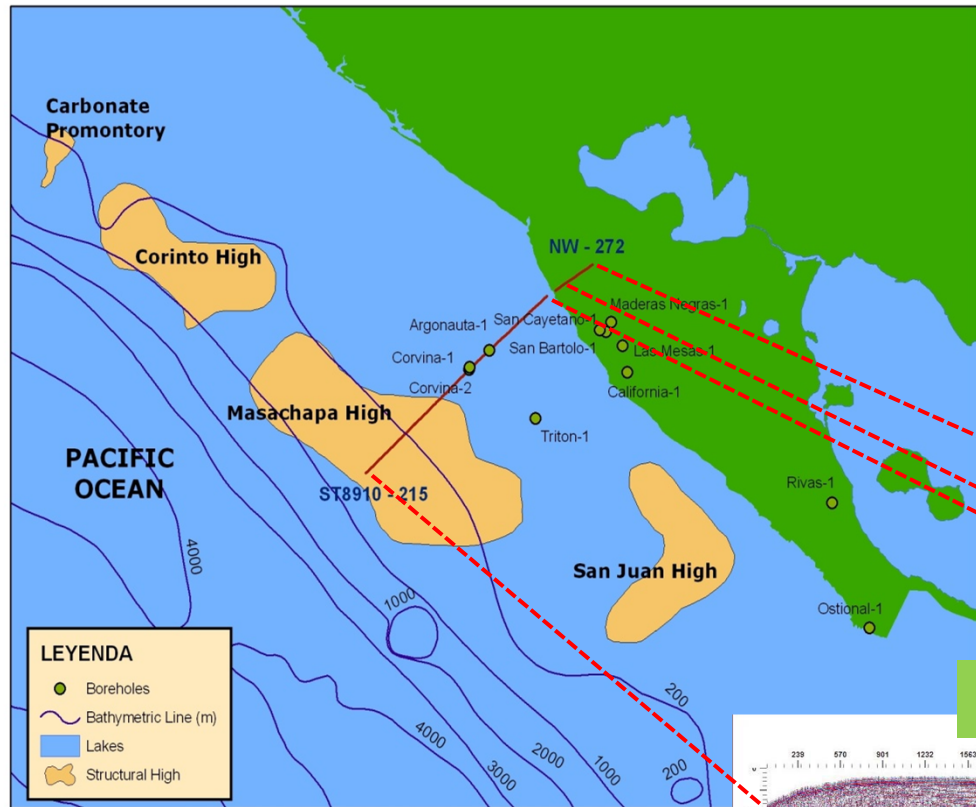


New 2D Seismic Pacific Onshore 430 km, acquired by Grant Geophysical 2005-2006

LOCATION 2D SEISMIC NW,NORWOOD

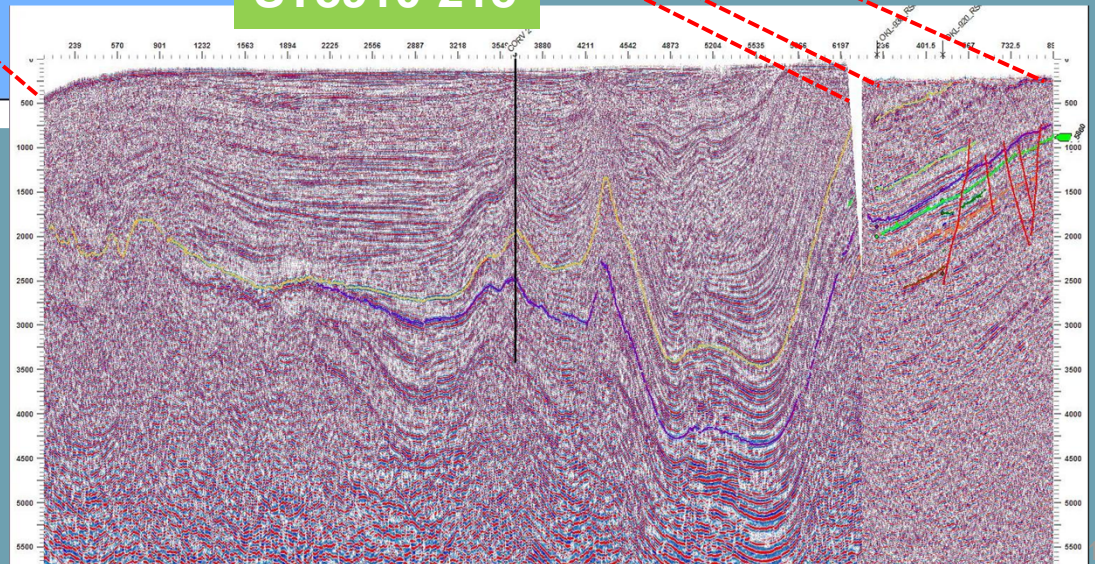


DEPOSITIONAL ELEMENTS OF PACIFIC MARGIN



ST8910-215

NW 272



DST RESULTS

PACIFIC ONSHORE OF NICARAGUA

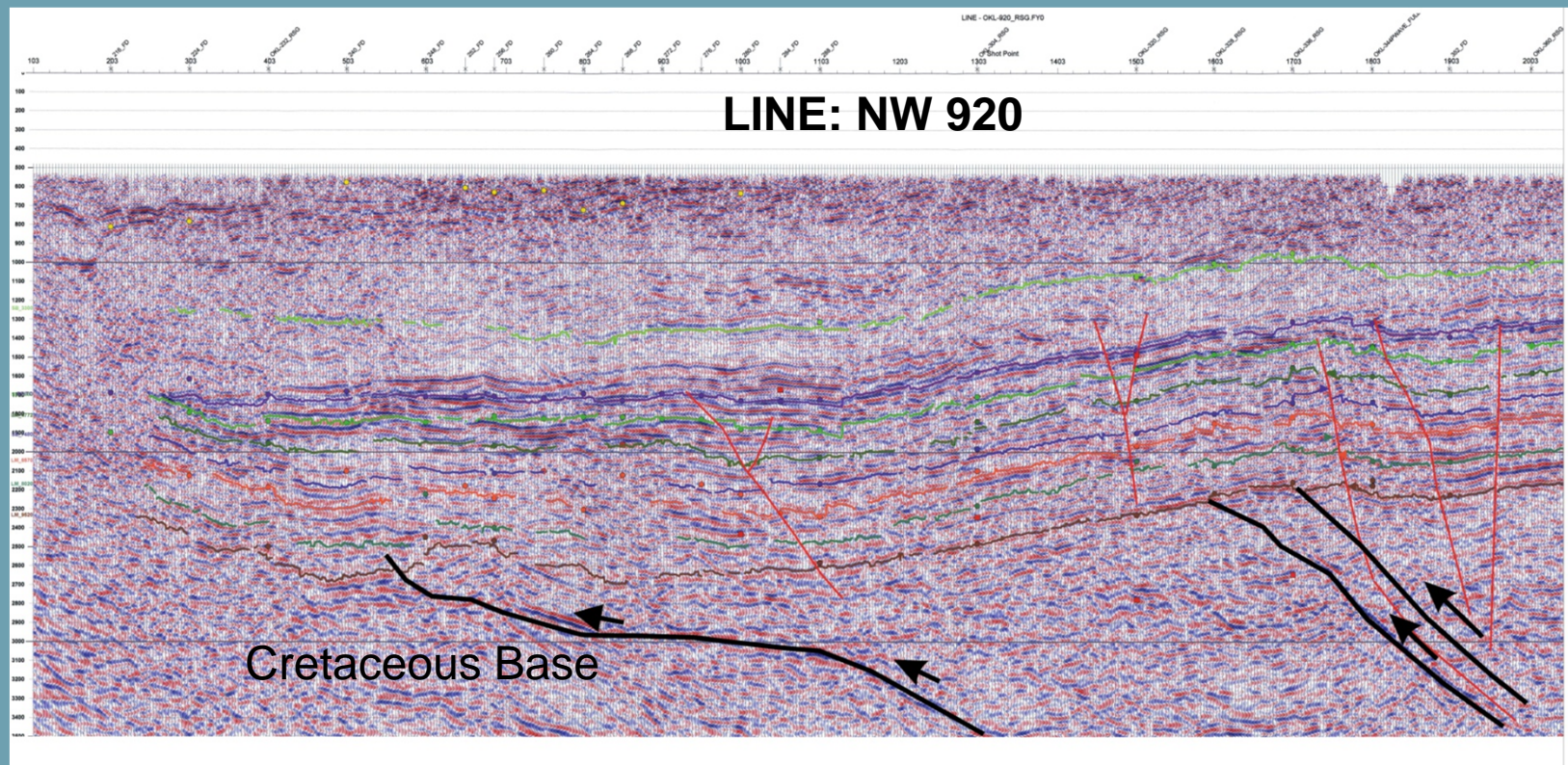
San Bartolo Well: (Brown Associated Inc.)

Four potential intervals were tested in a sandstones distributaries channel In San Bartolo Well site. Two sidetracks in San Bartolo well produced 57.3 barrels of light oil with 38.5°API in the ranging depth between 1832 to 1919 meters. During testing a formation damage occurred causing low permeability. Oil shows can be related with natural faults systems connected with the porous sandstone section. The best interval tested 2138-2208 meters gave a permeability of 52 mD. Pressure transient analysis indicates the zone has permeabilities ranging up to 31 milidarcies. Flow rates over the test period averaged 99 bbls fluid per day of which 13.5 bbls were oil.

Two more wells were drilled without hydrocarbon evidences.

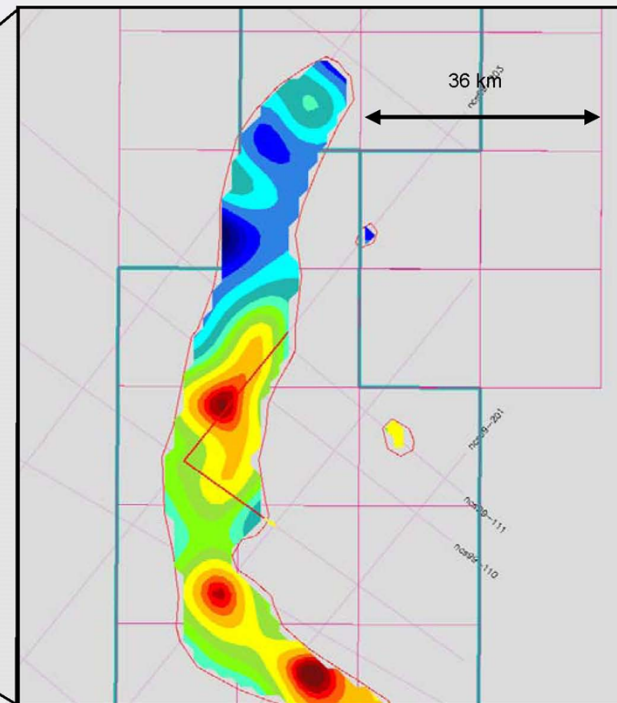
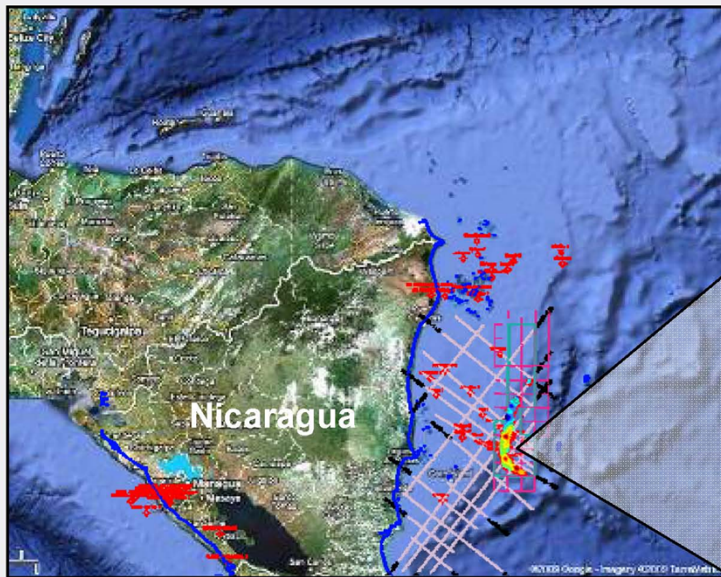
CRETACEOUS SEQUENCES DEPOSITION IN PACIFIC ONSHORE OF NICARAGUA.....

Two different tectonisms occurred during the deposition of Tertiary and Cretaceous. The Cretaceous base, overlain Rivas Formation, was identified in the Line NW 920. It is assumed that the Tertiary sequences was deposited after a tectonic shift of the Cretaceous sequences, suggesting different tectonic events.



Location of new 3D Survey, Caribbean Offshore 4,915 Km² 3D, CGG Veritas, Noble Energy Inc.

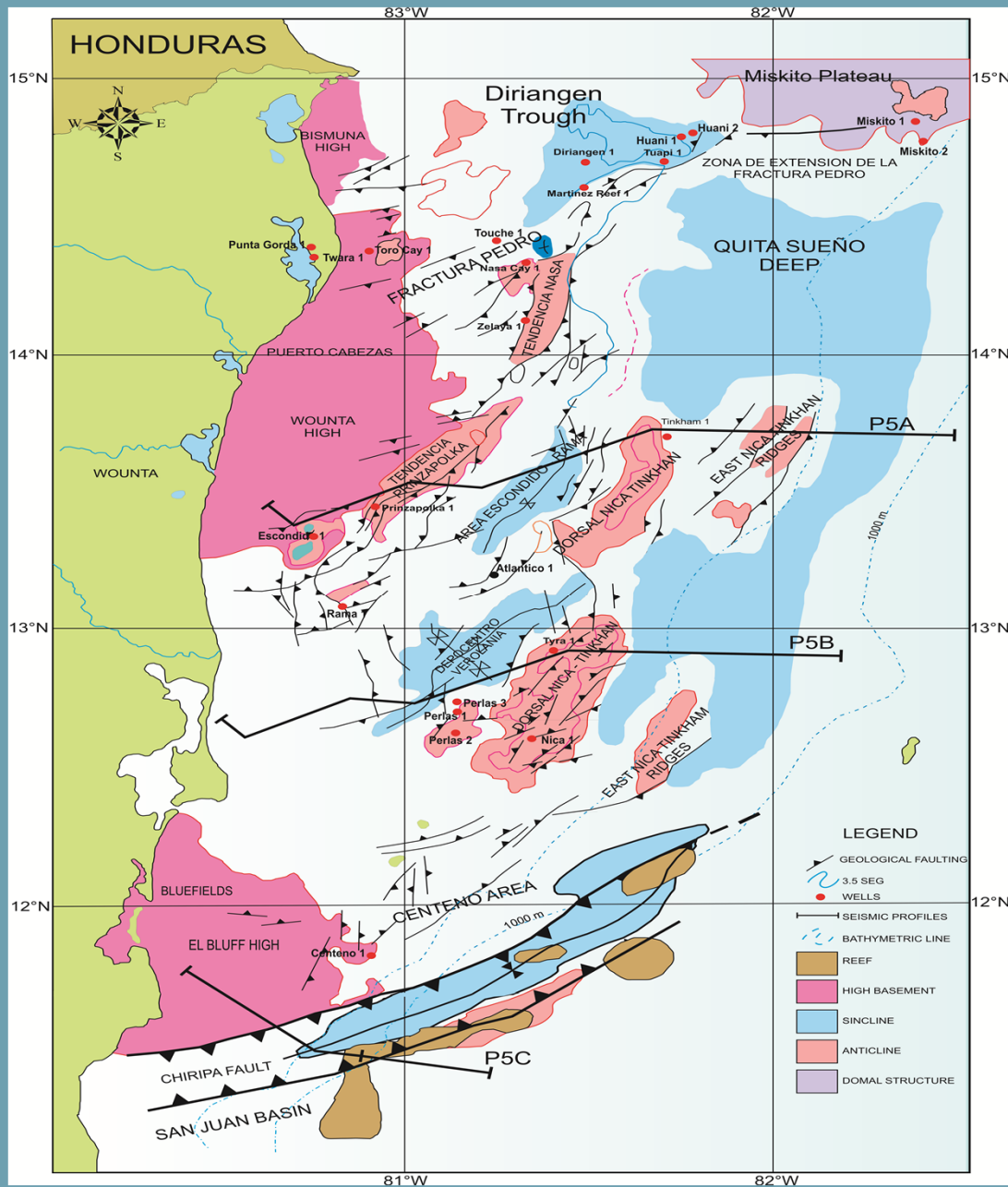
Noble Energy - New Ventures *Focus on high-impact plays worldwide*



► Example: Offshore Nicaragua

- ▲ Massive carbonate platform
- ▲ 170,000 acres
- ▲ Potential gross mean resources of 1 BBoe (based on 2D)

Main Tectonic Elements and Depocenters Distribution

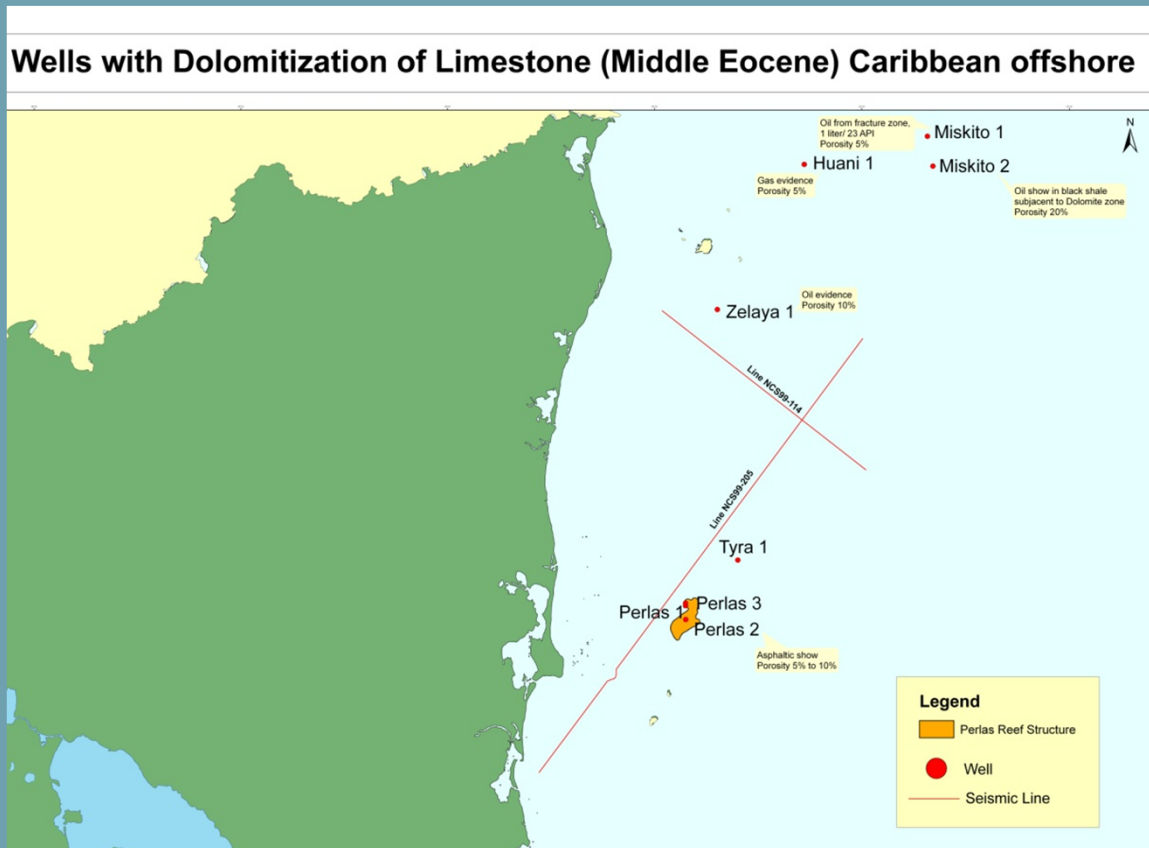


New perspective in Caribbean of Nicaragua

Dolomite section in the Middle to Early Eocene of the Caribbean Margin of Nicaragua.

Dolomite Troy from Middle Eocene was recognized by Occidental in the wells **Miskito-1** and **Miskito-2**. This dolomite sequences is stratigraphically similar to the one identified in some wells from Jamaica and Honduras. Offshore wells from Nicaragua indicate a range thickness of this section from 85' to 400'. Eight wells drilled in the Caribbean of Nicaragua identified this sequence and one well from Honduras.

New perspectives in Caribbean of Nicaragua....



The dolomite section that presents limestone with predominant shale was deposited in the North and Central part of Miskito Basin. The dolomitization part of the Middle to Late Eocene level were not related with the depositional environment, this level has calcite material. Dolomite section can be observed in some seismic section in the region of the Tyra well this section is related with the Perlas reef structure.

New perspective in Nicaragua

Dolomite Troy (Initial Middle Eocene) Caribbean Offshore

Well	Porosity %	Thickness feet	Interval feet	Oil and gas shows	Comments
Miskito-1	5	180	5410-5590	Oil from fracture zone, 1 liter/23°API	Inner Slope
Miskito-2	20	455	5445-5800	Oil show in black shale subjacent to dolomite zone	Troy Dolomite zone
Tyra-1	10 - 15	170	6202-6372 partially eroded	No producible HC	Brown Dolomite Zone, outer slope bathyal
Perlas-1	10 - 15	385	8640-9515	No producible HC	
Perlas-2	5 - 10	400	8200-9300	Asphaltic show	Tight corals
Perlas-3	5	325	9798-10122	No producible HC	outer slope bathyal
Zelaya-1	10	125	5500-5680	Oil evidence	Inner Slope
Huani-1	5	85	10,400-10,630	Gas evidence	Bathyal

THANKS FOR YOUR ATTENTION

For further information: www.mem.gob.ni