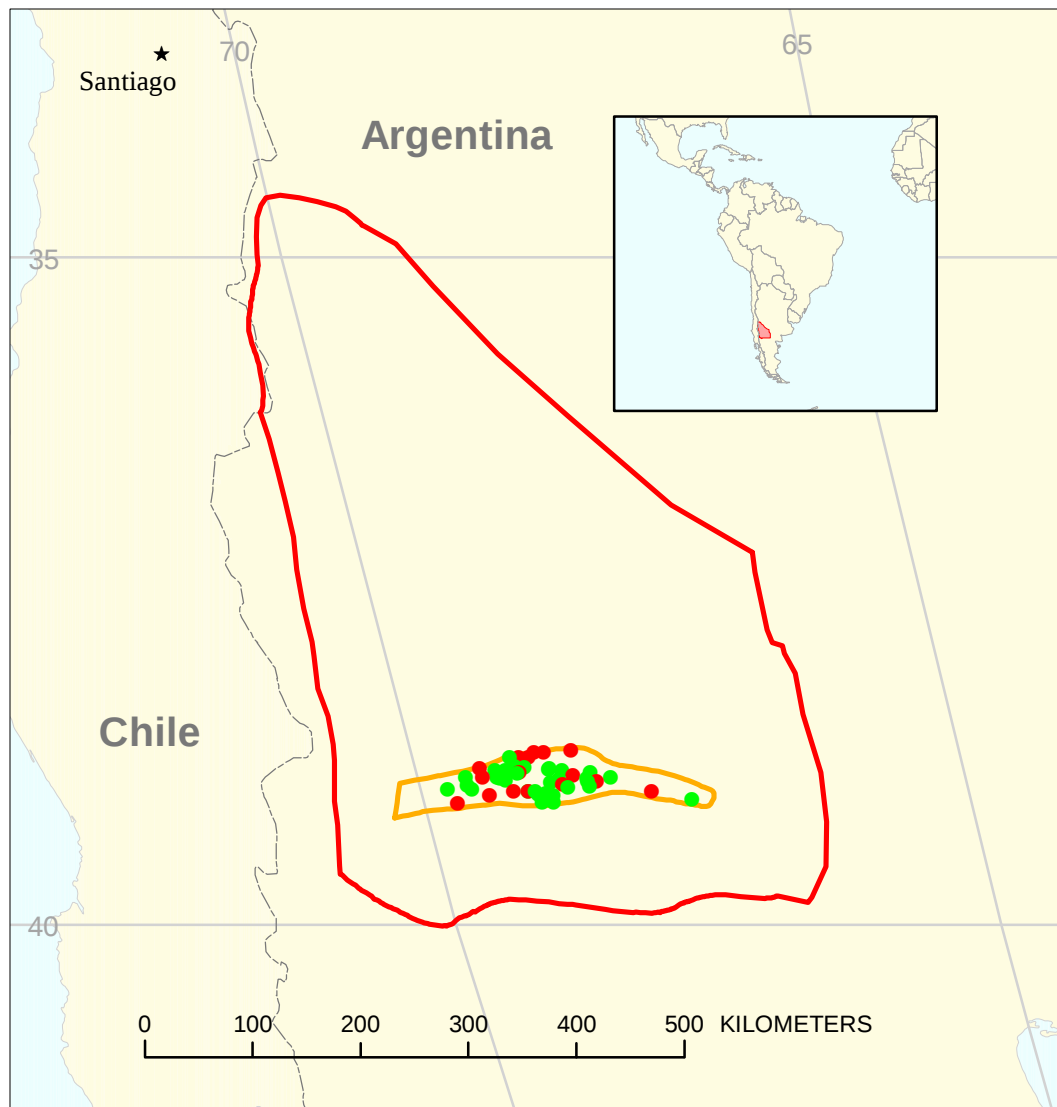


Dorsal de Neuquen Structure Assessment Unit 60550103



 Dorsal de Neuquen Structure Assessment Unit 60550103

 Neuquen Basin Geologic Province 6055

USGS PROVINCE: Neuquen Basin (6055)

GEOLOGIST: C.J. Schenk

TOTAL PETROLEUM SYSTEM: Neuquen Hybrid (605501)

ASSESSMENT UNIT: Dorsal de Neuquen Structure (60550103)

DESCRIPTION: This assessment unit is defined by structural traps along the flanks and crest of the Dorsal de Neuquen, a major east-west structural lineament in the southern part of the Neuquen Basin. Mixing of oils from two source rocks led to the definition of a composite petroleum system.

SOURCE ROCKS: Source rocks include mudstones of the Lower Jurassic Los Molles Formation and Upper Jurassic-Lower Cretaceous Vaca Muerta Formation.

MATURATION: Maturation of the two source rocks occurred in the Cretaceous and Early Tertiary in the basins flanking the Dorsal de Neuquen structure.

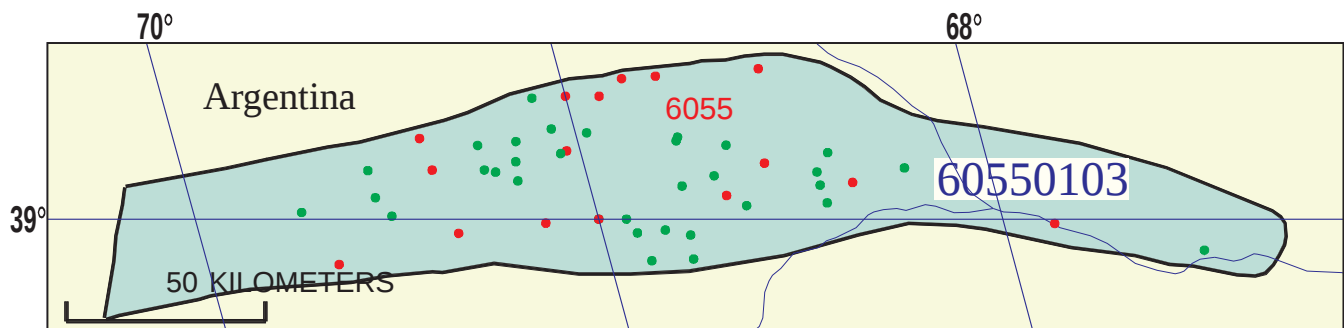
MIGRATION: Lateral migration of hydrocarbons from the basinal areas into the structures on the Dorsal de Neuquen occurred in the Cretaceous and Early Tertiary.

RESERVOIR ROCKS: Major reservoirs include the Jurassic Lotena Formation and the Jurassic Tordillo Formation sandstones; minor reservoirs include sandstones of the Jurassic La Manga and Barda Negra formations, and Challaco Formation sandstones.

TRAPS AND SEALS: Traps formed largely as a result of strike-slip movement (east-west dextral transpression) and extension along the length of the Dorsal de Neuquen wrench fault zone.

REFERENCES:

- Petroconsultants, 1993, Neuquen Basin–Basin Monitor: Geneva, Switzerland, Petroconsultants International, chapter paginated.
- Urien, C.M., and Zambrano, J.J., 1994, Petroleum systems in the Neuquen Basin, Argentina, *in* Magoon, L.B., and Dow, W.G., eds., The petroleum system—from source to trap: American Association of Petroleum Geologists Memoir 60, p. 513-535.
- Vergani, G.D., Tankard, A.J., Belotti, H.J., and Welsink, H.J., 1995, Tectonic evolution and paleogeography of the Neuquen Basin, Argentina, *in* Tankard, A.J., Suarez, R., and Welsink, H.J., eds., Petroleum basins of South America: American Association of Petroleum Geologists Memoir 62, p. 383-402.



Dorsal de Neuquen Structure Assessment Unit - 60550103

EXPLANATION

- Hydrography
- Shoreline
- 6055 — Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 60550103 — Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

**SEVENTH APPROXIMATION
NEW MILLENNIUM WORLD PETROLEUM ASSESSMENT
DATA FORM FOR CONVENTIONAL ASSESSMENT UNITS**

Date:.....	<u>2/3/99</u>	
Assessment Geologist:.....	<u>C.J. Schenk</u>	
Region:.....	<u>Central and South America</u>	Number: <u>6</u>
Province:.....	<u>Neuquen Basin</u>	Number: <u>6055</u>
Priority or Boutique:.....	<u>Priority</u>	
Total Petroleum System:.....	<u>Neuquen Hybrid</u>	Number: <u>605501</u>
Assessment Unit:.....	<u>Dorsal de Neuquen Structure</u>	Number: <u>60550103</u>
* Notes from Assessor	<u>Lower 48 growth factor.</u>	

CHARACTERISTICS OF ASSESSMENT UNIT

Oil (<20,000 cfg/bo overall) **or** Gas (≥20,000 cfg/bo overall):... Oil

What is the minimum field size?..... 1 mmboe grown (≥1mmboe)
(the smallest field that has potential to be added to reserves in the next 30 years)

Number of discovered fields exceeding minimum size:.....	Oil: <u>28</u>	Gas: <u>13</u>
Established (>13 fields) <u>X</u>	Frontier (1-13 fields) _____	Hypothetical (no fields) _____

Median size (grown) of discovered oil fields (mmboe):
1st 3rd 7.5 2nd 3rd 6.5 3rd 3rd 3.6

Median size (grown) of discovered gas fields (bcfg):
1st 3rd 129 2nd 3rd 101 3rd 3rd _____

Assessment-Unit Probabilities:

<u>Attribute</u>	<u>Probability of occurrence (0-1.0)</u>
1. CHARGE: Adequate petroleum charge for an undiscovered field ≥ minimum size.....	<u>1.0</u>
2. ROCKS: Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size.....	<u>1.0</u>
3. TIMING OF GEOLOGIC EVENTS: Favorable timing for an undiscovered field ≥ minimum size	<u>1.0</u>

Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):..... 1.0

4. **ACCESSIBILITY:** Adequate location to allow exploration for an undiscovered field
≥ minimum size..... 1.0

UNDISCOVERED FIELDS

Number of Undiscovered Fields: How many undiscovered fields exist that are ≥ minimum size?:
(uncertainty of fixed but unknown values)

Oil fields:.....min. no. (>0)	<u>2</u>	median no.	<u>18</u>	max no.	<u>40</u>
Gas fields:.....min. no. (>0)	<u>2</u>	median no.	<u>18</u>	max no.	<u>40</u>

Size of Undiscovered Fields: What are the anticipated sizes (**grown**) of the above fields?:
(variations in the sizes of undiscovered fields)

Oil in oil fields (mmbo).....	min. size	<u>1</u>	median size	<u>3</u>	max. size	<u>80</u>
Gas in gas fields (bcfg):.....	min. size	<u>6</u>	median size	<u>24</u>	max. size	<u>600</u>

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

<u>Oil Fields:</u>	minimum	median	maximum
Gas/oil ratio (cfg/bo).....	1000	2000	3000
NGL/gas ratio (bngl/mmcfg).....	5	10	15
<u>Gas fields:</u>	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg).....	5	15	25
Oil/gas ratio (bo/mmcfg).....			

SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

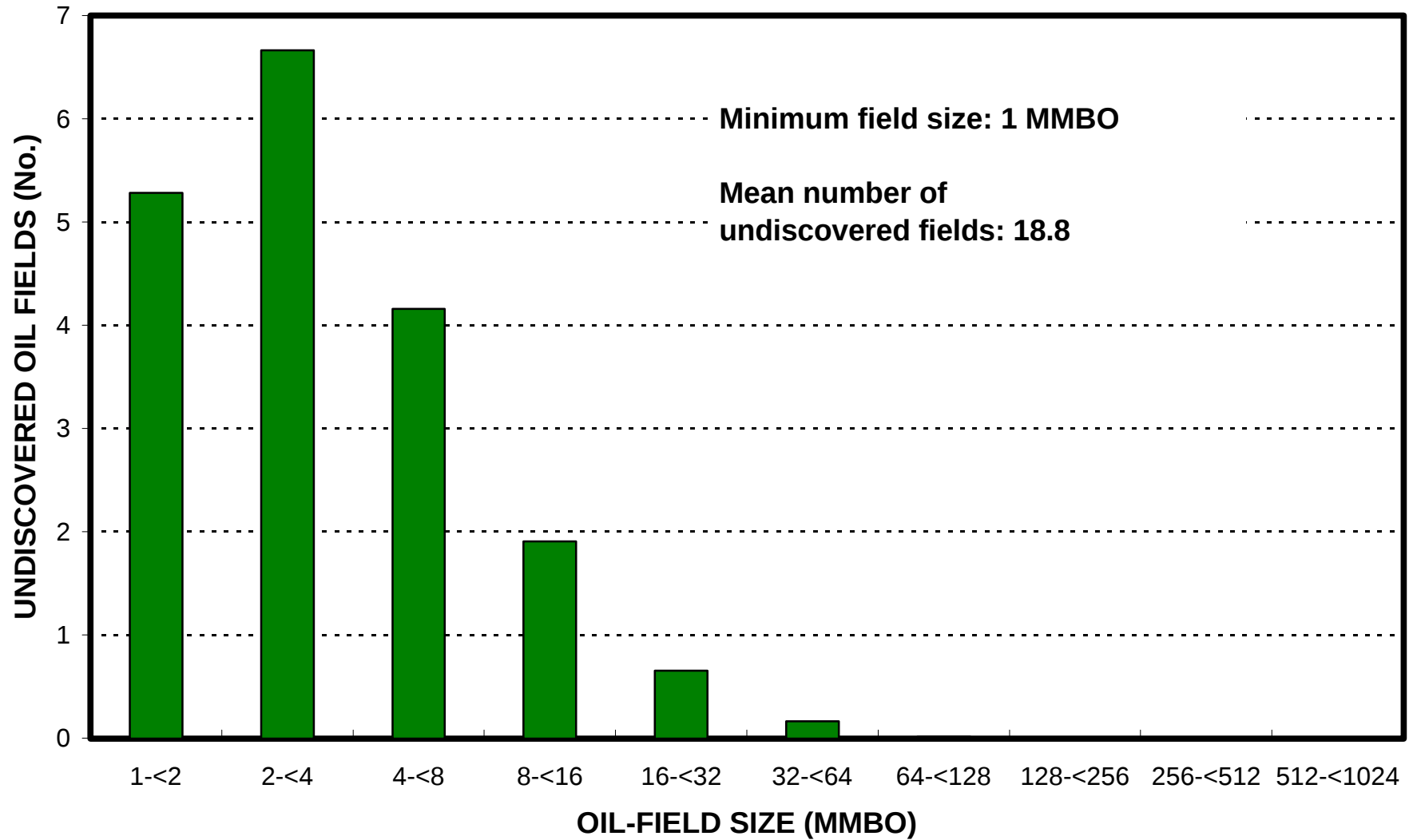
<u>Oil Fields:</u>	minimum	median	maximum
API gravity (degrees).....	20	30	40
Sulfur content of oil (%).....			
Drilling Depth (m)	500	2000	3000
Depth (m) of water (if applicable).....			
<u>Gas Fields:</u>	minimum	median	maximum
Inert gas content (%).....			
CO ₂ content (%).....			
Hydrogen-sulfide content(%).....			
Drilling Depth (m).....	500	2000	4000
Depth (m) of water (if applicable).....			

**ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT
TO COUNTRIES OR OTHER LAND PARCELS** (uncertainty of fixed but unknown values)

1. Argentina represents 100 areal % of the total assessment unit

<u>Oil in Oil Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	<u>100</u>	_____
Portion of volume % that is offshore (0-100%).....	_____	<u>0</u>	_____
<u>Gas in Gas Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	<u>100</u>	_____
Portion of volume % that is offshore (0-100%).....	_____	<u>0</u>	_____

Dorsal de Neuquen Structure, AU 60550103
Undiscovered Field-Size Distribution



Dorsal de Neuquen Structure, AU 60550103

Undiscovered Field-Size Distribution

