

# Malvinas Extensional Structures Assessment Unit 60630101



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- Malvinas Basin Geologic Province 6063

**USGS PROVINCE:** Malvinas Basin (6063)

**GEOLOGIST:** C.J. Schenk

**TOTAL PETROLEUM SYSTEM:** Lower Cretaceous Marine (606301)

**ASSESSMENT UNIT:** Malvinas Extensional Structures (60630101)

**DESCRIPTION:** This assessment unit encompasses extensional structures east of the Dungeness Arch and its southerly extension, and the assessment unit is west of the Falklands Plateau.

**SOURCE ROCKS:** Source rocks are considered to be Lower Cretaceous marine mudstones similar to source rocks in the adjacent Magallanes Basin.

**MATURATION:** Lower Cretaceous marine source rocks are estimated to have reached peak generation in the Eocene.

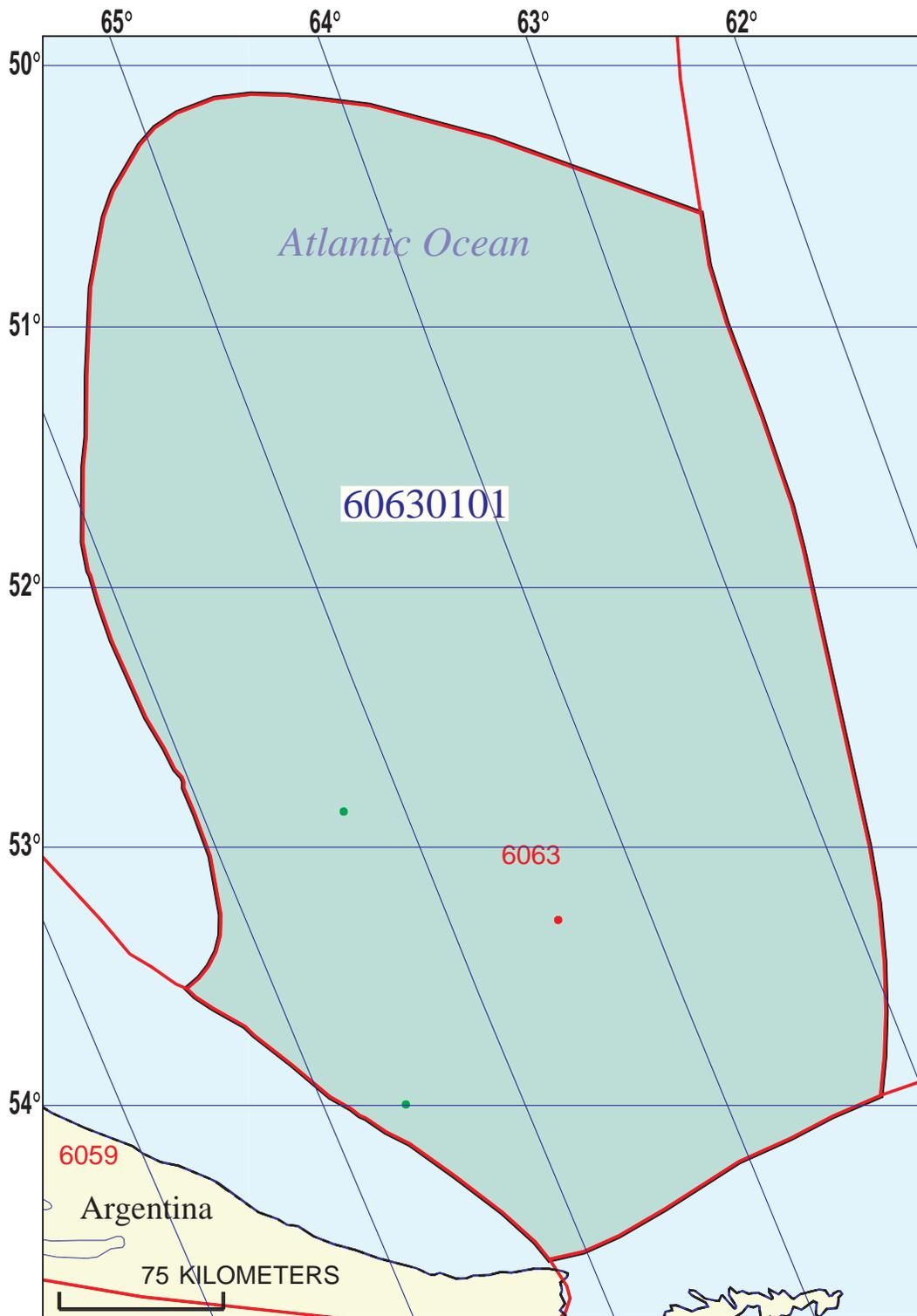
**MIGRATION:** Migration is mainly up rift-related faults and into Springhill Formation sandstones. The Springhill sandstones may also have acted as conduits for migration.

**RESERVOIR ROCKS:** Reservoir rocks are sandstones equivalent to the Lower Cretaceous Springhill Formation of the Magallanes Basin to the west.

**TRAPS AND SEALS:** Traps are mainly formed by extensional structures formed during rifting. Some folds may have developed along the eastern margin of the basin as the Falkland Plateau docked with the Argentinian shelf.

**REFERENCES:**

- Biddle, K.T., Uliana, M.A., Mitchum, R.M., Fitzgerald, M.G., and Wright, R.C., 1986, The stratigraphic and structural evolution of the central and eastern Magallanes Basin, southern South America, *in* Allen, P.A., and Homewood, P., eds., *Foreland Basins: International Association of Sedimentologists Special Publication 8*, p. 41-61.
- Kingston, J., 1994, Undiscovered petroleum resources of southern South America: U.S. Geological Survey Open-File Report 94-205, 495 p.
- Pittion, J.L., and Arbe, H., 1997, Petroleum system in the Austral Basin, *in* Mello, M., and Katz, B., eds., *Petroleum systems of the South Atlantic margin: Hedberg Research Symposium, Extended Abstracts Volume*, 3 p.



## Malvinas Extensional Structures Assessment Unit - 60630101

### EXPLANATION

- Hydrography
- Shoreline
- 6063 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 60630101 — Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

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

Date:..... 10/6/99  
 Assessment Geologist:..... C.J. Schenk  
 Region:..... Central and South America Number: 6  
 Province:..... Malvinas Basin Number: 6063  
 Priority or Boutique:..... Boutique  
 Total Petroleum System:..... Lower Cretaceous Marine Number: 606301  
 Assessment Unit:..... Malvinas Extensional Structures Number: 60630101  
 \* Notes from Assessor Magallanes Extensional Structures (60590101) is partial analog.

**CHARACTERISTICS OF ASSESSMENT UNIT**

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

What is the minimum field size?..... 5 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: 1 Gas: 1  
 Established (>13 fields) Frontier (1-13 fields) X Hypothetical (no fields)

Median size (grown) of discovered oil fields (mmboe):  
 1st 3rd 2nd 3rd 3rd 3rd  
 Median size (grown) of discovered gas fields (bcfg):  
 1st 3rd 2nd 3rd 3rd 3rd

**Assessment-Unit Probabilities:**

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

**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)	1	median no.	30	max no.	90
Gas fields:.....min. no. (>0)	1	median no.	30	max no.	90

**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	5	median size	15	max. size	800
Gas in gas fields (bcfg):.....min. size	30	median size	100	max. size	6000

**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).....	2000	4000	6000
NGL/gas ratio (bnl/mmcf).....	22	44	66
<u>Gas fields:</u>	minimum	median	maximum
Liquids/gas ratio (bnl/mmcf).....	15	25	35
Oil/gas ratio (bo/mmcf).....			

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**SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS**

(variations in the properties of undiscovered fields)

<u>Oil Fields:</u>	minimum	median	maximum
API gravity (degrees).....	25	35	45
Sulfur content of oil (%).....	0.06	0.1	0.12
Drilling Depth (m) .....	500	2500	4000
Depth (m) of water (if applicable).....	100	200	600
<u>Gas Fields:</u>	minimum	median	maximum
Inert gas content (%).....			
CO <sub>2</sub> content (%).....			
Hydrogen-sulfide content (%).....			
Drilling Depth (m).....	1000	3000	6000
Depth (m) of water (if applicable).....	100	200	600

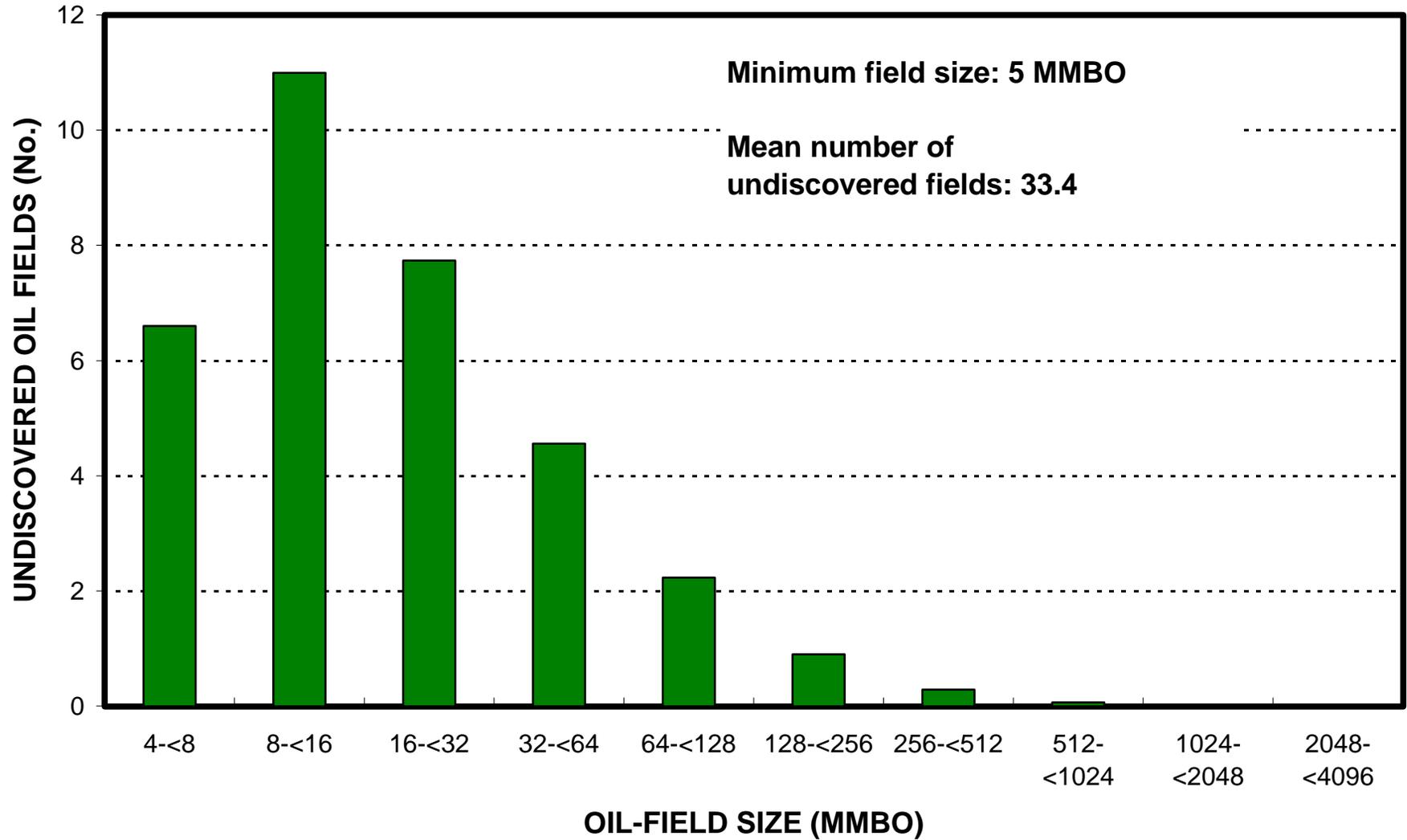
**ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT  
 TO COUNTRIES OR OTHER LAND PARCELS** (uncertainty of fixed but unknown values)

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

# Malvinas Extensional Structures, AU 60630101

## Undiscovered Field-Size Distribution



# Malvinas Extensional Structures, AU 60630101

## Undiscovered Field-Size Distribution

