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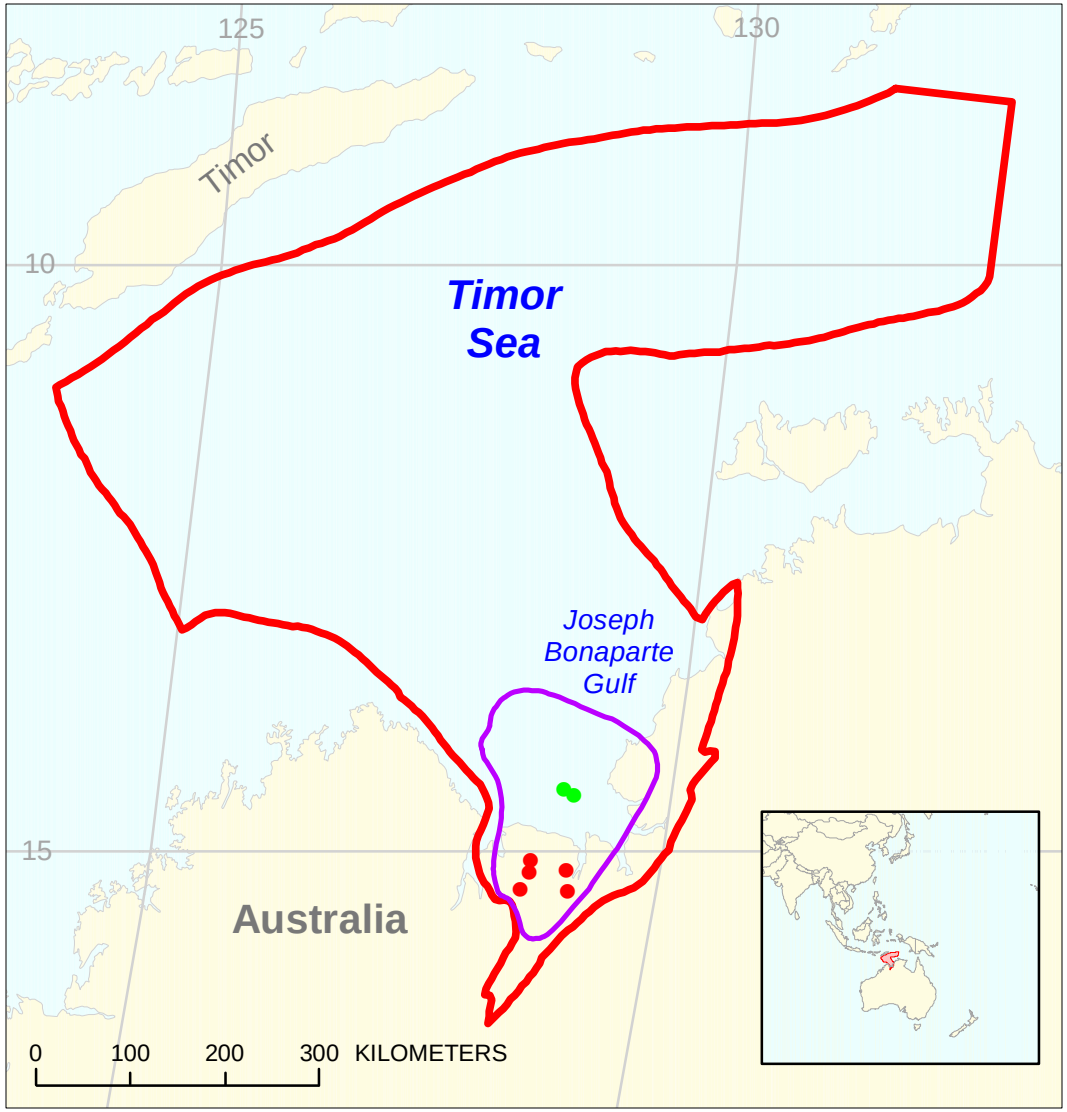
Barnett
Assessment Unit 39100101



Barnett Assessment Unit 39100101

Bonaparte Gulf Basin Geologic Province 3910

Geologic Summary

Detailed map of this assessment unit

Assessment Input Data

Assessment Results

- Assessment Unit Summary
- Detailed Assessment Results
- Undiscovered Field-Size Distributions

USGS PROVINCE: Bonaparte Gulf Basin (3910) **GEOLOGIST:** M.G. Bishop

TOTAL PETROLEUM SYSTEM: Milligans-Carboniferous/Permian (391001)

ASSESSMENT UNIT: Barnett (39100101)

DESCRIPTION: Onshore and near offshore oil and gas discoveries in primarily anticlinal and faulted traps of Carboniferous and Permian age sandstones define this assessment unit.

SOURCE ROCKS: Source rocks are Carboniferous (Visean) Milligans Formation marine shales deposited in a rapidly subsiding rifted basin; TOC 0.1 to 2.0 wt. %, HI 10 to 100.

MATURATION: The source rock has been in the oil window since Late Carboniferous/Permian time.

MIGRATION: Repeated episodes of migration occurred vertically along faults and laterally within carrier beds and into adjacent reservoirs.

RESERVOIR ROCKS: Carboniferous age deep-water sandstones and shallow marine to fluvial sandstones comprise the primary reservoir rocks.

TRAPS AND SEALS: Anticlines along with stratigraphic traps in sandstones and carbonate reefs and draping structures comprise the trap styles. The Early Permian Treachery carbonaceous shale and tillite is a regional seal offshore. Intraformational seals are locally important.

REFERENCES:

DPIE, 1998, Release of Offshore Petroleum Areas Australia 1998; Geology and Data Availability: Canberra, Australia, Department of Primary Industries and Energy, 194 p.; also available on CD-ROM.

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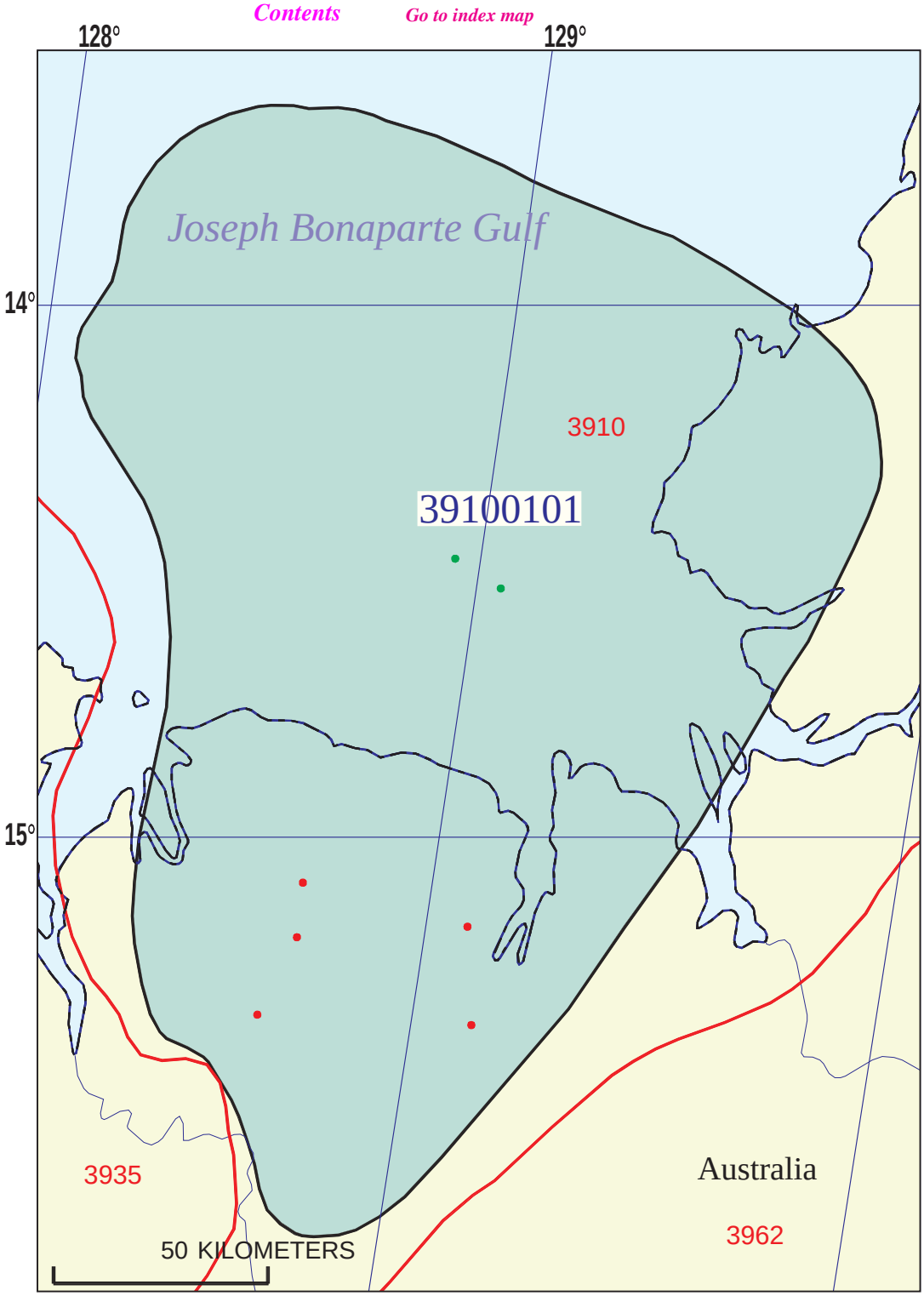
Lavering, I.H., Ozimic, S., 1988, Bonaparte Basin petroleum accumulations, *in* Purcell, P.G., and Purcell, R.R., eds., The North West Shelf Australia: Proceedings of Petroleum Exploration Society Australia Symposium, Perth, 1988, p. 331-337.

McConachie, B.A., Bradshaw, M.T., and Bradshaw, J., 1996, Petroleum systems of the Petrel sub-basin–an integrated approach to basin analysis and identification of hydrocarbon exploration opportunities: APPEA Journal, v. 36, pt. 1, p. 248-268.

U.S. GEOLOGICAL SURVEY WORLD PETROLEUM ASSESSMENT 2000— DESCRIPTION AND RESULTS
U.S. Geological Survey World Energy Assessment Team



Barnett
Assessment Unit - 39100101

EXPLANATION

- Hydrography
- Shoreline
- 3910 — Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 39100101 — Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

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

Date:……..	3/25/99		
Assessment Geologist:……..	T.S. Ahlbrandt		
Region:……..	Asia Pacific	Number:	3
Province:……..	Bonaparte Gulf Basin	Number:	3910
Priority or Boutique……	Priority		
Total Petroleum System:……	Milligans-Carboniferous/Permian	Number:	391001
Assessment Unit:……..	Barnett	Number:	39100101
* Notes from Assessor	MMS growth factor. Deltaic-turbidite reservoirs.		

CHARACTERISTICS OF ASSESSMENT UNIT

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

What is the minimum field size?……. 3 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: 2 Gas: 1
Established (>13 fields) _____ Frontier (1-13 fields) X Hypothetical (no fields) _____

Median size (grown) of discovered oil fields (mmboe):
1st 3rd 7.2 2nd 3rd 21.5 3rd 3rd _____
Median size (grown) of discovered gas fields (bcfg):
1st 3rd 50.3 2nd 3rd _____ 3rd 3rd _____

Assessment-Unit Probabilities:

Attribute	Probability of occurrence (0-1.0)
1. **CHARGE:** Adequate petroleum charge for an undiscovered field ≥ minimum size……	1.0
2. **ROCKS:** Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size……	1.0
3. **TIMING OF GEOLOGIC EVENTS:** 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)	3	median no.	10	max no.	25
Gas fields:……min. no. (>0)	3	median no.	10	max no.	25

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	3	median size	10	max. size	100
Gas in gas fields (bcfg):…… min. size	18	median size	60	max. size	600

Assessment Unit (name, no.)
Barnett, 39100101

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	1100	2200	3300
NGL/gas ratio (bngl/mmcfg)……	30	60	90

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	22	44	66
Oil/gas ratio (bo/mmcfg)……			

SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

Oil Fields:	minimum	median	maximum
API gravity (degrees)……	30	33	39
Sulfur content of oil (%)……	0.02	0.04	0.32
Drilling Depth (m) ……	920	1500	2700
Depth (m) of water (if applicable)……	0	35	70

Gas Fields:	minimum	median	maximum
Inert gas content (%)……			
CO_2 content (%)……			
Hydrogen-sulfide content (%)……			
Drilling Depth (m)……	920	1500	2700
Depth (m) of water (if applicable)……	0	35	70

Assessment Unit (name, no.)
Barnett, 39100101

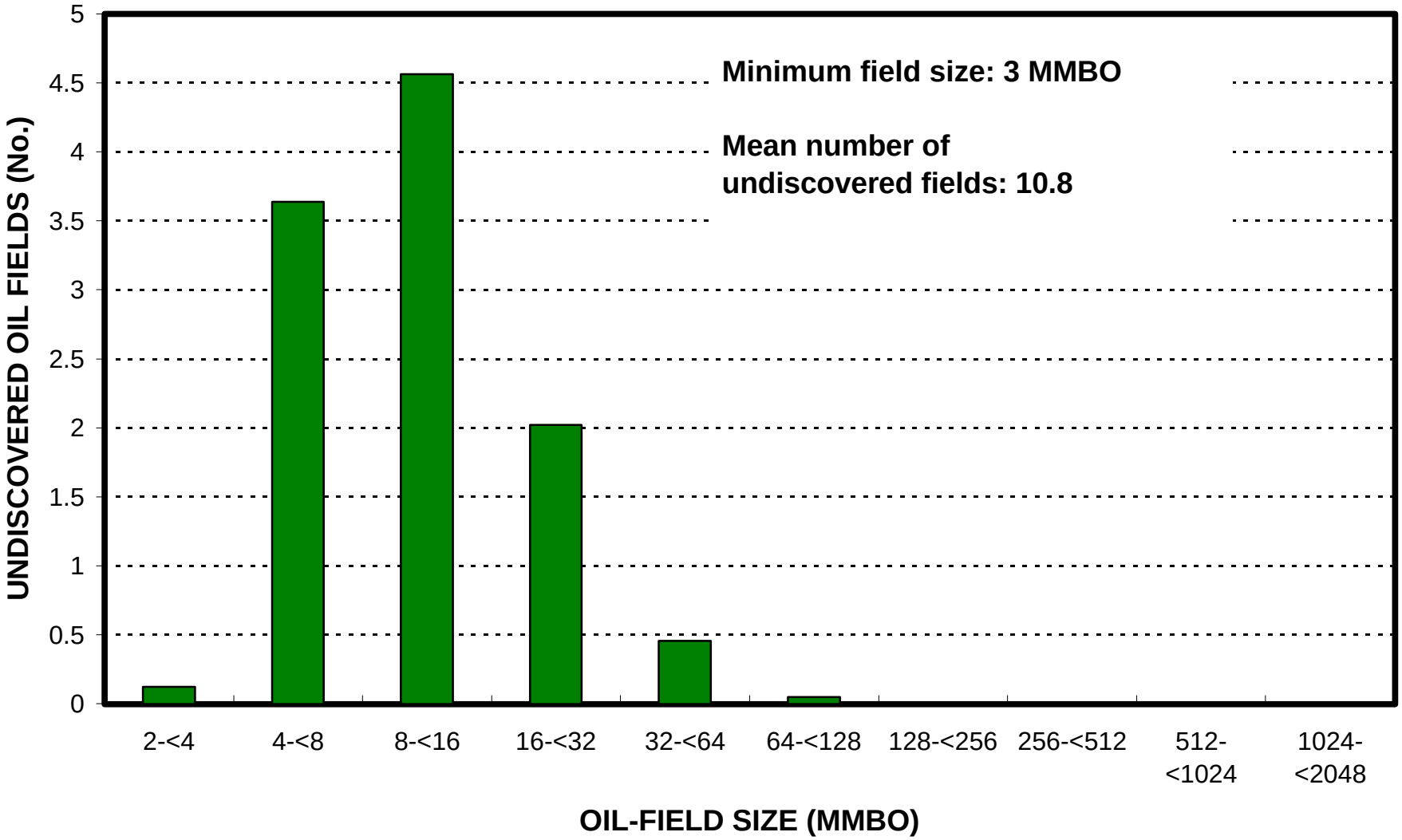
ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT TO COUNTRIES OR OTHER LAND PARCELS (uncertainty of fixed but unknown values)

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

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		100	
Portion of volume % that is offshore (0-100%)……		60	

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		100	
Portion of volume % that is offshore (0-100%)……		60	

Barnett, AU 39100101
Undiscovered Field-Size Distribution



Barnett, AU 39100101
Undiscovered Field-Size Distribution