Go to Table of Contents

Go to index map

Upper Paleozoic Carbonates
Assessment Unit 11500301

Upper Paleozoic Carbonates Assessment Unit 11500301
North Ustyurt Basin Geologic Province 1150

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: North Ustyurt Basin (1150) **GEOLOGIST:** G.F. Ulmishek

PETROLEUM SYSTEM: North Ustyurt Paleozoic (115003)

ASSESSMENT UNIT: Upper Paleozoic Carbonates (11500301)

DESCRIPTION: This assessment unit includes potential Carboniferous-Lower Permian carbonate reservoirs in the pre-Jurassic sequence of the North Ustyurt basin. In most areas, these rocks are deeply buried and have been drilled by a very limited number of wells. Both stratigraphy and structure of the rocks are poorly known and, although a few gas flows have been obtained, designation of the petroleum system and its boundaries are highly uncertain and conditional.

SOURCE ROCKS: Potential source rocks have not been penetrated by wells and their presence is uncertain in many areas. Seismic data indicate development of basinal facies in Carboniferous rocks of southeastern basin areas where the only gas field is located. These facies, commonly containing source rocks, may also be present in other areas.

MATURATION: No data are available. Possible source rocks occur at great depths and are probably overmature in respect to oil generation.

RESERVOIR ROCKS: Only carbonate rocks in Carboniferous, Lower Permian, and possibly Devonian sections are potential reservoir rocks. Clastic lithologies are strongly compacted and tight.

TRAPS: Pre-Jurassic rocks were subjected to compressional stress and thrusting and are deformed more intensely than Jurassic and younger rocks. Potential traps are various anticlines including those at leading edges of thrust plates. Seismic data also indicate a potential for traps related to Carboniferous reefs.

SEAL: Upper Permian and Triassic stratigraphic intervals are mostly composed of shales that may be a regional seal for underlying carbonates. However, the shales are strongly compacted and faulted; therefore, the quality of the seal is uncertain.

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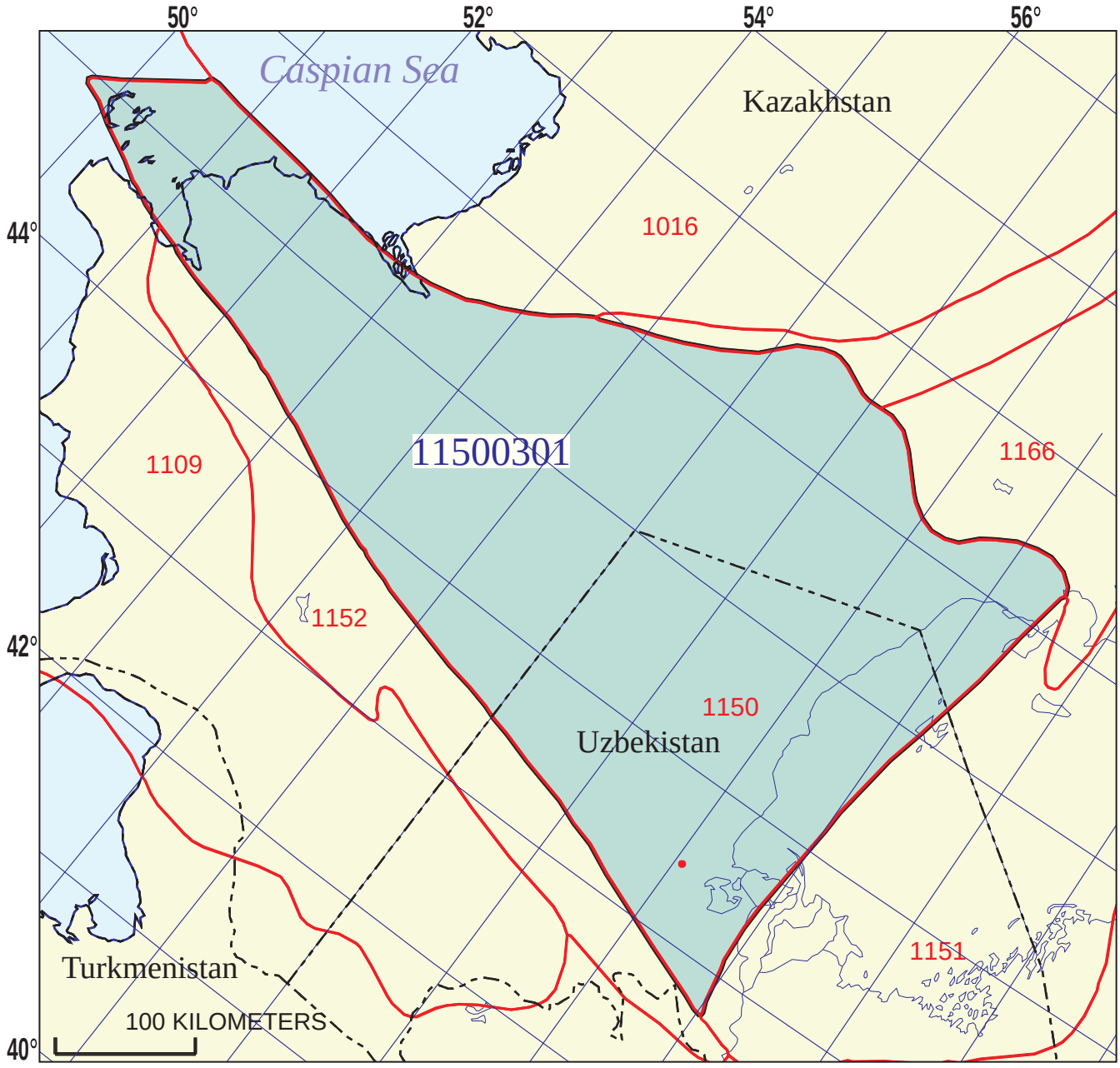

Upper Paleozoic Carbonates
Assessment Unit - 11500301

EXPLANATION

- Hydrography
- Shoreline
- 1150 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 11500301 Assessment unit code and boundary

Projection: Equidistant Conic. Central meridian: 100. Standard Parallel: 58 30

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

Date:……..	12/29/99		
Assessment Geologist:……..	G.F. Ulmishek		
Region:……..	Former Soviet Union	Number:	1
Province:……..	North Ustyurt Basin	Number:	1150
Priority or Boutique……	Priority		
Total Petroleum System:……	North Ustyurt Paleozoic	Number:	115003
Assessment Unit:……..	Upper Paleozoic Carbonates	Number:	11500301
* Notes from Assessor	Highly speculative because of paucity of data. Partial analog East and Southeastern Margin Subsalt (10160103) of North Caspian Province.		

CHARACTERISTICS OF ASSESSMENT UNIT

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

What is the minimum field size?……. 10 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: 0 Gas: 0
Established (>13 fields) _____ Frontier (1-13 fields) _____ Hypothetical (no fields) X

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. **CHARGE:** Adequate petroleum charge for an undiscovered field ≥ minimum size……	0.8
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):…….. 0.8

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)	_____	median no.	_____	max no.	_____
Gas fields:……min. no. (>0)	1	median no.	30	max no.	75

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	_____	median size	_____	max. size	_____
Gas in gas fields (bcfg):……min. size	60	median size	150	max. size	10000

Assessment Unit (name, no.)
Upper Paleozoic Carbonates, 11500301

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……			
NGL/gas ratio (bngl/mmcfg)……			

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)……			
Sulfur content of oil (%)……			
Drilling Depth (m) ……			
Depth (m) of water (if applicable)……			

Gas Fields:	minimum	median	maximum
Inert gas content (%)……			
CO_2 content (%)……			
Hydrogen-sulfide content (%)……			
Drilling Depth (m)……	3500	5000	7000
Depth (m) of water (if applicable)……	0	10	40

Assessment Unit (name, no.)
Upper Paleozoic Carbonates, 11500301

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

1. Kazakhstan represents 75 areal % of the total assessment unit

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

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		50	
Portion of volume % that is offshore (0-100%)……		5	

2. Uzbekistan represents 25 areal % of the total assessment unit

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

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		50	
Portion of volume % that is offshore (0-100%)……		50	

Upper Paleozoic Carbonates, AU 11500301
Undiscovered Field-Size Distribution