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Basin Center Subsalt
Assessment Unit 10160105

Basin Center Subsalt Assessment Unit 10160105
North Caspian Basin Geologic Province 1016

Geologic Summary

Detailed map of this assessment unit

Assessment Input Data

Assessment Results

This assessment unit was not assessed quantitatively.

USGS PROVINCE: North Caspian Basin (1016) **GEOLOGIST:** G.F. Ulmishek

TOTAL PETROLEUM SYSTEM: Paleozoic North Caspian (101601)

ASSESSMENT UNIT: Basin Center Subsalt (10160105)

DESCRIPTION: The assessment unit includes subsalt rocks in the central basin area where depth to the top of these rocks exceeds 7 km. No wells have been drilled. Marginal carbonate platforms do not extend into the area and the subsalt section is supposedly composed of basinal facies–black shales and turbidites. High overpressure is ubiquitous. No quantitative assessment of resources has been made because of the ultradeep occurrence of potential rocks and complete absence of data.

SOURCE ROCKS: Source rocks are probably off-reef basinal black-shale facies contemporaneous with reefs and back-reef carbonate platforms of the basin margins. Geochemical characteristics of the source rocks are poorly known because of their deep occurrence.

MATURATION: Maturation mainly took place in Late Permian-Triassic time, during deposition of thick Hercynian orogenic clastics. Presently, source rocks probably occur in the gas window over most of the unit area and possibly in the lower part of oil window in the shallowest zones.

MIGRATION: Probably, lateral migration was limited and mostly vertical migration from source rocks to reservoirs took place.

RESERVOIR ROCKS: The main potential reservoir rocks are turbidites stratigraphically correlative to clastic formations of the basin margins. The age of these formations varies on different margins. Self-sourced basinal black shales can contain unconventional oil and (or) gas accumulations in fractured reservoirs.

TRAPS: There is no information on traps in deeply buried subsalt rocks, but continuous unconventional accumulations and stratigraphic traps seem more probable.

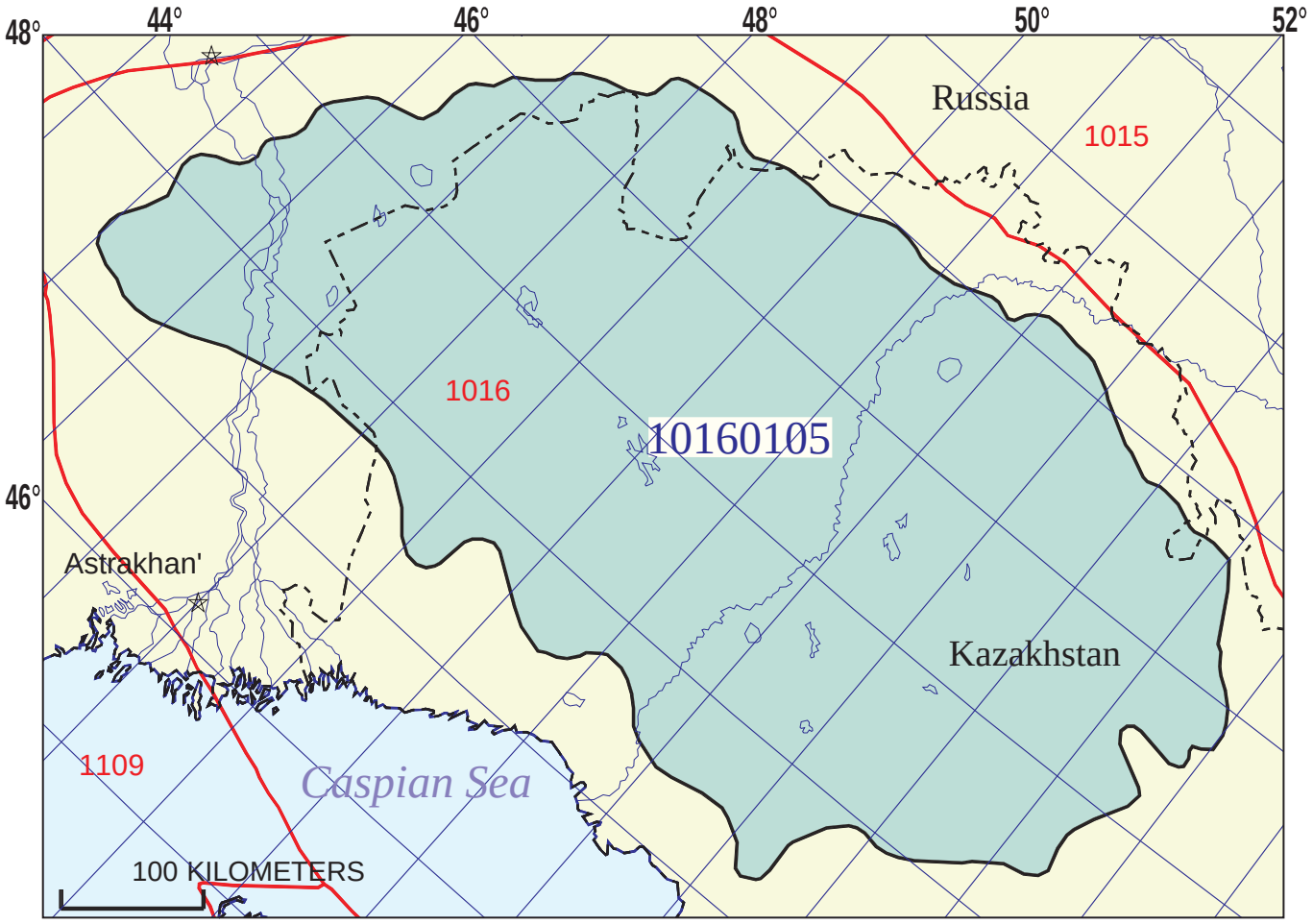
SEAL: Thick Kungurian salt forms the regional seal. The seal can be breached locally in depressions between salt domes where the salt has been withdrawn.

REFERENCES:

Navrotsky, O.K., Bylinkin, G.P., Oreshkin, I.V., and Sidorov, I.N., 1982, Prediction of paleotemperatures and catagenetic transformation of organic matter in subsalt rocks of the North Caspian basin: Geologiya Nefti i Gaza, no. 4, p. 28-32.

Solovyev, B.A., 1992, Stages of evolution and petroleum productivity of the sedimentary cover of the North Caspian basin: Geologiya Nefti i Gaza, no. 8, p. 13-18.

Volchegursky, L.F., Vladimirova, T.V., Kapustin, I.N., and Natapov, L.M., 1995, Evolution of the North Caspian basin in middle-late Paleozoic time: Otechestvennaya Geologiya, no. 2, p. 44-49.



Basin Center Subsalt
Assessment Unit - 10160105

EXPLANATION

- Hydrography
- Shoreline
- 1016 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 10160105 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:…….. 1/12/99
Assessment Geologist:…….. G.F. Ulmishek
Region:…….. Former Soviet Union Number: 1
Province:…….. North Caspian Basin Number: 1016
Priority or Boutique…… Priority
Total Petroleum System:…… Paleozoic North Caspian Number: 101601
Assessment Unit:…… Basin Center Subsalt Number: 10160105
* Notes from Assessor

CHARACTERISTICS OF ASSESSMENT UNIT

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

What is the minimum field size?……. _____ 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: _____ Gas: _____
Established (>13 fields) _____ Frontier (1-13 fields) _____ 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. **CHARGE:** Adequate petroleum charge for an undiscovered field ≥ minimum size……	
2. **ROCKS:** Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size……	
3. **TIMING OF GEOLOGIC EVENTS:** Favorable timing for an undiscovered field ≥ minimum size	

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

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

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) _____ median no. _____ max no. _____

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 _____ median size _____ max. size _____

Assessment Unit (name, no.)

_____

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)……			
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)……			
Depth (m) of water (if applicable)……			

Assessment Unit (name, no.)

_____

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

1. _____ represents _____ 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):…			
Portion of volume % that is offshore (0-100%)……			