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Offshore Prikumsk Zone
Assessment Unit 11090301

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Middle Caspian Basin Geologic Province 1109

Geologic Summary

Detailed map of this assessment unit

Assessment Input Data

Assessment Results

- Assessment Unit Summary
- Detailed Assessment Results

USGS PROVINCE: Middle Caspian Basin (1109) **GEOLOGIST:** G.F. Ulmishek

PETROLEUM SYSTEM: Stavropol-Prikumsk (110903)

ASSESSMENT UNIT: Offshore Prikumsk Zone (11090301)

DESCRIPTION: The assessment unit encompasses the offshore continuation of the Prikumsk zone of uplifts, East Manych graben, and Karpinsky uplift. The southeastern boundary of the unit is with the Central Caspian monocline. Although the onshore petroleum geology is likely to continue offshore, no wells have been drilled and some risk exists.

SOURCE ROCKS: Interpretation of geologic data onshore suggests the composite character of the petroleum system with mixed hydrocarbons from at least three source rocks. These are (1) Lower Triassic anoxic marine basinal facies in the East Manych graben, (2) Bajocian black marine shales, and (3) anoxic marine shales in the lower part of the Oligocene-lower Miocene Maykop series. Probably all the source rocks extend offshore.

MATURATION: The principal stage of source rock maturation was during and soon after deposition of the thick (as much as 1500 m) undercompacted Maykop shales characterized by low heat conductivity. Over most of the area, Triassic and Bajocian source rocks are in advanced stage of maturity or slightly overmature in respect to oil generation. Maykop source rocks are in the upper part of oil window. Source rocks may be absent or immature on the Karpinsky uplift.

MIGRATION: Similarly to the onshore area, vertical migration probably dominated including downward migration from Maykop source rocks. Possible productivity of the Karpinsky uplift depends on effectiveness on updip lateral migration.

RESERVOIR ROCKS: Diverse reservoir rocks in all stratigraphic units, from the Triassic to the Tertiary, are expected, but similarly to onshore, the principal reservoirs are probably concentrated in the upper Barremian-Albian section.

TRAPS: Structural traps are expected to contain most of reserves.

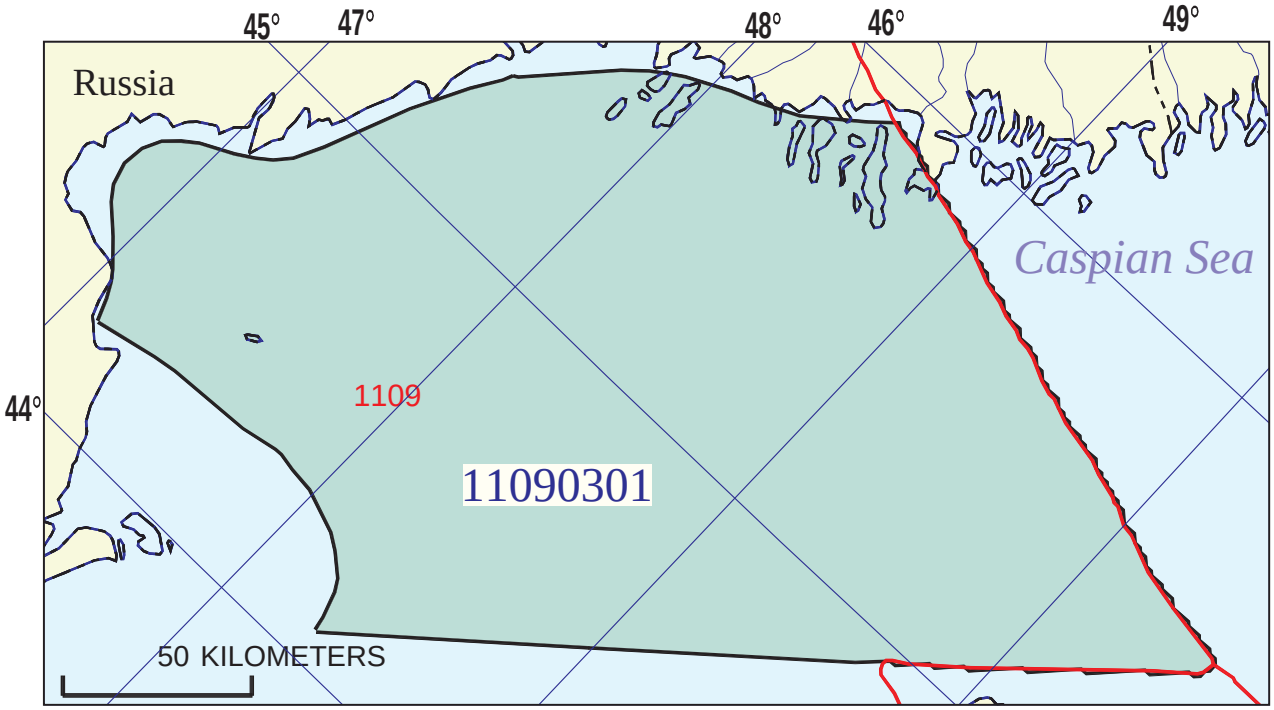
SEALS: Thick (as much as 1600 m) plastic shales of the Maykop series constitute a perfect regional seal that controls distribution of oil and gas in underlying rocks.

REFERENCES:

Letavin, A.I., 1978, Tafrogennyi kompleks molodoy platformy yuga SSSR (Taphrogenic complex of the young platform of the southern USSR): Moscow, Nauka, 148 p.

Ulmishek, G.F., 1999, Petroleum geology and resources of the Middle Caspian basin (South Mangyshlak, Terek-Caspian, and Stavropol-Prikumsk petroleum systems): U.S. Geological Survey Open-File Report 99-50-B, 37 pages, 19 figures.

Ulmishek, G., and Harrison, W., 1981, Petroleum geology and resource assessment of the Middle Caspian basin, USSR, with special emphasis on the Uzen field: Argonne National Laboratory Report ANL/ES-116, 147 p.



Offshore Prikumsk Zone
Assessment Unit - 11090301

EXPLANATION

- Hydrography
- Shoreline
- 1109 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 11090301 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:……..	7/14/98		
Assessment Geologist:……..	G.F. Ulmishek		
Region:……..	Former Soviet Union	Number:	1
Province:……..	Middle Caspian Basin	Number:	1109
Priority or Boutique……..	Priority		
Total Petroleum System:……	Stavropol-Prikumsk	Number:	110903
Assessment Unit:……..	Offshore Prikumsk Zone	Number:	11090301
*Notes from Assessor			

CHARACTERISTICS OF ASSESSMENT UNIT

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

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……..	0.95
2. **ROCKS:** Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size……	0.95
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):…….. 0.9025

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)	12	median no.	25	max no.	40
Gas fields:……min. no. (>0)	5	median no.	15	max no.	35

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	10	median size	20	max. size	700
Gas in gas fields (bcfg):……	min. size	60	median size	120	max. size	1500

Assessment Unit (name, no.)
Offshore Prikumsk Zone, 11090301

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	1000	2000	3000
NGL/gas ratio (bngl/mmcfg)……	50	60	70

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	10	20	30
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)……	35	40	47
Sulfur content of oil (%)……	0.05	0.1	0.2
Drilling Depth (m) ……	2000	3300	5000
Depth (m) of water (if applicable)……	5	50	100

Gas Fields:	minimum	median	maximum
Inert gas content (%)……	0.1	2	7
CO_2 content (%)……	0.1	0.3	5
Hydrogen-sulfide content (%)……	0	0	0
Drilling Depth (m)……	2000	3500	5000
Depth (m) of water (if applicable)……	5	50	100

Assessment Unit (name, no.)
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ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT TO COUNTRIES OR OTHER LAND PARCELS (uncertainty of fixed but unknown values)

1. Russia 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%)……		100	

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%)……		100	