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Central Offshore
Assessment Unit 11120104

Central Offshore Assessment Unit 11120104

South Caspian Basin Geologic Province 1112

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: South Caspian Basin (1112) **GEOLOGIST:** L.S. Smith-Rouch

TOTAL PETROLEUM SYSTEM: Oligocene-Miocene Maykop/Diatom (111201)

ASSESSMENT UNIT: Central Offshore (11120104)

DESCRIPTION: This is a hypothetical assessment unit. Tectonically the unit may be subdivided into three sectors. The western sector is characterized by buckle folds, shale diapirs, and extensive mud volcanoes trending northwest to southeast. The western and eastern regions are separated by a left lateral strike-slip fault that extends from the Apsheron-Pribalkhan zone to the Elborz reentrant in the south. The eastern sector contains slumps, growth faults, and fewer mud volcanoes that are aligned dominantly southwest to northeast.

SOURCE ROCK: The source rocks are anoxic marine shales of Oligocene-lower Miocene Maykop series and the overlying middle-upper Miocene Diatom Formation. The source rocks contain primarily Type II kerogen and extend throughout the entire basin. Total organic carbon content in the rocks is as high as 10 percent and the Hydrogen Index values range from 150 to 500 mg hydrocarbons/g organic carbon.

MATURATION: Judging from very high sedimentation rates, maturation probably started in Middle Pliocene time and continues at present.

MIGRATION: Vertical migration may have begun in late middle Pliocene time, but was most active in late Pliocene-Quaternary time.

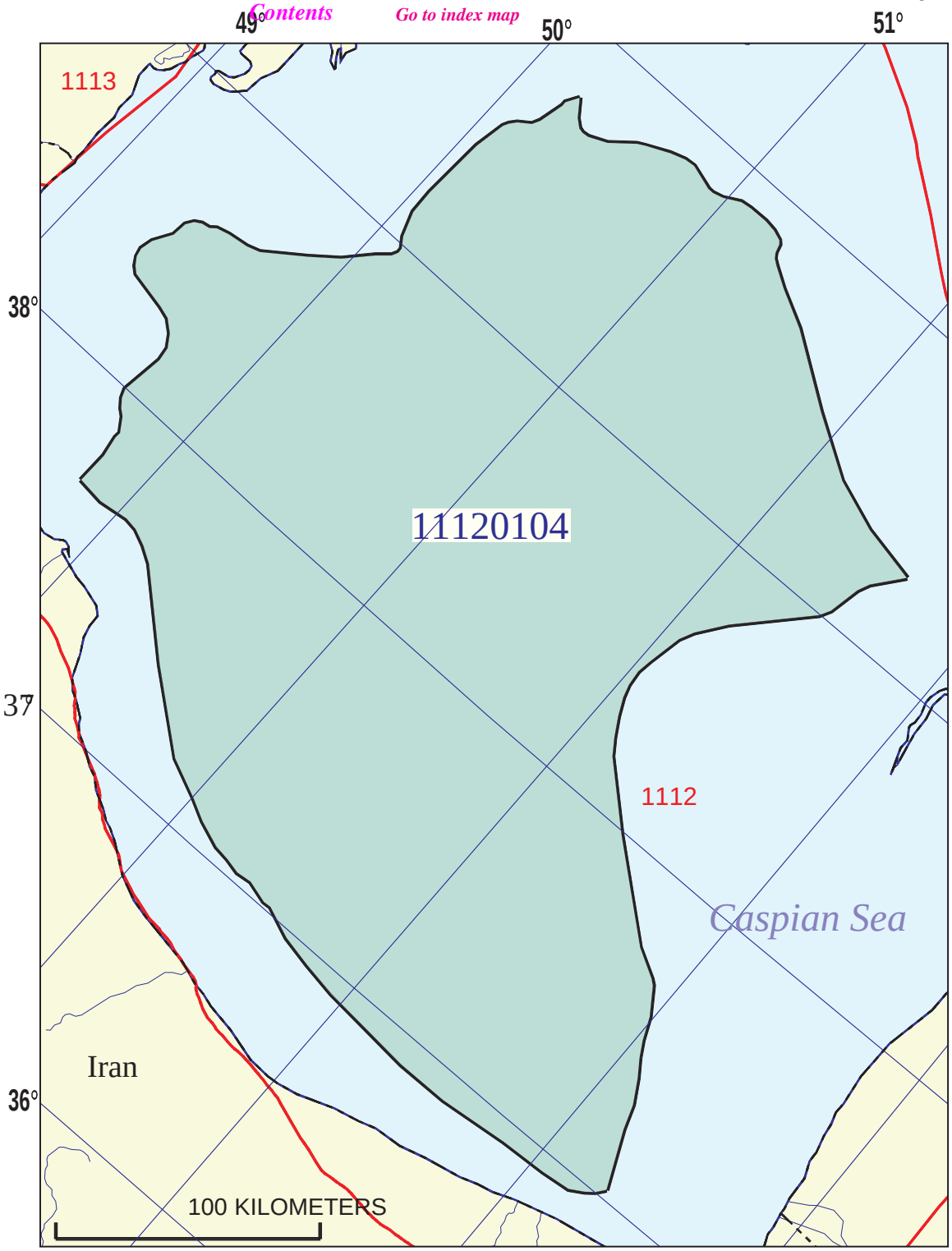
RESERVOIR ROCKS: The best reservoir rocks may be turbidite deposits off the Western Turkmenistan shelf. These potential reservoirs are dominantly sourced from the paleo-Amu-Darya river. Reservoirs in the central part of the basin may be lower-middle Pliocene turbidites from the paleo-Volga river. The paleo-Kura was much smaller and diapir movement may have restricted gravity flow to an area proximal to the delta.

TRAPS AND SEALS: Incipient growth of anticlines and Maykop shale flowage may have started in early Pliocene time, but the bulk of tectonic movement and trap formation took place in the late Pliocene to the present. Stratigraphic traps on flanks of the anticlines may be important reservoirs. Most likely seals are intraformational and overlying shales from the late Pliocene-Pleistocene transgressions.

REFERENCES:

Devin, W.J., Cogswell, J.J., Gaskins, G.M., Isaksen, G.H., Pitcher, D.M., Puls, D.P., Stanley, K.O., Wall, G.R.T., 1999, South Caspian Basin–Young, cool, and full of promise: GSA Today, v. 9, no. 7, p. 1-9.

Lebedev, L.I., Aleksina, I.A., Kulakova, L.S., 1987, Caspian Sea–Geology and petroleum potential: Moscow, Nauka, 296 p. (in Russian).



Central Offshore
Assessment Unit - 11120104

EXPLANATION

- Hydrography
- Shoreline
- 1112 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 11120104 Assessment unit code and boundary

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

USGS science for a changing world

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

Date:……..	1/11/00		
Assessment Geologist:……..	G.F. Ulmishek		
Region:……..	Former Soviet Union	Number:	1
Province:……..	South Caspian Basin	Number:	1112
Priority or Boutique……	Priority		
Total Petroleum System:……	Oligocene-Miocene Maykop/Diatom	Number:	111201
Assessment Unit:……	Central Offshore	Number:	11120104
* 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……	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)	1	median no.	40	max no.	90
Gas fields:……min. no. (>0)	2	median no.	60	max no.	130

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	60	max. size	5000
Gas in gas fields (bcfg):……min. size	60	median size	360	max. size	30000

Assessment Unit (name, no.)
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AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	2000	4000	6000
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	37	52
Sulfur content of oil (%)……			
Drilling Depth (m) ……	3500	5500	8500
Depth (m) of water (if applicable)……	150	600	1000

Gas Fields:	minimum	median	maximum
Inert gas content (%)……	0.5	0.8	1
CO_2 content (%)……	0.2	0.6	1.2
Hydrogen-sulfide content (%)……			
Drilling Depth (m)……	3500	5500	8500
Depth (m) of water (if applicable)……	150	600	1000

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. Azerbaijan represents 45 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		40	
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):...		40	
Portion of volume % that is offshore (0-100%).....		100	

2. Turkmenistan represents 20 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		30	
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):...		30	
Portion of volume % that is offshore (0-100%).....		100	

3. Iran represents 35 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		30	
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):...		30	
Portion of volume % that is offshore (0-100%).....		100	

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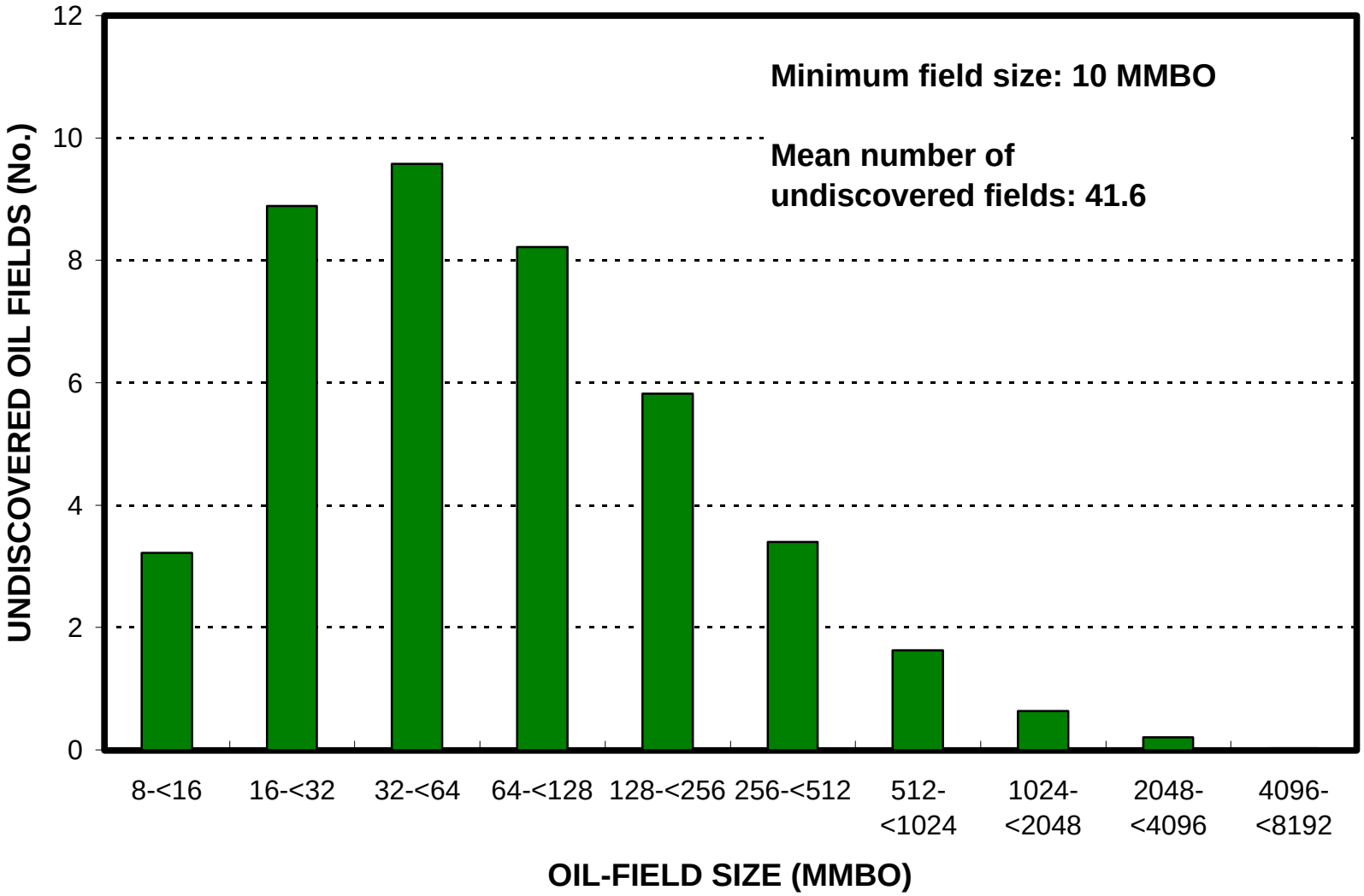
Undiscovered Field-Size Distribution



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Undiscovered Field-Size Distribution