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Karabil-Badkhyz (Southern Area) Assessment Unit 11540102

Karabil-Badkhyz (Southern Area) Assessment Unit 11540102

Amu-Darya Basin Geologic Province 1154

Geologic Summary

Detailed map of this assessment unit

Exploration/Discovery-History Data

- Plots of Known Field Sizes
- Plots of Grown Resources
- Tables

Assessment Input Data

Assessment Results

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

USGS PROVINCE: Amu-Darya Basin (1154) **GEOLOGIST:** G.F. Ulmishek

TOTAL PETROLEUM SYSTEM: Amu-Darya Jurassic-Cretaceous (115401)

ASSESSMENT UNIT: Karabil-Badkhyz (Southern Area) (11540102)

DESCRIPTION: Unit encompasses basin areas located south of the pinch-out zone of Upper Jurassic salt. These are mainly the Karabil-Badkhyz zone of uplifts in Turkmenistan, the Maymaneh terrace in Afghanistan, and smaller adjacent structures. Similar to areas north of the Jurassic salt basin, the unit is characterized by the hydrodynamic connection between Jurassic and younger rocks.

SOURCE ROCKS: The principal source rocks are Lower-Middle Jurassic continental to marine coaly clastics (TOC as much as 2.5 percent) with some coal beds in the lower part. The source rocks are absent in the southern area of the assessment unit.

MATURATION: Where present, Lower-Middle Jurassic source rocks are buried deep in the gas window.

RESERVOIR ROCKS: Reservoir rocks are Upper Jurassic (Oxfordian) carbonates and Cretaceous clastics. The Hauterivian Shatlyk Formation sandstones contain the main gas reserves.

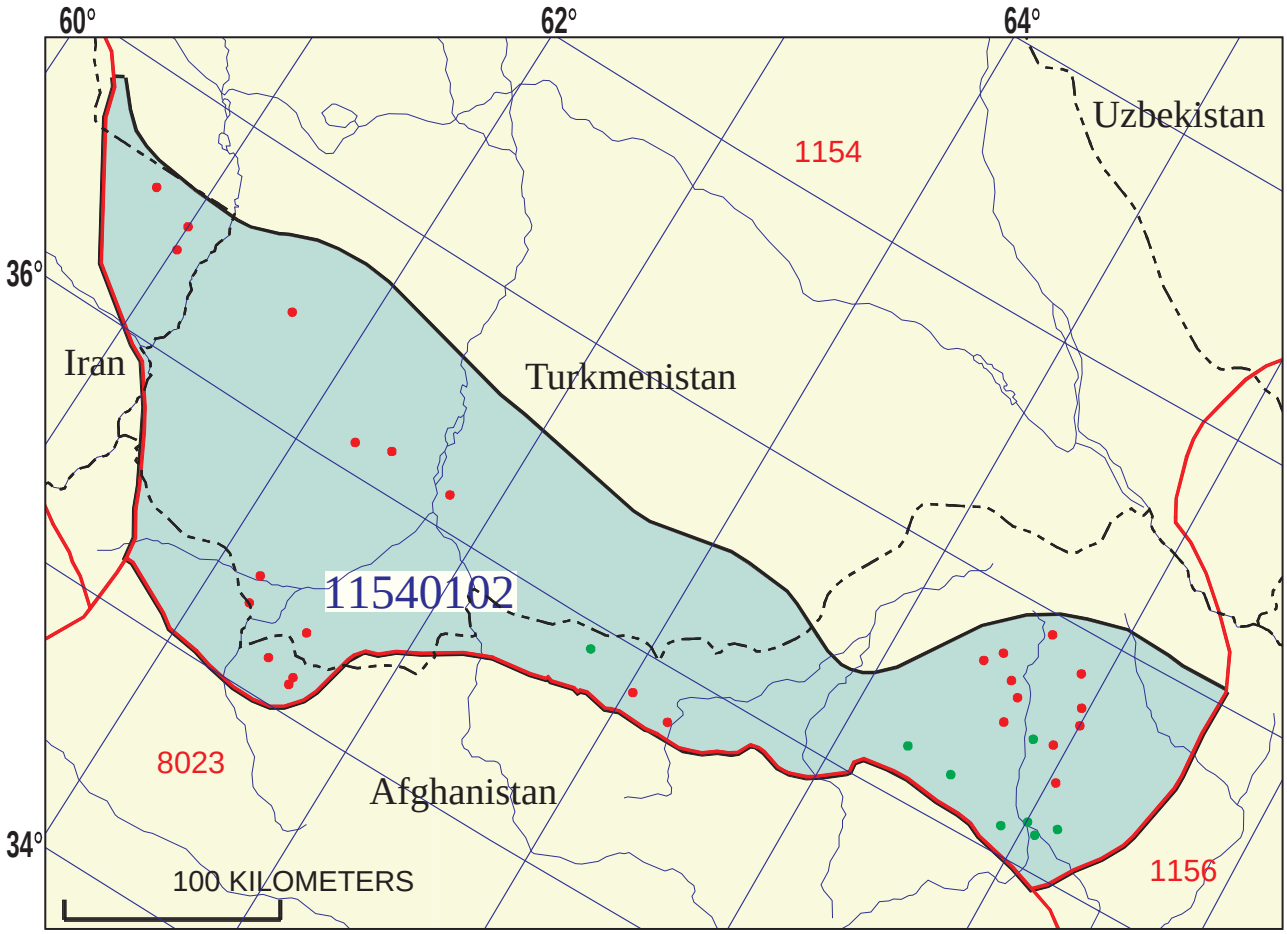
TRAPS AND SEALS: Most of discovered productive traps are local anticlinal uplifts. The supergiant (60 TCF) Dauletabad-Donmez gas field is apparently controlled by a hydrodynamic trap although the trapping mechanism is poorly understood. A Barremian to Aptian shale formation is an upper seal in this field.

REFERENCES:

Kingston, J., 1990, The undiscovered oil and gas of Afghanistan: U.S. Geological Survey Open-File Report 90-401, 33 p.

Maksimov, S.P., Kleschev, K.A., and Shein, V.S., eds., 1986, Geology and geodynamics of petroleum-productive areas of the southern USSR (Geologiya i geodinamika neftegazonosnykh territoriy yuga SSSR): Trudy VNIGNI, v. 255, Moscow, Nedra, 232 p.

Semenovich, V.V., Maksimov, S.P., Pankina, R.G., Mekhtieva, V.L., and Gurieva, S.M., 1983, Genesis of hydrogen sulfide of the Dauletabad-Donmez gas field: Geologiya Nefti i Gaza, no. 6, p. 32-36.



Karabil-Badkhyz (Southern Area)
Assessment Unit - 11540102

EXPLANATION

- Hydrography
- Shoreline
- 1154 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 11540102 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:……..	7/27/99		
Assessment Geologist:……..	G.F. Ulmishek		
Region:……..	Former Soviet Union	Number:	1
Province:……..	Amu-Darya Basin	Number:	1154
Priority or Boutique……	Priority		
Total Petroleum System:……	Amu-Darya Jurassic-Cretaceous	Number:	115401
Assessment Unit:……..	Karabil-Badkhyz (Southern Area)	Number:	11540102
* Notes from Assessor	Three additional fields in Petroconsultants' database have no reserve data.		
	Field sizes not grown.		

CHARACTERISTICS OF ASSESSMENT UNIT

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

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: 7 Gas: 19
Established (>13 fields) X Frontier (1-13 fields) _____ Hypothetical (no fields) _____

Median size (grown) of discovered oil fields (mmboe):
1st 3rd 14.5 2nd 3rd 5 3rd 3rd _____
Median size (grown) of discovered gas fields (bcfg):
1st 3rd 150 2nd 3rd 651 3rd 3rd 215

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)	2	median no.	10	max no.	20
Gas fields:……min. no. (>0)	20	median no.	60	max no.	120

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	6	max. size	100
Gas in gas fields (bcfg):……min. size	18	median size	70	max. size	2000

Assessment Unit (name, no.)
Karabil-Badkhyz (Southern Area), 11540102

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)……	30	60	90

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	10	15	25
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)……	28	35	45
Sulfur content of oil (%)……	0.1	1	2.5
Drilling Depth (m) ……	800	1400	2500
Depth (m) of water (if applicable)……			

Gas Fields:	minimum	median	maximum
Inert gas content (%)……	1	2	8
CO_2 content (%)……	0.2	0.5	1.5
Hydrogen-sulfide content (%)……	0	0.05	0.5
Drilling Depth (m)……	1500	3000	5000
Depth (m) of water (if applicable)……			

Assessment Unit (name, no.)
Karabil-Badkhyz (Southern Area), 11540102

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

1. Turkmenistan represents 54 areal % of the total assessment unit

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

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%).....		0	

2. Afghanistan represents 40 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%).....		0	

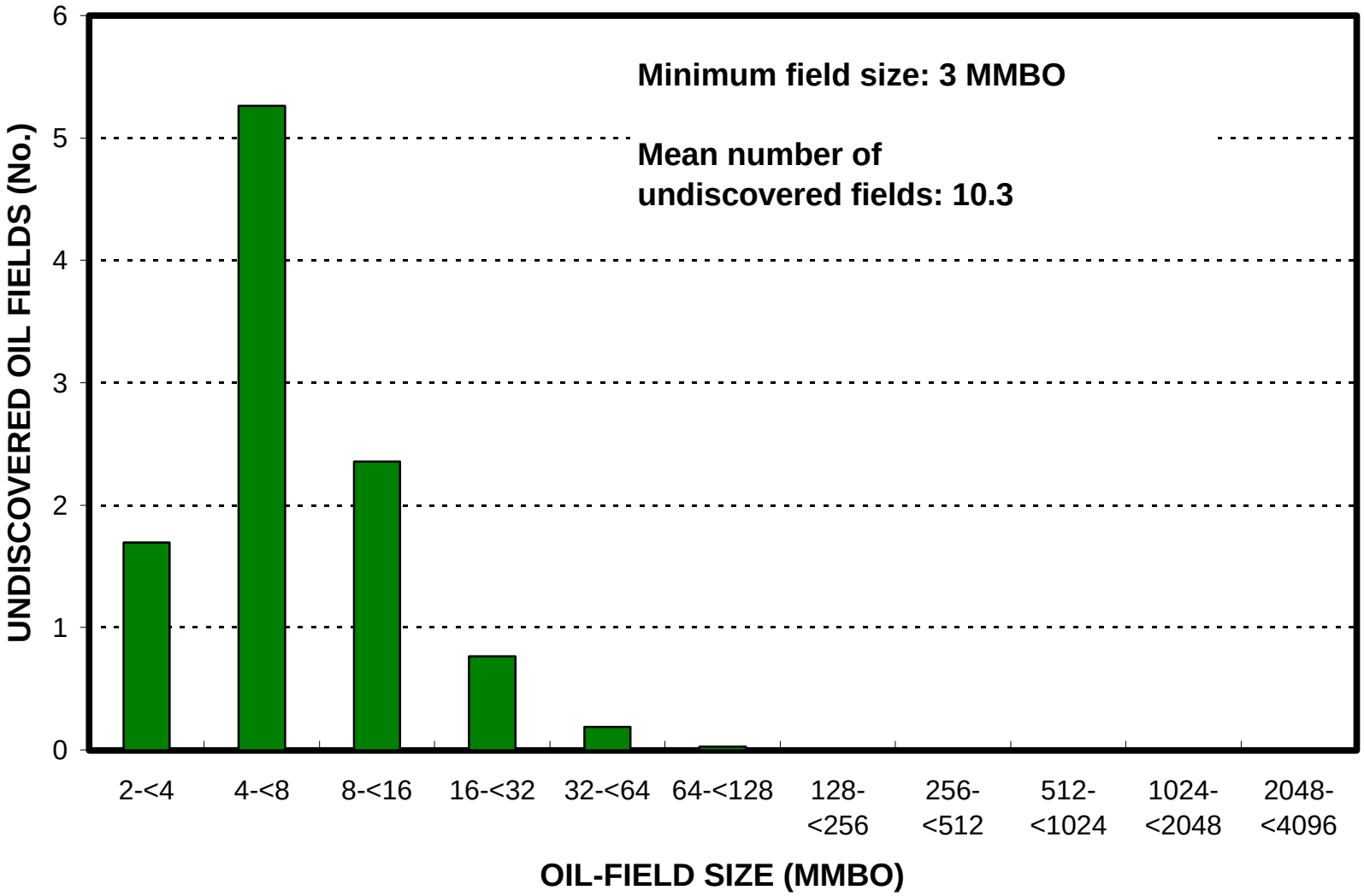
Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		40	
Portion of volume % that is offshore (0-100%).....		0	

3. Iran represents 6 areal % of the total assessment unit

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

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		10	
Portion of volume % that is offshore (0-100%).....		0	

Karabil-Badkhyz (Southern Area), AU 11540102
Undiscovered Field-Size Distribution



Karabil-Badkhyz (Southern Area), AU 11540102
Undiscovered Field-Size Distribution