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Devonian Synrift
Assessment Unit 10090102

Devonian Synrift Assessment Unit 10090102

Dnieper-Donets Basin Geologic Province 1009

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: Dnieper-Donets Basin (1009) **GEOLOGIST:** G.F. Ulmishek

TOTAL PETROLEUM SYSTEM: Dnieper-Donets Paleozoic (100901)

ASSESSMENT UNIT: Devonian Synrift (10090102)

DESCRIPTION: Assessment unit includes poorly known Devonian rocks. No fields have been discovered although many oil and gas shows have been detected. The unit occurs at drillable depths only along basin margins. Resource assessment is based on analogy with the adjacent Pripyat basin.

SOURCE ROCKS: Oils derived from source rocks within the Devonian section are known in stratigraphically overlying assessment unit 10090101. These source rocks are probably similar to organic-rich marine anoxic shales of the Pripyat basin.

MATURATION: Source rocks are probably in the oil window along the basin margins and rapidly dip into the gas window zone basinward.

RESERVOIR ROCKS: Carbonate reservoir rocks including reefs are principal producers in the Pripyat basin and are expected to contain almost all undiscovered resources in the Dnieper-Donets basin.

TRAPS: Structural and combination traps are expected along crests of the tilted fault blocks, which control reef development.

SEALS: A shale formation is regionally developed at the top of the Devonian sequence. Salt, although deformed, may be an important seal for some prospects.

REFERENCES:

Gavrish, V.K., ed., 1989, Geology and petroleum productivity of the Dnieper-Donets basin—Deep framework and geotectonic development (Geologiya i neftegazonosnost Dneprovo-Donetskoy vpadiny. Glubinnoye stroeniye i geotektonicheskoye razvitiye): Kiev, Naukova Dumka, 204 p.

Shpak, P.F., ed., 1989, Geology and petroleum productivity of the Dnieper-Donets basin—Petroleum productivity (Geologiya i neftegazonosnost Dneprovo-Donetskoy vpadiny. Neftegazonosnost): Kiev, Naukova Dumka, 204 p.

Ulmishek, G.F., Bogino, V.A., Keller, M.B., and Poznyakevich, Z.L., 1994, Structure, stratigraphy, and petroleum geology of the Pripyat and Dnieper-Donets basins, Byelarus and Ukraine, *in* Landon, S.M., ed., Interior rift basins: American Association of Petroleum Geologists Memoir 59, p. 125-156.

Devonian Synrift
Assessment Unit - 10090102

EXPLANATION

- Hydrography
- Shoreline
- 1009 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 10090102 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:……..	5/6/99		
Assessment Geologist:……..	G.F. Ulmishek		
Region:……..	Former Soviet Union	Number:	1
Province:……..	Dnieper-Donets Basin	Number:	1009
Priority or Boutique……	Priority		
Total Petroleum System:……	Dnieper-Donets Paleozoic	Number:	100901
Assessment Unit:……	Devonian Synrift	Number:	10090102
* Notes from Assessor	Assessment is based on analogy with the adjacent Pripyat Basin.		

CHARACTERISTICS OF ASSESSMENT UNIT

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

What is the minimum field size?……. 7 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……	0.9
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):…….. 0.9

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.	20	max no.	50
Gas fields:……min. no. (>0)	3	median no.	30	max no.	70

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	7	median size	25	max. size	800
Gas in gas fields (bcfg):……min. size	42	median size	150	max. size	5000

Assessment Unit (name, no.)
Devonian Synrift, 10090102

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)……	20	40	60
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	40	50
Sulfur content of oil (%)……	0.3	1	2
Drilling Depth (m) ……	3500	4500	7000
Depth (m) of water (if applicable)……			

Gas Fields:	minimum	median	maximum
Inert gas content (%)……	1	3	5
CO_2 content (%)……	1	2.5	5
Hydrogen-sulfide content (%)……	0.2	0.5	1
Drilling Depth (m)……	3500	4500	7000
Depth (m) of water (if applicable)……			

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. Ukraine represents 93 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):…		100	
Portion of volume % that is offshore (0-100%)……		0	

2. Russia represents 7 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):…		0	
Portion of volume % that is offshore (0-100%)……		0	

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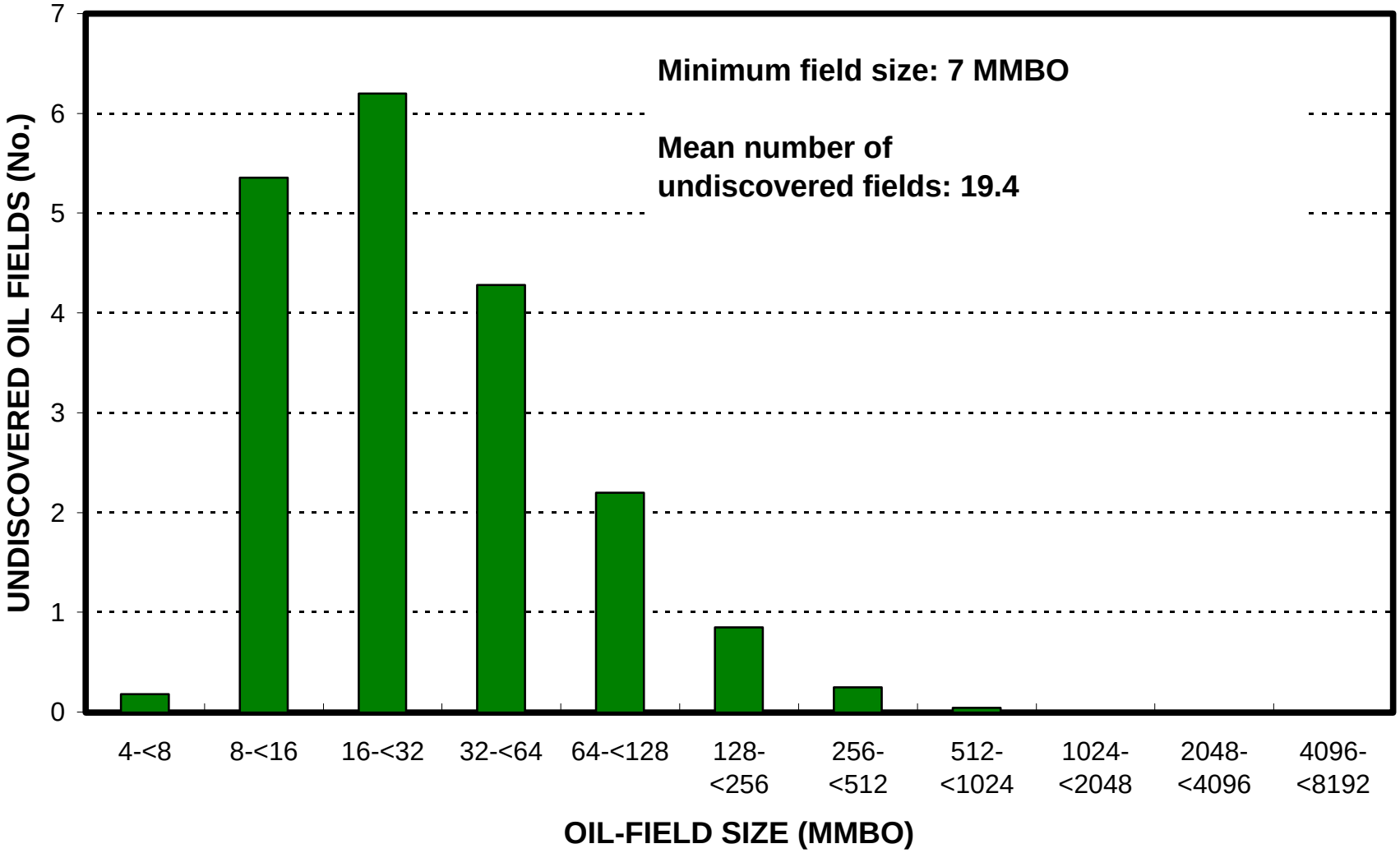
Undiscovered Field-Size Distribution



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Undiscovered Field-Size Distribution