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Northwest Izhma-Pechora Depression Assessment Unit 10080101

Northwest Izhma-Pechora Depression Assessment Unit 10080101

Timan-Pechora Basin Geologic Province 1008

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: Timan-Pechora Basin (1008) **GEOLOGIST:** S.J. Lindquist

TOTAL PETROLEUM SYSTEM: Domanik-Paleozoic (100801)

ASSESSMENT UNIT: Northwest Izhma-Pechora Depression (10080101) (hypothetical)

DESCRIPTION: Assessment unit is the northwestern portion of the province in an area structurally more stable than the other assessment units of the Total Petroleum System. Devonian source-rock facies likely are not present; nor are prolifically productive Paleozoic reef facies that characterize the assessment unit to the east. Structures are smaller than in the other assessment units.

SOURCE ROCKS: Source rocks are oil-prone Upper Devonian (Frasnian) basinal siliceous shales, limestones, and marls (Domanik facies) to the east of assessment unit. There are also possible Triassic gas- and oil-prone source rocks offshore in the South Barents Basin.

MATURATION: Most Domanik maturation is probably Permo-Triassic in age, but some authors propose generation locally or regionally as early as Early Carboniferous(?) and as late as Middle Jurassic.

MIGRATION: Long-distance lateral migration from the east (Domanik) or north (Triassic) is necessary to adequately charge reservoirs in this assessment unit. Structural considerations put a high risk on long-distance lateral migration.

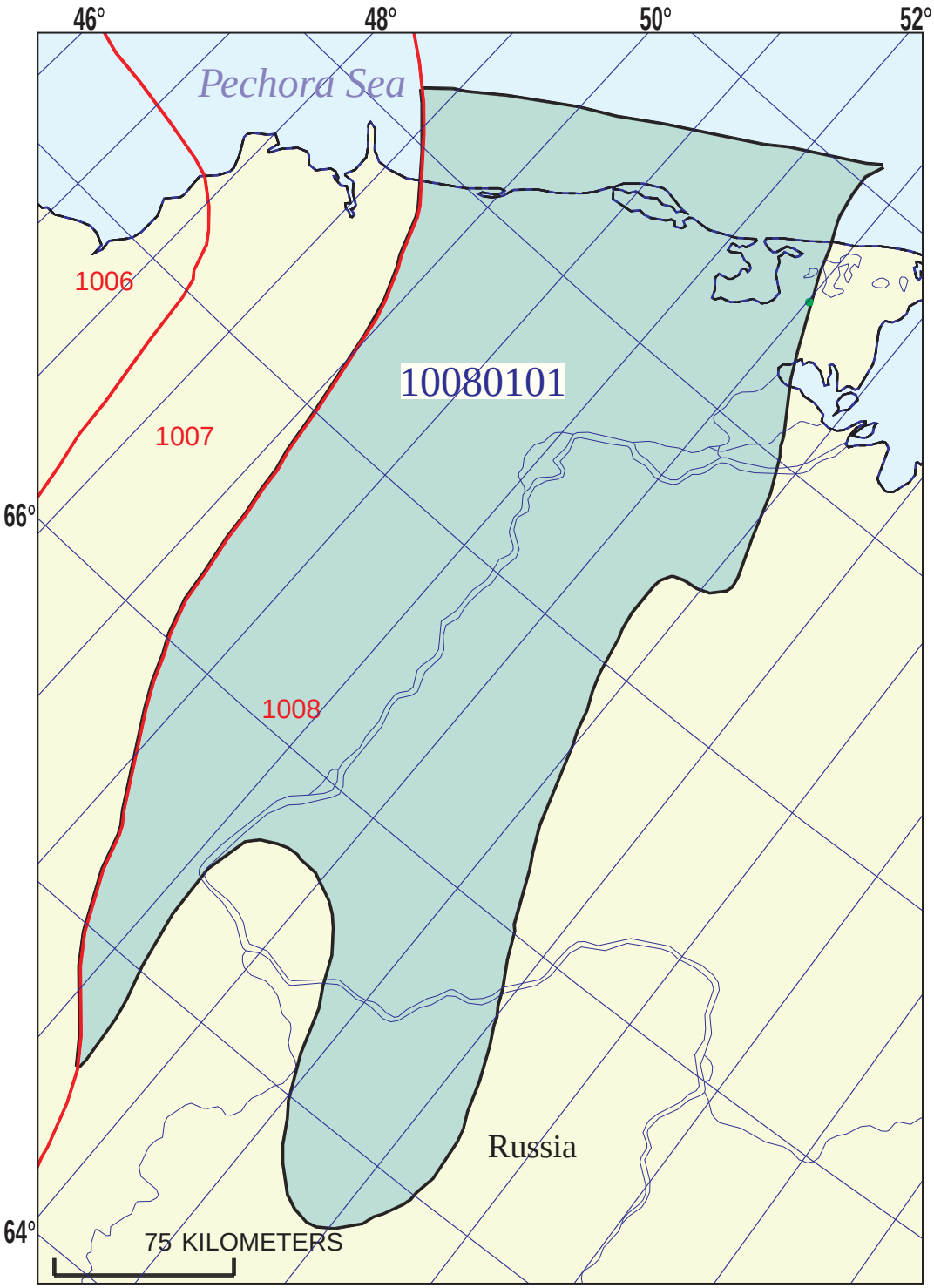
RESERVOIR ROCKS: Reservoirs are primarily lower Paleozoic rocks of shallow marine to coastal origin; largely landward facies equivalents of the productive carbonates and sandstones of the adjacent assessment unit to the east.

TRAPS AND SEALS: Size-limited structural anticlines formed by early Paleozoic normal faulting (and possibly modified by Hercynian inversion) are expected, along with stratigraphic traps. Seals are Paleozoic shales, probably of lesser quality than those in the adjacent assessment unit to the east.

REFERENCES:

Lindquist, S.J., 1999, The Timan-Pechora basin province of northwest Arctic Russia—Domanik-Paleozoic total petroleum system: U.S. Geological Survey Open-File Report 99-50-G, 24 p., 15 figs., 2 tables.

Ulmishek, G.F., 1982, Petroleum geology and resource assessment of the Timan-Pechora basin, USSR, and the adjacent Barents-northern Kara shelf: Argonne, Ill., Argonne National Laboratory, Energy and Environmental Systems Division, Report ANL/EES-TM-199, 197 p.



Northwest Izhma-Pechora Depression Assessment Unit - 10080101

EXPLANATION

- Hydrography
- Shoreline
- 1008 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 10080101 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:……..	3/30/99		
Assessment Geologist:……..	G.F. Ulmishek		
Region:……..	Former Soviet Union	Number:	1
Province:……..	Timan-Pechora Basin	Number:	1008
Priority or Boutique……	Priority		
Total Petroleum System:……	Domanik-Paleozoic	Number:	100801
Assessment Unit:……	Northwest Izhma-Pechora Depression	Number:	10080101
* 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?……. 5 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……	0.4
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):…….. 0.4

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.	3	max no.	7
Gas fields:……min. no. (>0)	1	median no.	3	max no.	7

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	5	median size	10	max. size	150
Gas in gas fields (bcfg):……	min. size	30	median size	60	max. size	900

Assessment Unit (name, no.)
Northwest Izhma-Pechora Depression, 10080101

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	400	700	1000
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	35	40
Sulfur content of oil (%)……	0.1	0.7	2
Drilling Depth (m) ……	1500	2200	3800
Depth (m) of water (if applicable)……	0	8	15

Gas Fields:	minimum	median	maximum
Inert gas content (%)……	0.5	3	8
CO_2 content (%)……	0.1	0.6	4
Hydrogen-sulfide content (%)……	0	0.05	0.2
Drilling Depth (m)……	1500	2200	3800
Depth (m) of water (if applicable)……	0	8	15

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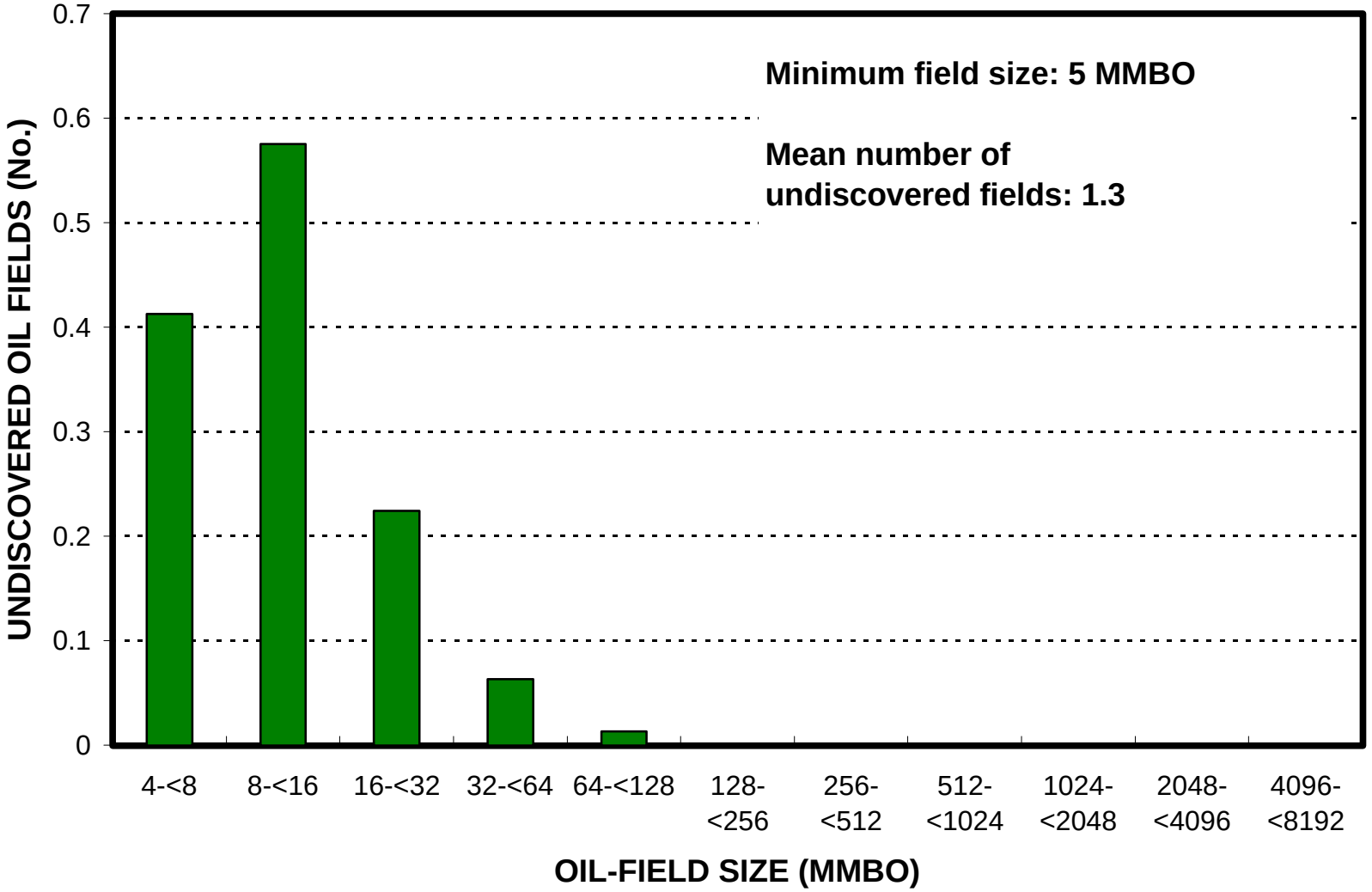
ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT TO COUNTRIES OR OTHER LAND PARCELS (uncertainty of fixed but unknown values)

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%)……		10	

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%)……		20	

Northwest Izhma-Pechora Depression, AU 10080101
Undiscovered Field-Size Distribution



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Undiscovered Field-Size Distribution