Devonian Synrift
Assessment Unit 10090102

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:
Devonian Synrift
Assessment Unit - 10090102

EXPLANATION

- Hydrography
- Shoreline
- Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint

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
Province: Dnieper-Donets Basin
Priority or Boutique: Priority
Total Petroleum System: Dnieper-Donets Paleozoic
Assessment Unit: Devonian Synriff
Number: 1

* 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)

Number of discovered fields exceeding minimum size:
Oil: 0  Gas: 0

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:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Probability of occurrence (0-1.0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CHARGE: Adequate petroleum charge for an undiscovered field ≥ minimum size</td>
<td>1.0</td>
</tr>
<tr>
<td>2. ROCKS: Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size</td>
<td>0.9</td>
</tr>
<tr>
<td>3. TIMING OF GEOLOGIC EVENTS: Favorable timing for an undiscovered field ≥ minimum size</td>
<td>1.0</td>
</tr>
</tbody>
</table>

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?
Oil fields: 2  median no. 20  max no. 50
Gas fields: 3  median no. 30  max no. 70

Size of Undiscovered Fields: What are the anticipated sizes (grown) of the above fields?
Oil in oil fields (mmbo): 7  median size 25  max. size 800
Gas in gas fields (bcfg): 42  median size 150  max. size 5000
### AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

<table>
<thead>
<tr>
<th></th>
<th>Oil Fields:</th>
<th>Gas fields:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>minimum</td>
<td>median</td>
</tr>
<tr>
<td>Gas/oil ratio (cfg/bo)</td>
<td>1000</td>
<td>2000</td>
</tr>
<tr>
<td>NGL/gas ratio (bngl/mmcf)</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>Liquids/gas ratio (bngl/mmcf)</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Oil/gas ratio (bo/mmcf)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

<table>
<thead>
<tr>
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<th>Oil Fields:</th>
<th>Gas Fields:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>minimum</td>
<td>median</td>
</tr>
<tr>
<td>API gravity (degrees)</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>Sulfur content of oil (%)</td>
<td>0.3</td>
<td>1</td>
</tr>
<tr>
<td>Drilling Depth (m)</td>
<td>3500</td>
<td>4500</td>
</tr>
<tr>
<td>Depth (m) of water (if applicable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inert gas content (%)</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>CO₂ content (%)</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>Hydrogen-sulfide content (%)</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Drilling Depth (m)</td>
<td>3500</td>
<td>4500</td>
</tr>
<tr>
<td>Depth (m) of water (if applicable)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 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:**
   - 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:**
   - 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:**
   - 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:**
   - Richness factor (unitless multiplier):
   - Volume % in parcel (areal % x richness factor): 0
   - Portion of volume % that is offshore (0-100%): 0
Devonian Synrift, AU 10090102
Undiscovered Field-Size Distribution

Minimum field size: 7 MMBO
Mean number of undiscovered fields: 19.4
Devonian Synrift, AU 10090102
Undiscovered Field-Size Distribution

Minimum field size: 42 BCFG
Mean number of undiscovered fields: 28.6