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Tanezzuft-Sbaa Structural/Stratigraphic Assessment Unit 20580301

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Grand Erg/Ahnet Basin Geologic Province 2058

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: Grand Erg/Ahnet Basin (2058) **GEOLOGIST:** T.R. Klett

TOTAL PETROLEUM SYSTEM: Tanezzuft-Sbaa (205803)

ASSESSMENT UNIT: Tanezzuft-Sbaa Structural/Stratigraphic (20580301)

DESCRIPTION: This total petroleum system and corresponding assessment unit coincide with the Sbaa Basin, bounded on the north and east by the Azzene High; and on the south and west by the Ougarta Range.

SOURCE ROCKS: The primary source rocks are Silurian (laterally equivalent to the Tanezzuft Formation) and Middle to Upper Devonian mudstone.

MATURATION: Petroleum generation occurred during the early stages of Hercynian deformation, but ceased when the basin was uplifted and eroded during later stages of this event. Because rocks in the Sbaa Basin were never buried too deeply, source rocks are less mature than those in the surrounding basins and oil was preserved.

MIGRATION: Petroleum migrated vertically along faults or fractures and laterally into adjacent or juxtaposed reservoirs.

RESERVOIR ROCKS: The known reservoir rocks are Cambrian-Ordovician marine and glacial sandstone, Devonian marine sandstone, and Carboniferous deltaic to marine sandstone including the Sbaa Formation.

TRAPS AND SEALS: Most of the known accumulations are in anticlines and faulted anticlines that formed during Hercynian deformation. Intraformational Paleozoic marine mudstone is the primary seal.

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Baghdadli, S.M., 1988, Sbaa Basin: a new oil producing region in Algeria [abs.]: American Association of Petroleum Geologists Bulletin, v. 72, n. 18, p. 985.

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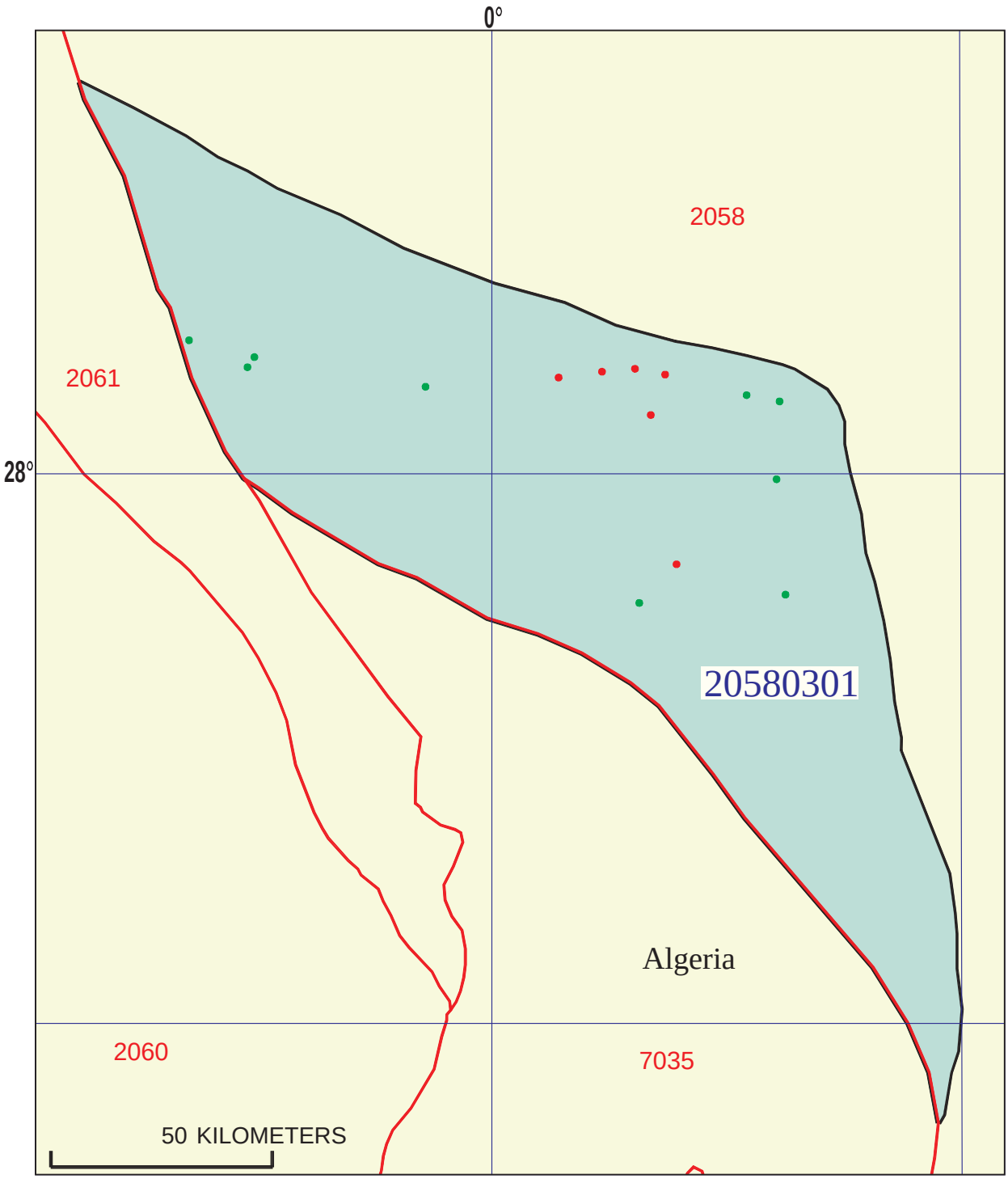

Tanezzuft-Sbaa Structural/Stratigraphic Assessment Unit - 20580301

EXPLANATION

- Hydrography
- Shoreline
- 2058 — Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 20580301 — Assessment unit code and boundary

Projection: Robinson. Central meridian: 0

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

Date:……..	6/17/98		
Assessment Geologist:……..	T.R. Klett		
Region:……..	Middle East and North Africa	Number:	2
Province:……..	Grand Erg/Ahnet Basin	Number:	2058
Priority or Boutique:……..	Priority		
Total Petroleum System:……	Tanezzuft-Sbaa	Number:	205803
Assessment Unit:……..	Tanezzuft-Sbaa Structural/Stratigraphic	Number:	20580301
* 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: 6 Gas: 4

Established (>13 fields) _____ Frontier (1-13 fields) X Hypothetical (no fields) _____

Median size (grown) of discovered oil fields (mmboe):
1st 3rd 49.8 2nd 3rd 29.9 3rd 3rd _____

Median size (grown) of discovered gas fields (bcfg):
1st 3rd 153.4 2nd 3rd 1516.5 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.	4	max no.	10
Gas fields:……min. no. (>0)	1	median no.	4	max no.	10

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	30	max. size	250
Gas in gas fields (bcfg):……	min. size	60	median size	80	max. size	3000

Assessment Unit (name, no.)
Tanezzuft-Sbaa Structural/Stratigraphic, 20580301

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	275	550	825
NGL/gas ratio (bngl/mmcfg)……	30	60	90

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	5	10	15
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)……	40	43	45
Sulfur content of oil (%)……			
Drilling Depth (m) ……	500	1250	2000
Depth (m) of water (if applicable)……			

Gas Fields:	minimum	median	maximum
Inert gas content (%)……			
CO_2 content (%)……			
Hydrogen-sulfide content (%)……			
Drilling Depth (m)……	1000	1750	2500
Depth (m) of water (if applicable)……			

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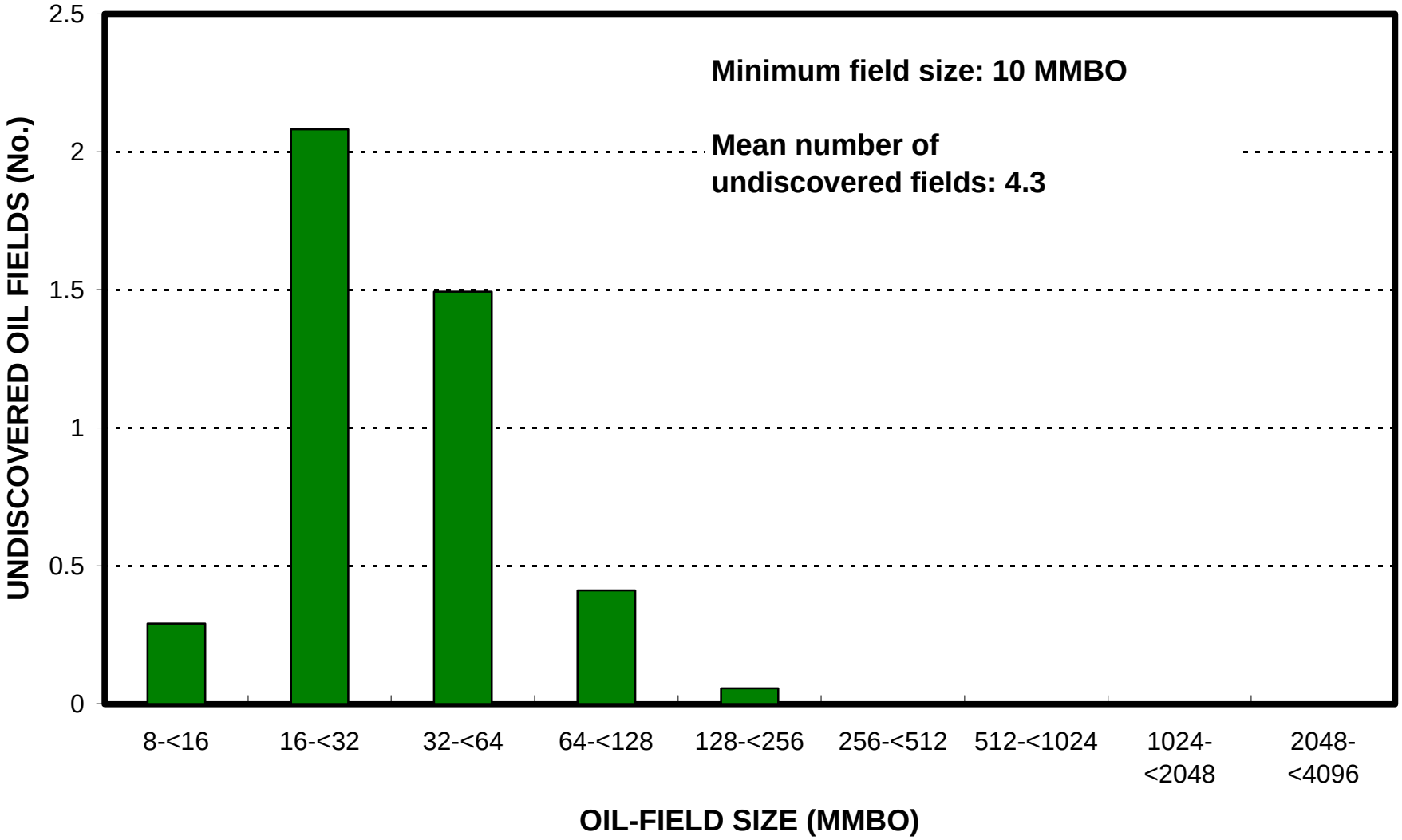
ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT TO COUNTRIES OR OTHER LAND PARCELS (uncertainty of fixed but unknown values)

1. Algeria 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%)……		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	

Tanezzuft-Sbaa Structural/Stratigraphic, AU 20580301
Undiscovered Field-Size Distribution



Tanezzuft-Sbaa Structural/Stratigraphic, AU 20580301
Undiscovered Field-Size Distribution