Go to Table of Contents

Go to index map

Murgab Depression Subsalt Assessment Unit 11540104

Murgab Depression Subsalt Assessment Unit 11540104

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: Murgab Depression Subsalt (11540104)

DESCRIPTION: Unit encompasses Jurassic rocks of the central basin area in boundaries of Kimmeridgian-Tithonian salt formation. Known fields are located dominantly in northern marginal zones of the unit; the rest of its area is mostly undrilled.

SOURCE ROCKS: Two source rock sections are Lower-Middle Jurassic continental to paralic coaly clastics and Oxfordian anoxic marine shale. The clastic rocks are more than 1,500 m thick and contain as much as 2.5 percent of TOC with Type III kerogen and thin coals. Oxfordian shales are a few tens of meters thick and contain as much as 15 percent TOC and Type II kerogen.

MATURATION: Both Jurassic source rock suites are buried deep in the gas window and are at high stages of maturity.

RESERVOIR ROCKS: The main reservoir rocks are Oxfordian carbonates (including reef facies). Middle Jurassic sandstones are productive in several fields in the northern marginal areas.

TRAPS: All known and majority of expected fields are in reefs, structural traps, or combination of the two.

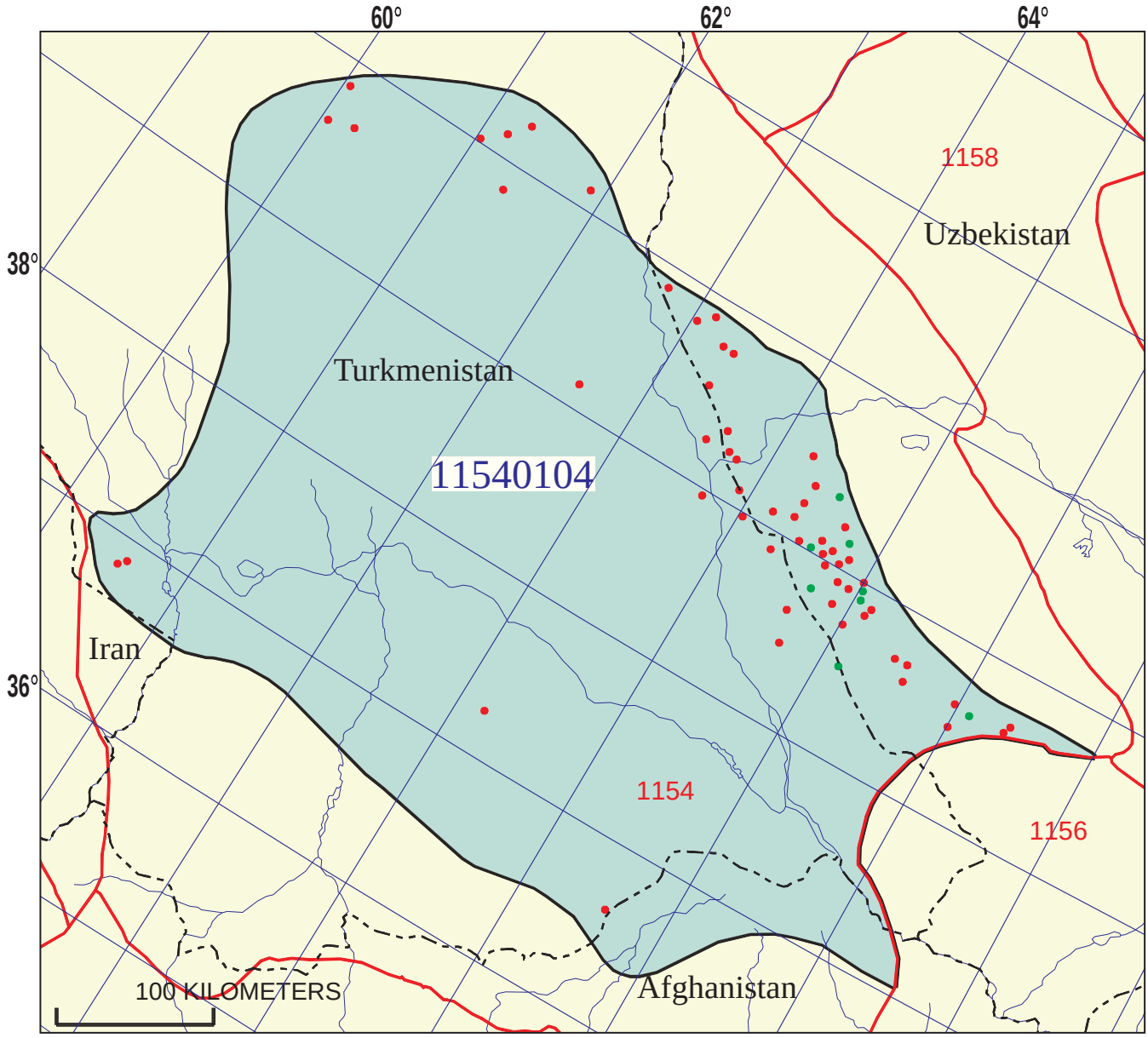
SEALS: The principal regional seal is the Kimmeridgian-Tithonian Gaurdak Formation composed of salt and anhydrite with local carbonate beds.

REFERENCES:

Gabrielyants, G.A., ed., 1991, Regional geology of petroleum-productive areas of the USSR (Regionalnaya geologiya neftegazonosnykh territoriy SSSR): Moscow, Nedra, 285 p.

Kleschev, K.A., Slavkin, V.S., Babaev, Kh.K., and Taganov, Yu.A., 1991, Geological-geophysical model of the Greater Yashlar area: Geologiya Nefti i Gaza, no. 2, p. 16-20.

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.



Murgab Depression Subsalt Assessment Unit - 11540104

EXPLANATION

- Hydrography
- Shoreline
- 1154 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 11540104 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:……..	Murgab Depression Subsalt	Number:	11540104
* Notes from Assessor	Sixteen 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?……. 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: 3 Gas: 42

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

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

Median size (grown) of discovered gas fields (bcfg):
1st 3rd 1104 2nd 3rd 434 3rd 3rd 175.5

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.	3	max no.	6
Gas fields:……min. no. (>0)	10	median no.	90	max no.	180

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	30	max. size	200
Gas in gas fields (bcfg):……min. size	30	median size	250	max. size	120000

Assessment Unit (name, no.)
Murgab Depression Subsalt, 11540104

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	5000	10000	15000
NGL/gas ratio (bngl/mmcfg)……	30	60	90

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……	15	25	40
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)……	38	42	50
Sulfur content of oil (%)……	0	0.2	0.5
Drilling Depth (m) ……	2000	2500	3000
Depth (m) of water (if applicable)……			

Gas Fields:	minimum	median	maximum
Inert gas content (%)……	1	2	6
CO_2 content (%)……	0.2	0.7	2
Hydrogen-sulfide content (%)……	0.5	2.5	4
Drilling Depth (m)……	3500	4500	6000
Depth (m) of water (if applicable)……			

Assessment Unit (name, no.)
Murgab Depression Subsalt, 11540104

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

1. Turkmenistan represents 85 areal % of the total assessment unit

Oil in Oil 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	

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		89	
Portion of volume % that is offshore (0-100%).....		0	

2. Uzbekistan represents 10 areal % of the total assessment unit

Oil in Oil 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	

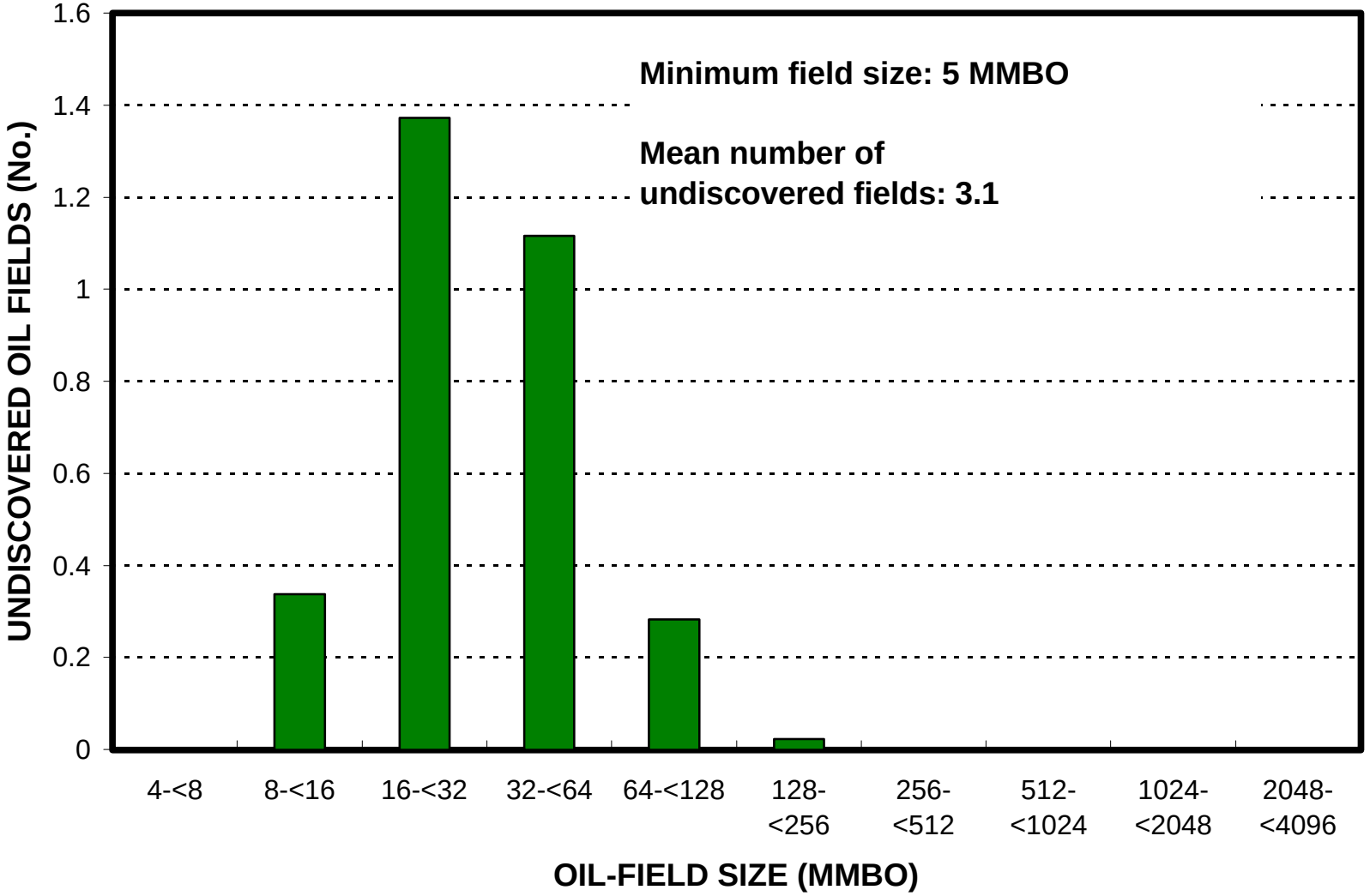
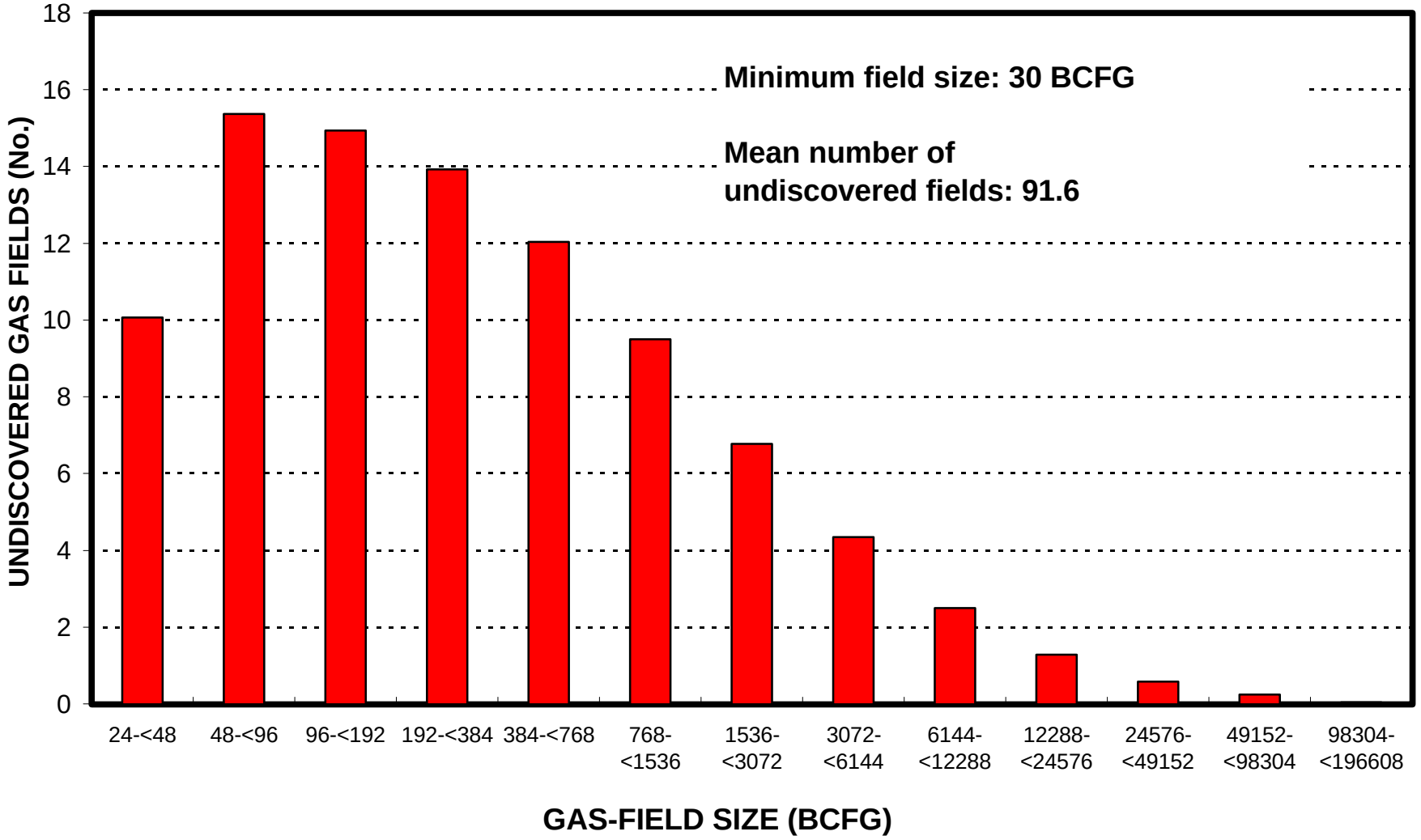
Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):.....			
Volume % in parcel (areal % x richness factor):...		3	
Portion of volume % that is offshore (0-100%).....		0	

3. Afghanistan represents 5 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):...		8	
Portion of volume % that is offshore (0-100%).....		0	

Murgab Depression Subsalt, AU 11540104
Undiscovered Field-Size Distribution



Murgab Depression Subsalt, AU 11540104
Undiscovered Field-Size Distribution