

**USGS WORLD PETROLEUM RESOURCES ASSESSMENT
INPUT FORM FOR CONVENTIONAL ASSESSMENT UNITS (Version 6.0, September 2, 2008)**

IDENTIFICATION INFORMATION

Assessment Geologist:	<u>J.K. Pitman</u>	Date:	<u>4-May-11</u>
Region:	<u>Middle East and North Africa</u>	Number:	<u>2</u>
Province:	<u>Rub al Khali Basin</u>	Number:	<u>2019</u>
Total Petroleum System:	<u>Mesozoic-Cenozoic Composite</u>	Number:	<u>201901</u>
Assessment Unit:	<u>South Gulf Basin and Oman Foreland Structures</u>	Number:	<u>20190102</u>
Scenario:	<u></u>	Number:	<u></u>
Based on Data as of:	<u>IHS (2009)</u>		
Notes from Assessor:	<u>NRG Field Reserve Growth Factor, 30 yrs</u>		

CHARACTERISTICS OF ASSESSMENT UNIT

Area of assessment unit: 70,941 square kilometers

Minimum assessed accumulation size: 5 MMBOE (grown)

No. of discovered accumulations exceeding minimum size: Oil: 31 Gas: 13

Uncertainty Class:	Check One	Number
Producing fields	<u>X</u>	<u></u>
Discoveries	<u></u>	<u></u>
Wells	<u></u>	<u></u>
Seismic	<u></u>	<u></u>
No seismic	<u></u>	<u></u>

Median size (grown) of discovered oil accumulations (MMBO):

1st 3rd	<u>103.9</u>	2nd 3rd	<u>10.4</u>	3rd 3rd	<u>5.2</u>
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Median size (grown) of discovered gas accumulations (BCFG):

1st 3rd	<u>403.3</u>	2nd 3rd	<u>573.2</u>	3rd 3rd	<u>38.6</u>
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ANALOGS USED IN ESTIMATING INPUT

<u>Purpose</u>	<u>Analog or Analog Set</u>
1 <u>Numbers</u>	<u>Compressional setting</u>
	<u></u>
	<u></u>
2 <u></u>	<u></u>
	<u></u>
	<u></u>
3 <u></u>	<u></u>
	<u></u>
	<u></u>
4 <u></u>	<u></u>
	<u></u>
	<u></u>

Assessment Unit (name, no.)
 Scenario (name, no.)

South Gulf Basin and Oman Foreland Structures, 20190102

Probability of occurrence (0-1.0)

Scenario Probability:

Assessment-Unit Probabilities: (Adequacy for at least one undiscovered field of minimum size)

<u>Attribute</u>	<u>Probability of occurrence (0-1.0)</u>
1. CHARGE: Adequate petroleum charge:	<u>1.0</u>
2. ROCKS: Adequate reservoirs, traps, and seals:	<u>1.0</u>
3. TIMING OF GEOLOGIC EVENTS: Favorable timing:	<u>1.0</u>
Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):	<u>1.0</u>

UNDISCOVERED ACCUMULATIONS

Number of Undiscovered Accumulations: How many undiscovered accumulations exist that are at least the minimum size?: (uncertainty of fixed but unknown values)

Total Accumulations:	minimum (>0) _____	median _____	maximum _____
Oil/Gas Mix:	minimum _____	mode _____	maximum _____
	_____ number of oil accumulations / number of total accumulations		
	_____ number of oil accumulations / number of gas accumulations		
	_____ number of gas accumulations / number of oil accumulations		
Oil Accumulations:	minimum <u>1</u>	median <u>30</u>	maximum <u>75</u>
Gas Accumulations:	minimum <u>1</u>	median <u>30</u>	maximum <u>75</u>

Sizes of Undiscovered Accumulations: What are the sizes (**grown**) of the above accumulations?: (variations in the sizes of undiscovered accumulations)

Oil in Oil Accumulations (MMBO):	minimum <u>5</u>	median <u>12</u>	maximum <u>100</u>
Gas in Gas Accumulations (BCFG):	minimum <u>30</u>	median <u>72</u>	maximum <u>500</u>

RATIOS FOR UNDISCOVERED ACCUMULATIONS, TO ASSESS COPRODUCTS

(variations in the properties of undiscovered accumulations)

<u>Oil Accumulations:</u>	minimum	median	maximum
Gas/oil ratio (CFG/BO):	<u>350</u>	<u>500</u>	<u>20000</u>
NGL/gas ratio (BNGL/MMCFG):	<u>2</u>	<u>60</u>	<u>240</u>
<u>Gas Accumulations:</u>	minimum	median	maximum
Liquids/gas ratio (BLIQ/MMCFG):	<u>10</u>	<u>60</u>	<u>135</u>

SELECTED ANCILLARY DATA FOR UNDISCOVERED ACCUMULATIONS

(variations in the properties of undiscovered accumulations)

<u>Oil Accumulations:</u>	minimum	median	maximum
API gravity (degrees):	<u>28</u>	<u>35</u>	<u>54</u>
Viscosity (centipoise):	<u>0.3</u>	<u>0.8</u>	<u>1.2</u>
Sulfur content of oil (%):	<u>0</u>	<u>0.6</u>	<u>1</u>
Depth (m) of water (if applicable):	<u>0</u>	<u>35</u>	<u>80</u>

	minimum	F75	median	F25	maximum
Drilling Depth (m):	<u>900</u>		<u>1750</u>		<u>5000</u>

<u>Gas Accumulations:</u>	minimum	median	maximum
Inert gas content (%):	<u>0.4</u>	<u>0.7</u>	<u>2.7</u>
Carbon dioxide content (%):	<u>2</u>	<u>3.9</u>	<u>14</u>
Hydrogen sulfide content (%):	<u>0</u>	<u>0</u>	<u>5.4</u>
Depth (m) of water (if applicable):	<u>1</u>	<u>35</u>	<u>80</u>

	minimum	F75	median	F25	maximum
Drilling Depth (m):	<u>2000</u>		<u>3850</u>		<u>5000</u>

ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO COUNTRIES

1 Offshore

29.95 area % of the AU

Oil in Oil Accumulations: 30.00 volume % of the AU
Gas in Gas Accumulations: 40.00 volume % of the AU

2 Onshore portion of:

Oman

18.78 area % of the AU

Oil in Oil Accumulations: 40.00 volume % of the AU
Gas in Gas Accumulations: 20.00 volume % of the AU

3 Onshore portion of:

Saudi Arabia

11.10 area % of the AU

Oil in Oil Accumulations: 0 volume % of the AU
Gas in Gas Accumulations: 0 volume % of the AU

4 Onshore portion of:

United Arab Emirates

40.17 area % of the AU

Oil in Oil Accumulations: 30.00 volume % of the AU
Gas in Gas Accumulations: 40.00 volume % of the AU

5 Onshore portion of:

 area % of the AU

Oil in Oil Accumulations: volume % of the AU
Gas in Gas Accumulations: volume % of the AU

6 Onshore portion of:

 area % of the AU

Oil in Oil Accumulations: volume % of the AU
Gas in Gas Accumulations: volume % of the AU

ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO PROVINCES

1 ONSHORE portion of: Fahud Salt Basin, 2016
4.94 area % of the AU
Oil in Oil Accumulations: 20.00 volume % of the AU
Gas in Gas Accumulations: 10.00 volume % of the AU

OFFSHORE portion of: _____
_____ area % of the AU
Oil in Oil Accumulations: _____ volume % of the AU
Gas in Gas Accumulations: _____ volume % of the AU

2 ONSHORE portion of: Rub al Khali Basin, 2019
65.11 area % of the AU
Oil in Oil Accumulations: 50.00 volume % of the AU
Gas in Gas Accumulations: 50.00 volume % of the AU

OFFSHORE portion of: Rub al Khali Basin, 2019
29.95 area % of the AU
Oil in Oil Accumulations: 30.00 volume % of the AU
Gas in Gas Accumulations: 40.00 volume % of the AU

3 ONSHORE portion of: _____
_____ area % of the AU
Oil in Oil Accumulations: _____ volume % of the AU
Gas in Gas Accumulations: _____ volume % of the AU

OFFSHORE portion of: _____
_____ area % of the AU
Oil in Oil Accumulations: _____ volume % of the AU
Gas in Gas Accumulations: _____ volume % of the AU

ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO PROVINCES

4 ONSHORE portion of: _____
_____ area % of the AU
Oil in Oil Accumulations: _____ volume % of the AU
Gas in Gas Accumulations: _____ volume % of the AU

OFFSHORE portion of: _____
_____ area % of the AU
Oil in Oil Accumulations: _____ volume % of the AU
Gas in Gas Accumulations: _____ volume % of the AU

5 ONSHORE portion of: _____
_____ area % of the AU
Oil in Oil Accumulations: _____ volume % of the AU
Gas in Gas Accumulations: _____ volume % of the AU

OFFSHORE portion of: _____
_____ area % of the AU
Oil in Oil Accumulations: _____ volume % of the AU
Gas in Gas Accumulations: _____ volume % of the AU

6 ONSHORE portion of: _____
_____ area % of the AU
Oil in Oil Accumulations: _____ volume % of the AU
Gas in Gas Accumulations: _____ volume % of the AU

OFFSHORE portion of: _____
_____ area % of the AU
Oil in Oil Accumulations: _____ volume % of the AU
Gas in Gas Accumulations: _____ volume % of the AU