Jurassic Reservoirs in South Gulf Suprasalt/Qatar Arch Structural, Assessment Unit 20190202
Assessment Results Summary

[MMBO, million barrels of oil. BCFG, billion cubic feet of gas. MMBNGL, million barrels of natural gas liquids. MFS, minimum field size assessed (MMBO or BCFG). Prob., probability (including both geologic and accessibility probabilities) of at least one field equal to or greater than the MFS. Results shown are fully risked estimates. For gas fields, all liquids are included under the NGL (natural gas liquids) category. F95 represents a 95 percent chance of at least the amount tabulated. Other fractiles are defined similarly. Fractiles are additive under the assumption of perfect positive correlation. Shading indicates not applicable]

Field Type	MFS	Prob. (0-1)	Undiscovered Resources												Largest Undiscovered Field (MMBO or BCFG)			
			Oil (MMBO)				Gas (BCFG)				NGL (MMBNGL)							
			F95	F50	F5	Mean	F95	F50	F5	Mean	F95	F50	F5	Mean	F95	F50	F5	Mean
Oil Fields	10	1.00	1,139	3,605	7,289	3,845	2,317	7,709	17,088	8,463	131	451	1,081	508	169	463	1,162	534
Gas Fields	60						990	3,554	8,465	3,994	40	152	393	176	262	759	2,332	946
Total		1.00	1,139	3,605	7,289	3,845	3,307	11,263	25,553	12,457	171	603	1,474	684				

Forecast: Oil in Oil Fields

Summary:
Display range is from 0.00 to 9,000.00 MMBO
Entire range is from 116.08 to 12,230.59 MMBO
After 50,000 trials, the standard error of the mean is 8.44

Statistics:	Value
Trials	50000
Mean	3,845.25
Median	3,604.54
Mode	---
Standard Deviation	1,886.47
Variance	3,558,781.92
Skewness	0.53
Kurtosis	2.87
Coefficient of Variability	0.49
Range Minimum	116.08
Range Maximum	12,230.59
Range Width	12,114.51
Mean Standard Error	8.44

Forecast: Oil in Oil Fields

Forecast: Oil in Oil Fields (cont'd)

Percentiles:

Percentile	MMBO
100%	116.08
95%	1,138.93
90%	1,556.51
85%	1,877.24
80%	2,149.65
75%	2,398.46
70%	2,647.12
65%	2,886.13
60%	3,119.13
55%	3,360.80
50%	3,604.54
45%	3,869.09
40%	4,145.28
35%	4,440.08
30%	4,757.78
25%	5,086.62
20%	5,478.63
15%	5,927.63
10%	6,474.52
5%	7,288.87
0%	12,230.59

End of Forecast

Forecast: Gas in Oil Fields

Summary:
    Display range is from 0.00 to 22,500.00 BCFG
    Entire range is from 181.68 to 36,209.50 BCFG
    After 50,000 trials, the standard error of the mean is 20.47

Statistics:	Value
Trials	50000
Mean	8,462.81
Median	7,709.24
Mode	---
Standard Deviation	4,578.02
Variance	20,958,312.86
Skewness	0.83
Kurtosis	3.61
Coefficient of Variability	0.54
Range Minimum	181.68
Range Maximum	36,209.50
Range Width	36,027.82
Mean Standard Error	20.47
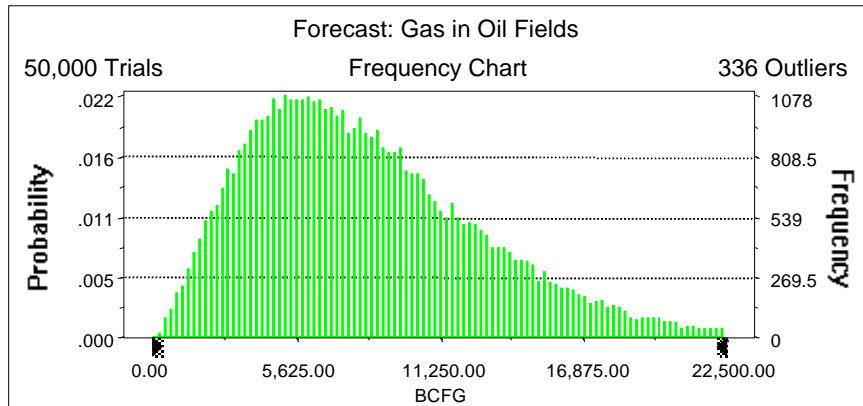
Forecast: Gas in Oil Fields

50,000 Trials   Frequency Chart   336 Outliers

Forecast: Gas in Oil Fields (cont'd)

Percentiles:

Percentile	BCFG
100%	181.68
95%	2,316.80
90%	3,182.47
85%	3,872.58
80%	4,459.92
75%	5,007.83
70%	5,540.53
65%	6,075.46
60%	6,606.95
55%	7,148.05
50%	7,709.24
45%	8,316.22
40%	8,931.45
35%	9,600.56
30%	10,326.77
25%	11,159.95
20%	12,155.83
15%	13,296.47
10%	14,789.09
5%	17,088.03
0%	36,209.50

End of Forecast

Forecast: NGL in Oil Fields

Summary:
  Display range is from 0.00 to 1,500.00 MMBNGL
  Entire range is from 10.74 to 2,544.24 MMBNGL
  After 50,000 trials, the standard error of the mean is 1.34

Statistics:	Value
Trials	50000
Mean	508.49
Median	451.11
Mode	---
Standard Deviation	298.94
Variance	89,367.64
Skewness	1.08
Kurtosis	4.55
Coefficient of Variability	0.59
Range Minimum	10.74
Range Maximum	2,544.24
Range Width	2,533.50
Mean Standard Error	1.34
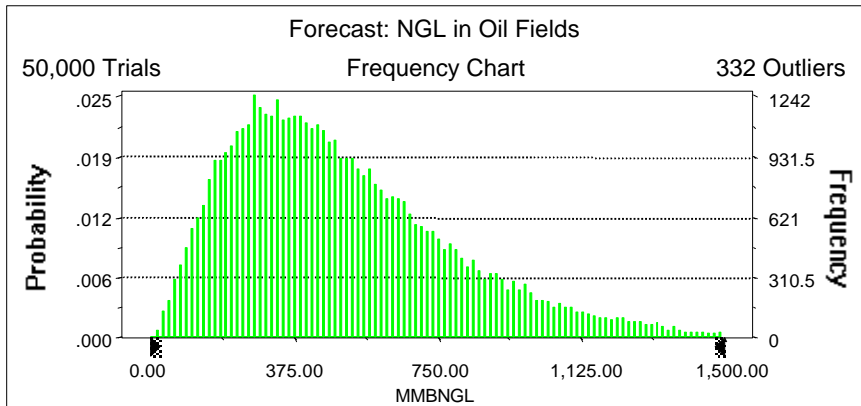
Forecast: NGL in Oil Fields

Forecast: NGL in Oil Fields (cont'd)

Percentiles:

Percentile	MMBNGL
100%	10.74
95%	130.53
90%	178.09
85%	218.41
80%	253.63
75%	285.95
70%	318.45
65%	350.46
60%	383.52
55%	416.76
50%	451.11
45%	487.69
40%	528.05
35%	571.09
30%	618.26
25%	671.57
20%	734.09
15%	810.74
10%	916.61
5%	1,080.96
0%	2,544.24

End of Forecast

Forecast: Largest Oil Field

Summary:
  Display range is from 0.00 to 1,500.00 MMBO
  Entire range is from 17.38 to 1,499.81 MMBO
  After 50,000 trials, the standard error of the mean is 1.35

Statistics:	Value
Trials	50000
Mean	533.99
Median	462.92
Mode	---
Standard Deviation	300.80
Variance	90,480.36
Skewness	1.00
Kurtosis	3.51
Coefficient of Variability	0.56
Range Minimum	17.38
Range Maximum	1,499.81
Range Width	1,482.43
Mean Standard Error	1.35
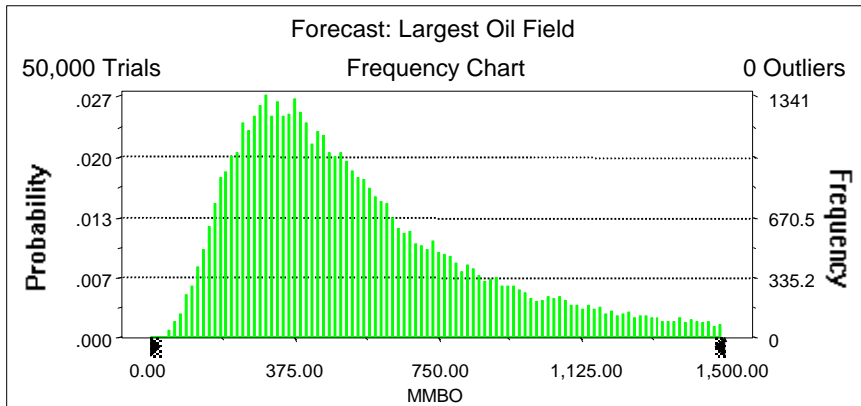
Forecast: Largest Oil Field

50,000 Trials   Frequency Chart   0 Outliers

Forecast: Largest Oil Field (cont'd)

Percentiles:

Percentile	MMBO
100%	17.38
95%	169.06
90%	212.45
85%	247.98
80%	279.73
75%	308.54
70%	337.83
65%	368.01
60%	397.01
55%	428.91
50%	462.92
45%	499.31
40%	538.20
35%	581.19
30%	630.58
25%	692.05
20%	765.82
15%	856.02
10%	978.58
5%	1,162.04
0%	1,499.81

End of Forecast

Forecast: Gas in Gas Fields

Summary:
    Display range is from 0.00 to 11,000.00 BCFG
    Entire range is from 217.63 to 16,047.17 BCFG
    After 50,000 trials, the standard error of the mean is 10.58

Statistics:	Value
Trials	50000
Mean	3,993.90
Median	3,554.24
Mode	---
Standard Deviation	2,364.98
Variance	5,593,127.42
Skewness	0.84
Kurtosis	3.39
Coefficient of Variability	0.59
Range Minimum	217.63
Range Maximum	16,047.17
Range Width	15,829.54
Mean Standard Error	10.58
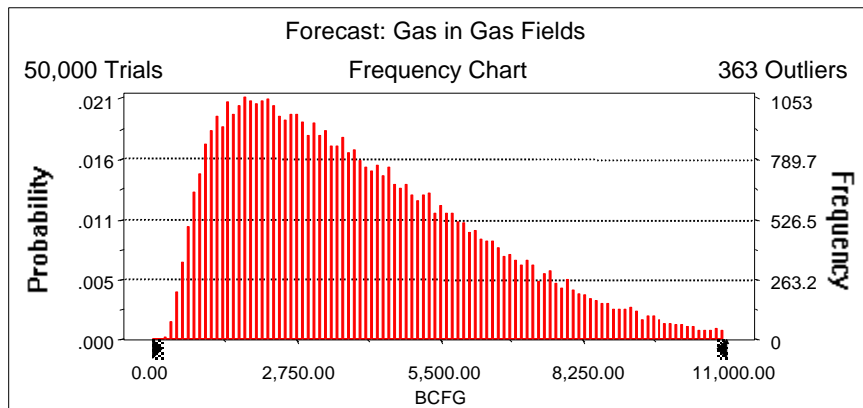
Forecast: Gas in Gas Fields

Forecast: Gas in Gas Fields (cont'd)

Percentiles:

Percentile	BCFG
100%	217.63
95%	989.75
90%	1,295.21
85%	1,575.59
80%	1,843.28
75%	2,110.79
70%	2,373.90
65%	2,652.78
60%	2,936.42
55%	3,235.78
50%	3,554.24
45%	3,878.39
40%	4,234.30
35%	4,605.78
30%	5,020.37
25%	5,470.33
20%	5,972.22
15%	6,565.09
10%	7,326.27
5%	8,465.00
0%	16,047.17

End of Forecast

Forecast: NGL in Gas Fields

Summary:
Display range is from 0.00 to 500.00 MMBNGL
Entire range is from 6.71 to 885.24 MMBNGL
After 50,000 trials, the standard error of the mean is 0.50

Statistics:	Value
Trials	50000
Mean	175.71
Median	152.01
Mode	---
Standard Deviation	111.87
Variance	12,515.31
Skewness	1.08
Kurtosis	4.25
Coefficient of Variability	0.64
Range Minimum	6.71
Range Maximum	885.24
Range Width	878.53
Mean Standard Error	0.50
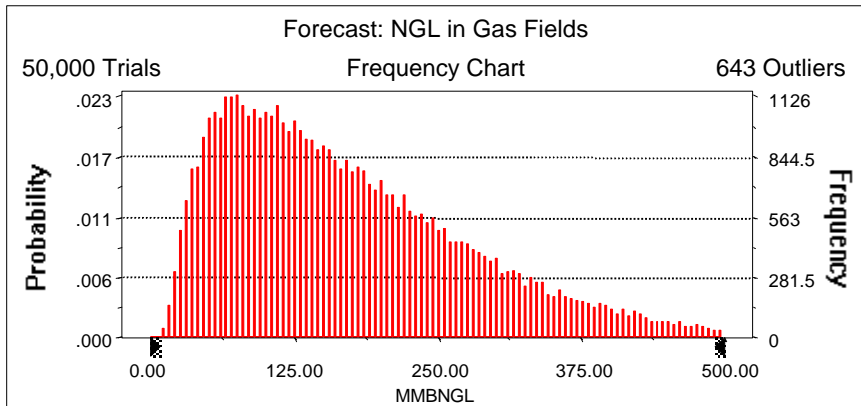
Forecast: NGL in Gas Fields

Forecast: NGL in Gas Fields (cont'd)

Percentiles:

Percentile	MMBNGL
100%	6.71
95%	40.37
90%	54.09
85%	65.99
80%	77.20
75%	88.76
70%	100.77
65%	112.69
60%	125.30
55%	138.11
50%	152.01
45%	166.77
40%	182.45
35%	199.36
30%	217.84
25%	238.64
20%	262.45
15%	291.49
10%	330.78
5%	392.60
0%	885.24

End of Forecast

Forecast: Largest Gas Field

Summary:
    Display range is from 0.00 to 2,750.00 BCFG
    Entire range is from 74.86 to 3,999.37 BCFG
    After 50,000 trials, the standard error of the mean is 2.94

Statistics:	Value
Trials	50000
Mean	945.50
Median	758.72
Mode	---
Standard Deviation	657.06
Variance	431,725.09
Skewness	1.68
Kurtosis	6.19
Coefficient of Variability	0.69
Range Minimum	74.86
Range Maximum	3,999.37
Range Width	3,924.51
Mean Standard Error	2.94
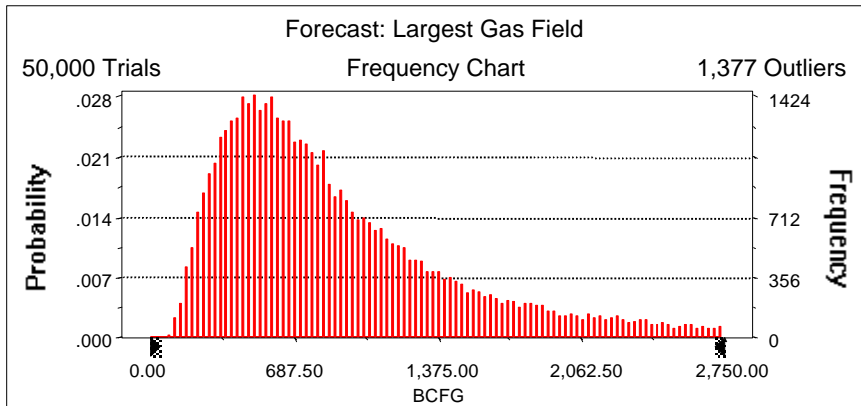
Forecast: Largest Gas Field

50,000 Trials   Frequency Chart   1,377 Outliers

Forecast: Largest Gas Field (cont'd)

Percentiles:

Percentile	BCFG
100%	74.86
95%	262.11
90%	332.59
85%	389.74
80%	443.19
75%	492.49
70%	541.55
65%	591.30
60%	641.86
55%	698.11
50%	758.72
45%	822.68
40%	894.69
35%	977.81
30%	1,075.74
25%	1,190.10
20%	1,331.98
15%	1,531.08
10%	1,827.25
5%	2,332.11
0%	3,999.37

End of Forecast

Assumptions

Assumption: Number of Oil Fields

Triangular distribution with parameters:
Minimum	5
Likeliest	45
Maximum	140

Selected range is from 5 to 140
Mean value in simulation was 63

Number of Oil Fields
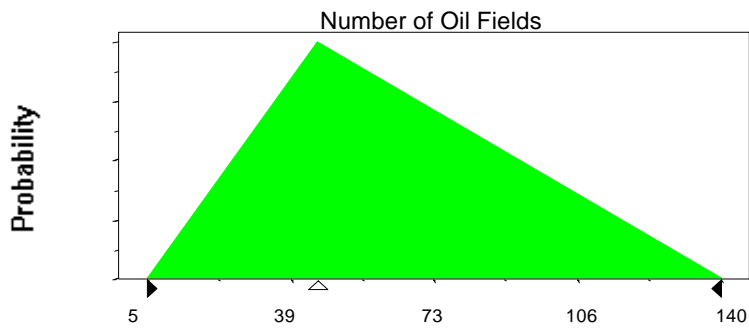
Assumption: Sizes of Oil Fields

Lognormal distribution with parameters: Shifted parameters
Mean	52.92	62.92
Standard Deviation	129.66	129.66

Selected range is from 0.00 to 1,490.00   10.00 to 1,500.00
Mean value in simulation was 49.95   59.95

Assumption: Sizes of Oil Fields (cont'd)

Sizes of Oil Fields
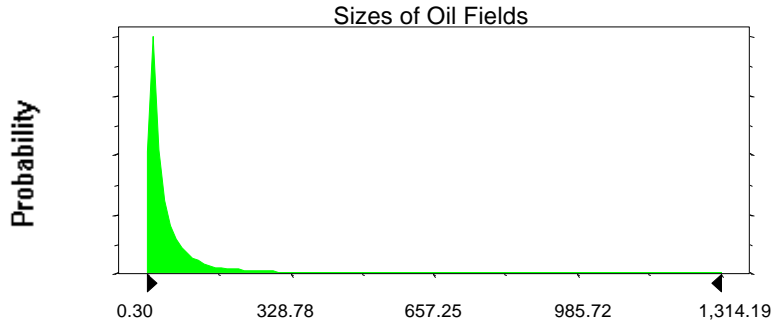
Assumption: GOR in Oil Fields

Triangular distribution with parameters:

Minimum	1,100.00
Likeliest	2,200.00
Maximum	3,300.00

Selected range is from 1,100.00 to 3,300.00
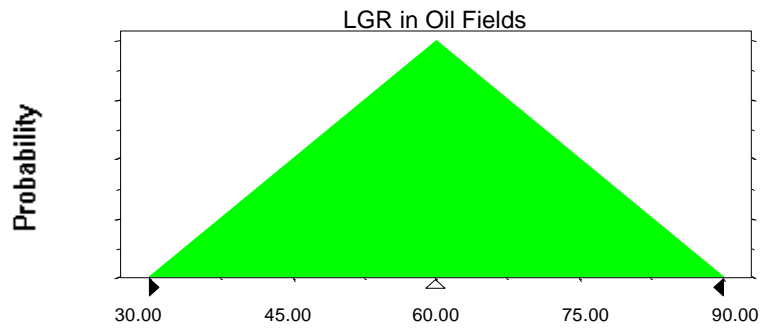Mean value in simulation was 2,200.55
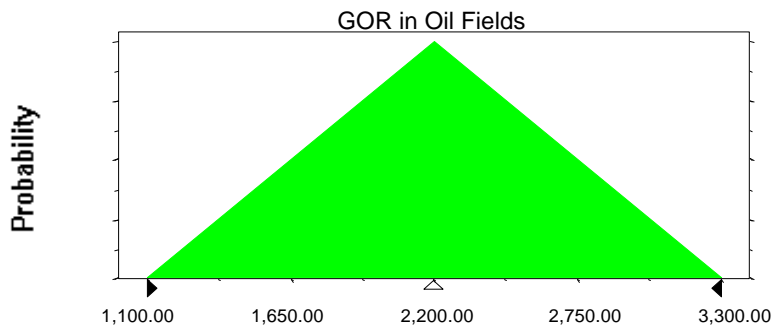
GOR in Oil Fields

Assumption: LGR in Oil Fields

Triangular distribution with parameters:
Minimum	30.00
Likeliest	60.00
Maximum	90.00

Selected range is from 30.00 to 90.00
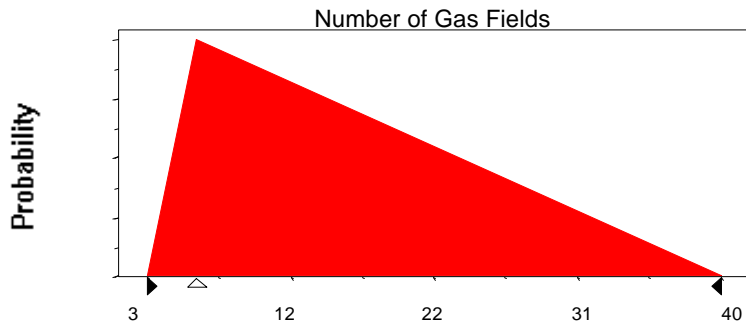Mean value in simulation was 60.08

LGR in Oil Fields

Assumption: Number of Gas Fields

Triangular distribution with parameters:
Minimum	3
Likeliest	6
Maximum	40

Selected range is from 3 to 40
Mean value in simulation was 16

Assumption: Number of Gas Fields (cont'd)

Number of Gas Fields

Assumption: Sizes of Gas Fields

Lognormal distribution with parameters:		Shifted parameters	
Mean	190.13		250.13
Standard Deviation	353.80		353.8

Selected range is from 0.00 to 3,940.00   60.00 to 4,000.00
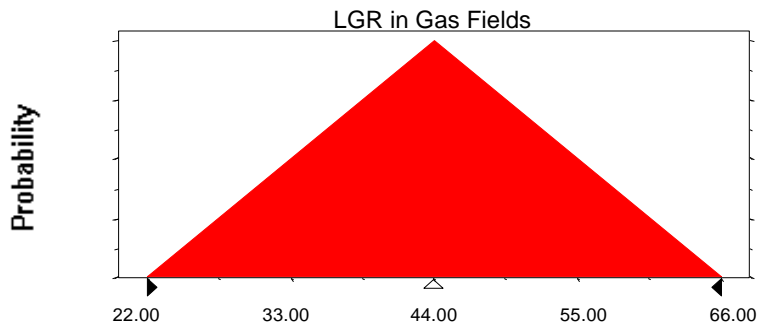Mean value in simulation was 184.29   244.29
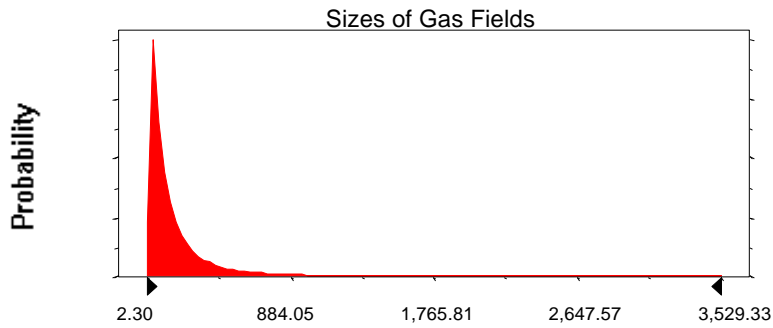
Sizes of Gas Fields

Assumption: LGR in Gas Fields

   Triangular distribution with parameters:
   Minimum   22.00
   Likeliest   44.00
   Maximum   66.00

   Selected range is from 22.00 to 66.00
   Mean value in simulation was 44.01

LGR in Gas Fields

End of Assumptions

Simulation started on 12/28/99 at 16:32:54
Simulation stopped on 12/28/99 at 17:19:34