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South Mangyshlak (Entire), Assessment Unit 11090201
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	3	1.00	304	615	1,121	651	375	898	2,053	1,014	15	36	83	41	42	97	246	114
Gas Fields	18						521	1,166	2,247	1,248	12	29	59	31	118	252	620	293
Total		1.00	304	615	1,121	651	896	2,064	4,300	2,262	27	64	142	72				

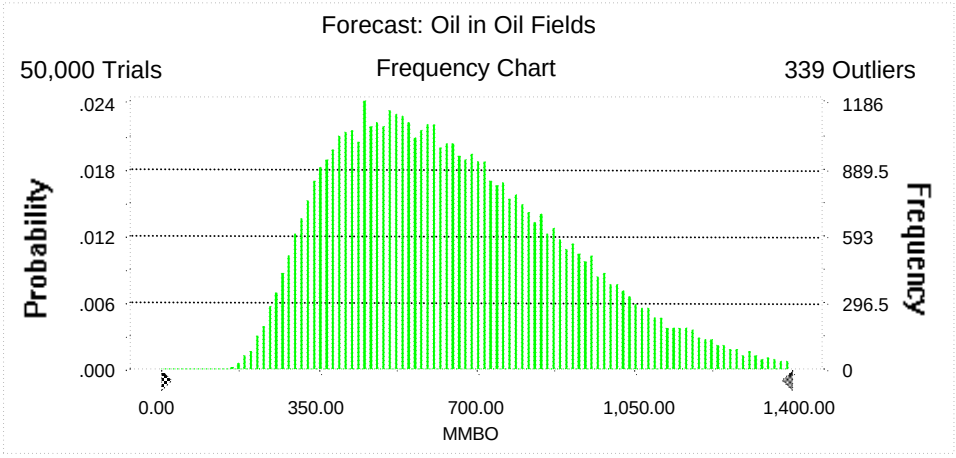
11090201
South Mangyshlak (Entire)
Monte Carlo Results

Forecast: Oil in Oil Fields

Summary:

Display range is from 0.00 to 1,400.00 MMBO
Entire range is from 141.85 to 2,044.29 MMBO
After 50,000 trials, the standard error of the mean is 1.14

Statistics:	Value
Trials	50000
Mean	651.29
Median	614.55
Mode	---
Standard Deviation	254.73
Variance	64,884.88
Skewness	0.69
Kurtosis	3.25
Coefficient of Variability	0.39
Range Minimum	141.85
Range Maximum	2,044.29
Range Width	1,902.44
Mean Standard Error	1.14



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South Mangyshlak (Entire)
Monte Carlo Results

Forecast: Oil in Oil Fields (cont'd)

Percentiles:

Percentile	MMBO
100%	141.85
95%	303.83
90%	350.53
85%	388.12
80%	421.93
75%	455.24
70%	486.46
65%	518.02
60%	548.98
55%	582.65
50%	614.55
45%	649.99
40%	686.50
35%	724.01
30%	766.00
25%	811.94
20%	864.52
15%	926.11
10%	1,002.65
5%	1,121.30
0%	2,044.29

End of Forecast

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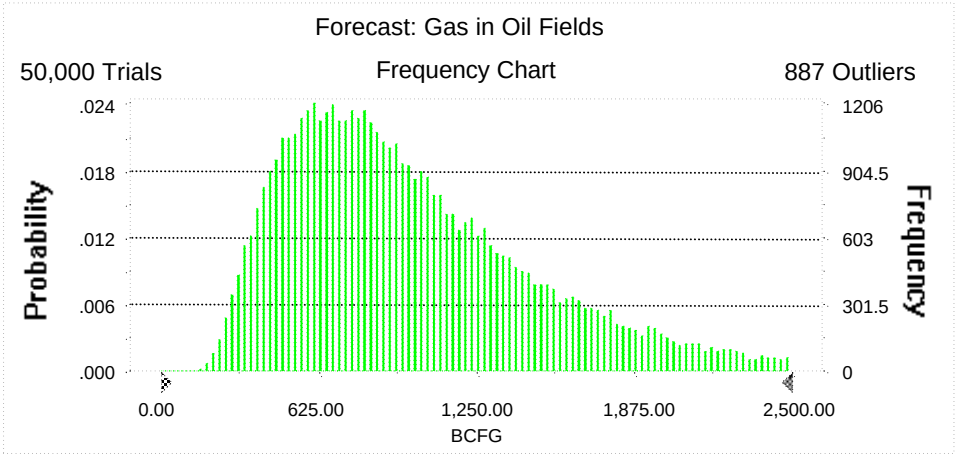
South Mangyshlak (Entire)
Monte Carlo Results

Forecast: Gas in Oil Fields

Summary:

Display range is from 0.00 to 2,500.00 BCFG
Entire range is from 121.98 to 4,364.88 BCFG
After 50,000 trials, the standard error of the mean is 2.38

Statistics:	Value
Trials	50000
Mean	1,014.34
Median	897.61
Mode	---
Standard Deviation	533.28
Variance	284,387.26
Skewness	1.26
Kurtosis	5.06
Coefficient of Variability	0.53
Range Minimum	121.98
Range Maximum	4,364.88
Range Width	4,242.90
Mean Standard Error	2.38



11090201
South Mangyshlak (Entire)
Monte Carlo Results

Forecast: Gas in Oil Fields (cont'd)

Percentiles:

Percentile	BCFG
100%	121.98
95%	375.27
90%	450.69
85%	513.02
80%	569.65
75%	622.37
70%	676.25
65%	730.22
60%	784.30
55%	839.22
50%	897.61
45%	959.37
40%	1,027.93
35%	1,101.26
30%	1,187.59
25%	1,283.04
20%	1,397.10
15%	1,543.14
10%	1,739.61
5%	2,052.52
0%	4,364.88

End of Forecast

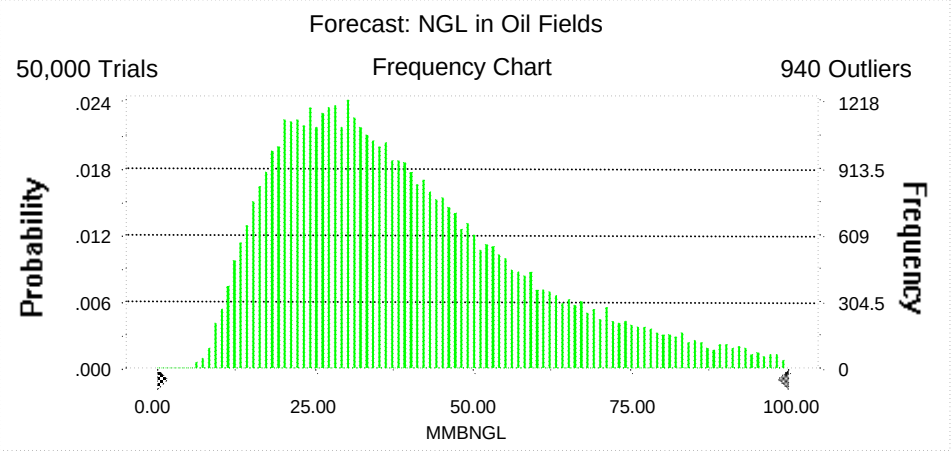
11090201
South Mangyshlak (Entire)
Monte Carlo Results

Forecast: NGL in Oil Fields

Summary:

Display range is from 0.00 to 100.00 MMBNGL
Entire range is from 4.42 to 202.29 MMBNGL
After 50,000 trials, the standard error of the mean is 0.10

Statistics:	Value
Trials	50000
Mean	40.57
Median	35.80
Mode	---
Standard Deviation	21.78
Variance	474.46
Skewness	1.31
Kurtosis	5.35
Coefficient of Variability	0.54
Range Minimum	4.42
Range Maximum	202.29
Range Width	197.87
Mean Standard Error	0.10



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South Mangyshlak (Entire)
Monte Carlo Results

Forecast: NGL in Oil Fields (cont'd)

Percentiles:

Percentile	MMBNGL
100%	4.42
95%	14.65
90%	17.73
85%	20.24
80%	22.44
75%	24.65
70%	26.84
65%	28.95
60%	31.11
55%	33.36
50%	35.80
45%	38.31
40%	41.02
35%	44.03
30%	47.31
25%	51.23
20%	55.90
15%	61.94
10%	70.27
5%	83.19
0%	202.29

End of Forecast

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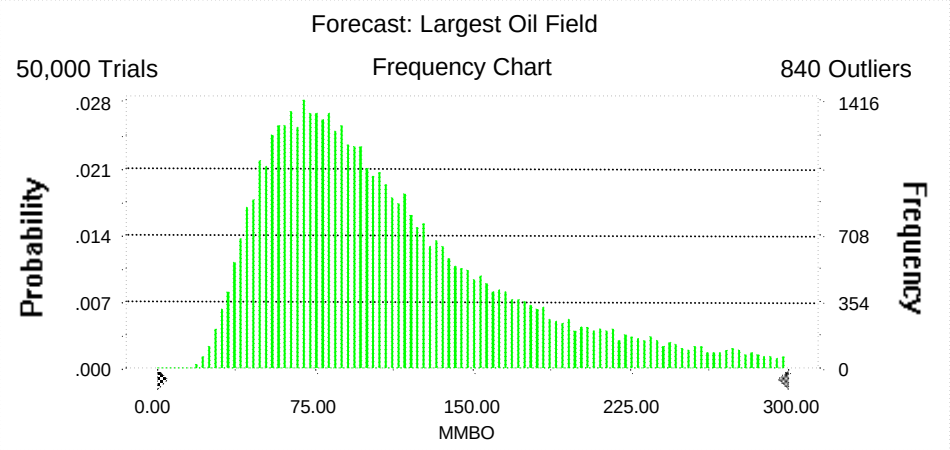
South Mangyshlak (Entire)
Monte Carlo Results

Forecast: Largest Oil Field

Summary:

Display range is from 0.00 to 300.00 MMBO
Entire range is from 14.66 to 349.81 MMBO
After 50,000 trials, the standard error of the mean is 0.28

Statistics:	Value
Trials	50000
Mean	113.63
Median	97.39
Mode	---
Standard Deviation	62.63
Variance	3,922.63
Skewness	1.27
Kurtosis	4.46
Coefficient of Variability	0.55
Range Minimum	14.66
Range Maximum	349.81
Range Width	335.15
Mean Standard Error	0.28



11090201
South Mangyshlak (Entire)
Monte Carlo Results

Forecast: Largest Oil Field (cont'd)

Percentiles:

Percentile	MMBO
100%	14.66
95%	42.35
90%	50.31
85%	56.84
80%	62.68
75%	68.39
70%	73.76
65%	79.36
60%	84.99
55%	91.04
50%	97.39
45%	104.43
40%	111.97
35%	120.29
30%	130.13
25%	142.05
20%	156.89
15%	175.84
10%	203.01
5%	245.86
0%	349.81

End of Forecast

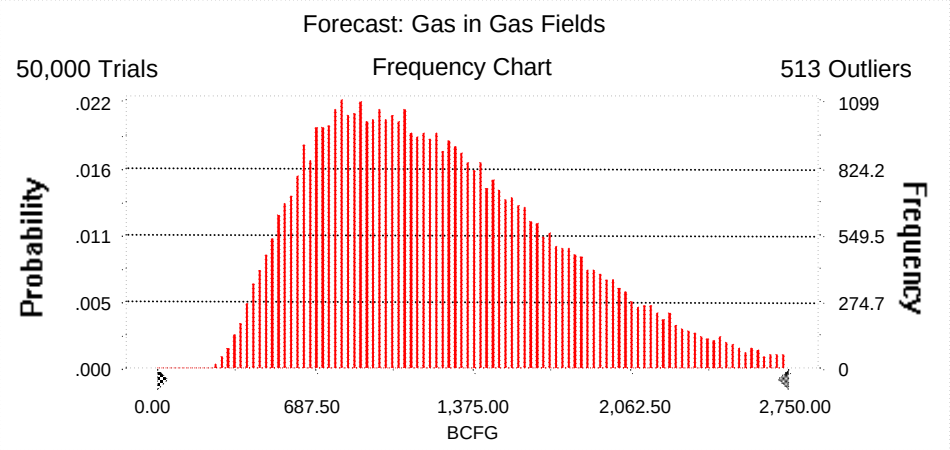
11090201
South Mangyshlak (Entire)
Monte Carlo Results

Forecast: Gas in Gas Fields

Summary:

Display range is from 0.00 to 2,750.00 BCFG
Entire range is from 218.95 to 4,207.48 BCFG
After 50,000 trials, the standard error of the mean is 2.41

Statistics:	Value
Trials	50000
Mean	1,247.68
Median	1,166.06
Mode	---
Standard Deviation	538.63
Variance	290,122.07
Skewness	0.76
Kurtosis	3.43
Coefficient of Variability	0.43
Range Minimum	218.95
Range Maximum	4,207.48
Range Width	3,988.53
Mean Standard Error	2.41



11090201
South Mangyshlak (Entire)
Monte Carlo Results

Forecast: Gas in Gas Fields (cont'd)

Percentiles:

Percentile	BCFG
100%	218.95
95%	521.18
90%	621.86
85%	698.91
80%	768.07
75%	832.01
70%	897.18
65%	963.61
60%	1,030.06
55%	1,096.18
50%	1,166.06
45%	1,239.24
40%	1,314.64
35%	1,395.08
30%	1,481.54
25%	1,578.36
20%	1,690.19
15%	1,825.18
10%	1,992.57
5%	2,247.04
0%	4,207.48

End of Forecast

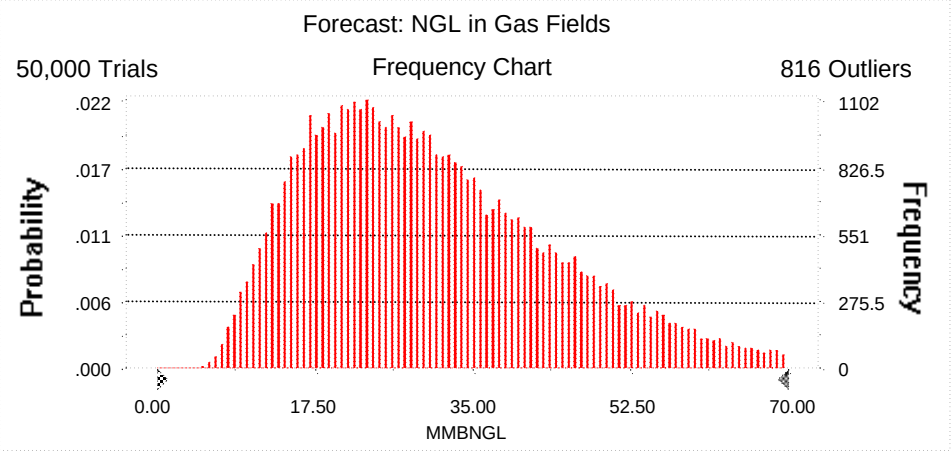
11090201
South Mangyshlak (Entire)
Monte Carlo Results

Forecast: NGL in Gas Fields

Summary:

Display range is from 0.00 to 70.00 MMBNGL
Entire range is from 4.20 to 122.60 MMBNGL
After 50,000 trials, the standard error of the mean is 0.07

Statistics:	Value
Trials	50000
Mean	31.20
Median	28.67
Mode	---
Standard Deviation	14.56
Variance	212.13
Skewness	0.95
Kurtosis	4.05
Coefficient of Variability	0.47
Range Minimum	4.20
Range Maximum	122.60
Range Width	118.41
Mean Standard Error	0.07



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South Mangyshlak (Entire)
Monte Carlo Results

Forecast: NGL in Gas Fields (cont'd)

Percentiles:

Percentile	MMBNGL
100%	4.20
95%	12.29
90%	14.80
85%	16.78
80%	18.54
75%	20.27
70%	21.89
65%	23.51
60%	25.18
55%	26.91
50%	28.67
45%	30.50
40%	32.47
35%	34.54
30%	36.91
25%	39.61
20%	42.65
15%	46.37
10%	51.03
5%	58.61
0%	122.60

End of Forecast

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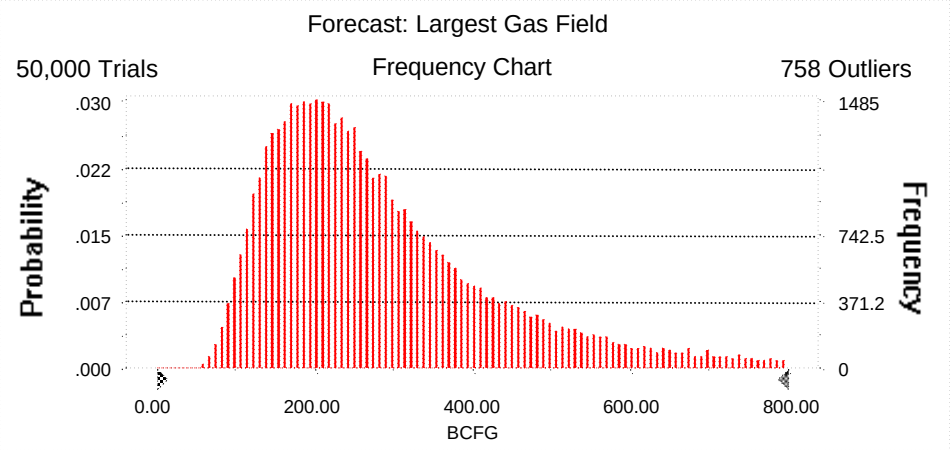
South Mangyshlak (Entire)
Monte Carlo Results

Forecast: Largest Gas Field

Summary:

Display range is from 0.00 to 800.00 BCFG
Entire range is from 47.98 to 999.58 BCFG
After 50,000 trials, the standard error of the mean is 0.71

Statistics:	Value
Trials	50000
Mean	292.63
Median	251.54
Mode	---
Standard Deviation	158.20
Variance	25,026.97
Skewness	1.50
Kurtosis	5.58
Coefficient of Variability	0.54
Range Minimum	47.98
Range Maximum	999.58
Range Width	951.61
Mean Standard Error	0.71



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South Mangyshlak (Entire)
Monte Carlo Results

Forecast: Largest Gas Field (cont'd)

Percentiles:

Percentile	BCFG
100%	47.98
95%	117.65
90%	137.61
85%	153.37
80%	168.06
75%	181.77
70%	195.22
65%	208.63
60%	222.28
55%	236.69
50%	251.54
45%	267.89
40%	286.27
35%	306.12
30%	330.00
25%	358.08
20%	393.05
15%	440.58
10%	504.95
5%	620.16
0%	999.58

End of Forecast

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South Mangyshlak (Entire)
Monte Carlo Results

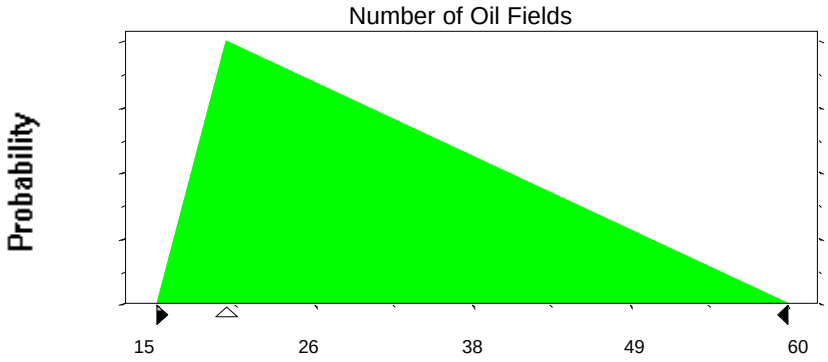
Assumptions

Assumption: Number of Oil Fields

Triangular distribution with parameters:

Minimum	15
Likeliest	20
Maximum	60

Selected range is from 15 to 60
Mean value in simulation was 32



Assumption: Sizes of Oil Fields

Lognormal distribution with parameters:		Shifted parameters
Mean	18.10	21.1
Standard Deviation	31.57	31.57
Selected range is from	0.00 to 347.00	3.00 to 350.00
Mean value in simulation was	17.95	20.95

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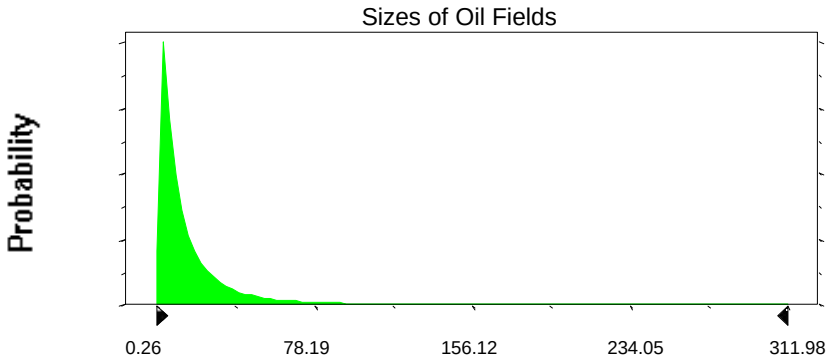
Assumption: Sizes of Oil Fields (cont'd)

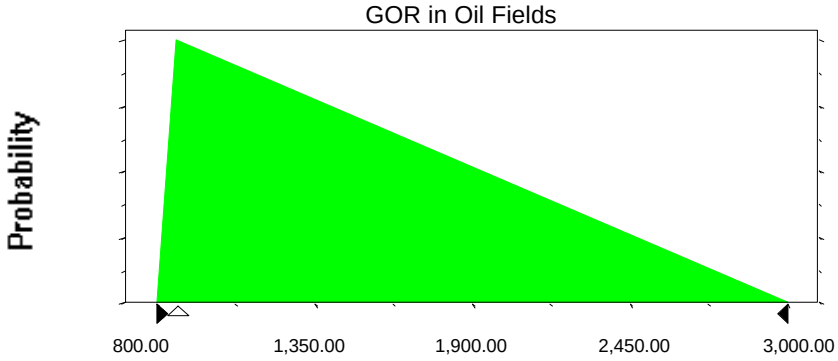


Assumption: GOR in Oil Fields

Triangular distribution with parameters:

Minimum	800.00
Likeliest	871.91
Maximum	3,000.00

Selected range is from 800.00 to 3,000.00
Mean value in simulation was 1,557.36



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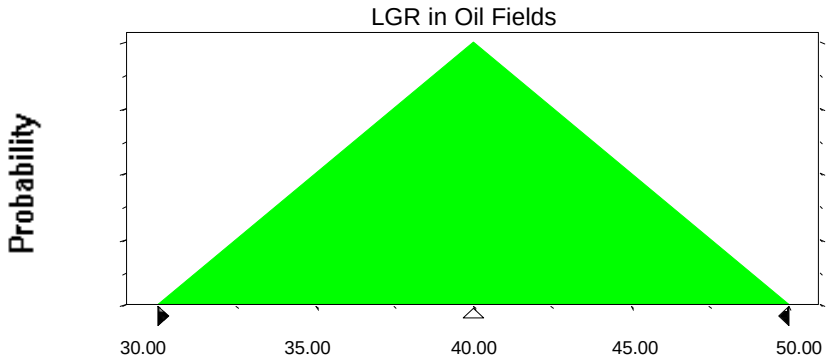
South Mangyshlak (Entire)
Monte Carlo Results

Assumption: LGR in Oil Fields

Triangular distribution with parameters:

Minimum	30.00
Likeliest	40.00
Maximum	50.00

Selected range is from 30.00 to 50.00
Mean value in simulation was 40.00



Assumption: Number of Gas Fields

Triangular distribution with parameters:

Minimum	5
Likeliest	8
Maximum	25

Selected range is from 5 to 25
Mean value in simulation was 13

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South Mangyshlak (Entire)
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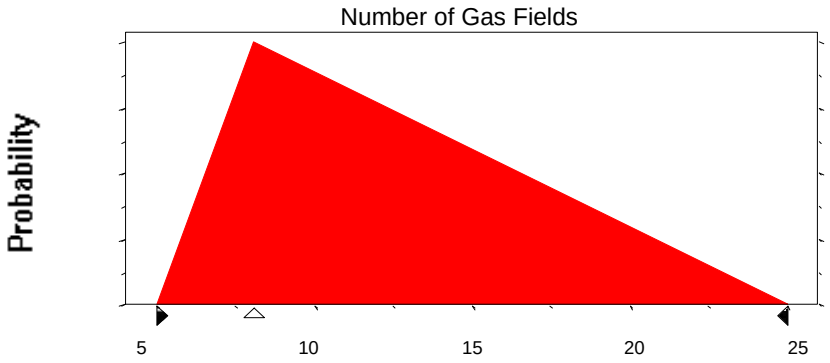
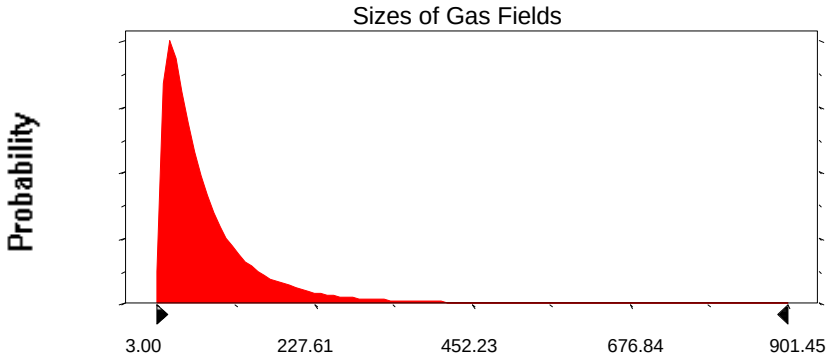
Assumption: Number of Gas Fields (cont'd)



Assumption: Sizes of Gas Fields

Lognormal distribution with parameters:		Shifted parameters
Mean	81.73	99.73
Standard Deviation	99.09	99.09
Selected range is from 0.00 to 982.00		18.00 to 1,000.00
Mean value in simulation was 80.70		98.7



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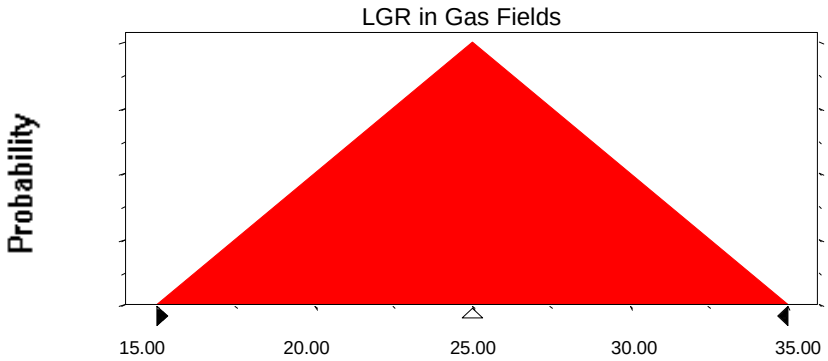
South Mangyshlak (Entire)
Monte Carlo Results

Assumption: LGR in Gas Fields

Triangular distribution with parameters:

Minimum	15.00
Likeliest	25.00
Maximum	35.00

Selected range is from 15.00 to 35.00
Mean value in simulation was 25.01



End of Assumptions

Simulation started on 11/30/98 at 14:28:29
Simulation stopped on 11/30/98 at 16:46:16