

Combined Triassic/Jurassic Oil and Gas, Assessment Unit 52430402
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 | 1 | 1.00 | 36 | 88 | 183 | 96 | 15 | 39 | 88 | 43 | 1 | 2 | 6 | 3 | 4 | 8 | 16 | 8 |
| Gas Fields | 3 | | | | | | 325 | 767 | 1,569 | 834 | 9 | 22 | 50 | 25 | 20 | 42 | 79 | 44 |
| Total | | 1.00 | 36 | 88 | 183 | 96 | 340 | 806 | 1,657 | 877 | 10 | 25 | 56 | 28 | | | | |

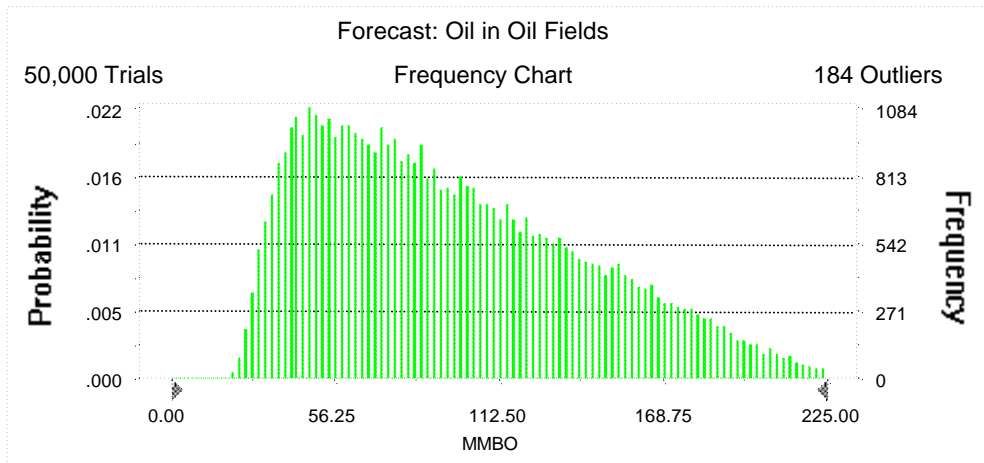
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Combined Triassic/Jurassic Oil and Gas
Monte Carlo Results

Forecast: Oil in Oil Fields

Summary:

Display range is from 0.00 to 225.00 MMBO
Entire range is from 17.05 to 277.78 MMBO
After 50,000 trials, the standard error of the mean is 0.21

| Statistics: | Value |
|----------------------------|----------|
| Trials | 50000 |
| Mean | 96.44 |
| Median | 88.20 |
| Mode | --- |
| Standard Deviation | 46.25 |
| Variance | 2,138.78 |
| Skewness | 0.61 |
| Kurtosis | 2.61 |
| Coefficient of Variability | 0.48 |
| Range Minimum | 17.05 |
| Range Maximum | 277.78 |
| Range Width | 260.73 |
| Mean Standard Error | 0.21 |



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Forecast: Oil in Oil Fields (cont'd)

Percentiles:

| <u>Percentile</u> | <u>MMBO</u> |
|-------------------|-------------|
| 100% | 17.05 |
| 95% | 35.83 |
| 90% | 41.96 |
| 85% | 47.54 |
| 80% | 52.84 |
| 75% | 58.46 |
| 70% | 64.03 |
| 65% | 69.89 |
| 60% | 75.74 |
| 55% | 81.89 |
| 50% | 88.20 |
| 45% | 95.21 |
| 40% | 102.53 |
| 35% | 110.27 |
| 30% | 118.72 |
| 25% | 128.09 |
| 20% | 138.41 |
| 15% | 150.62 |
| 10% | 164.36 |
| 5% | 183.31 |
| 0% | 277.78 |

End of Forecast

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Monte Carlo Results

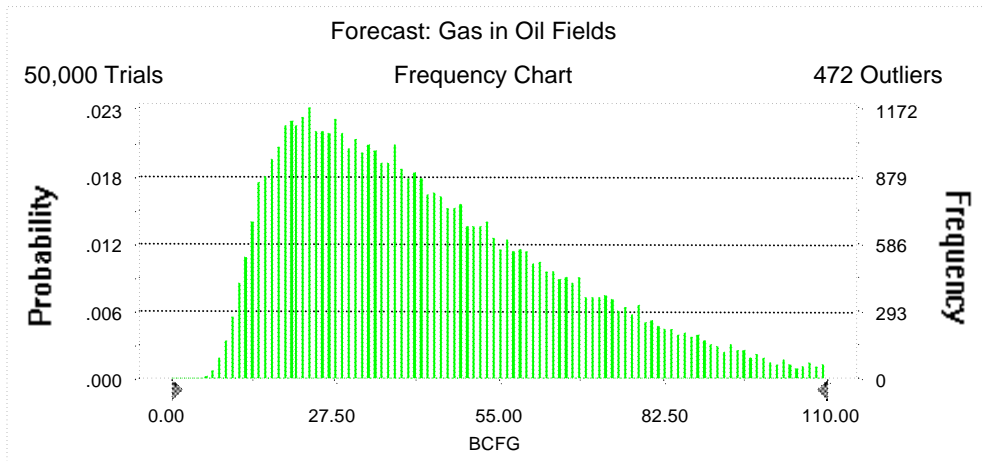
Forecast: Gas in Oil Fields

Summary:

Display range is from 0.00 to 110.00 BCFG
 Entire range is from 4.82 to 164.12 BCFG
 After 50,000 trials, the standard error of the mean is 0.10

Statistics:

| | <u>Value</u> |
|----------------------------|--------------|
| Trials | 50000 |
| Mean | 43.43 |
| Median | 38.74 |
| Mode | --- |
| Standard Deviation | 23.04 |
| Variance | 530.91 |
| Skewness | 0.89 |
| Kurtosis | 3.48 |
| Coefficient of Variability | 0.53 |
| Range Minimum | 4.82 |
| Range Maximum | 164.12 |
| Range Width | 159.30 |
| Mean Standard Error | 0.10 |



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Forecast: Gas in Oil Fields (cont'd)

Percentiles:

| <u>Percentile</u> | <u>BCFG</u> |
|-------------------|-------------|
| 100% | 4.82 |
| 95% | 14.74 |
| 90% | 17.73 |
| 85% | 20.32 |
| 80% | 22.79 |
| 75% | 25.22 |
| 70% | 27.79 |
| 65% | 30.35 |
| 60% | 33.09 |
| 55% | 35.89 |
| 50% | 38.74 |
| 45% | 41.83 |
| 40% | 45.16 |
| 35% | 48.80 |
| 30% | 52.83 |
| 25% | 57.32 |
| 20% | 62.41 |
| 15% | 68.57 |
| 10% | 76.35 |
| 5% | 87.83 |
| 0% | 164.12 |

End of Forecast

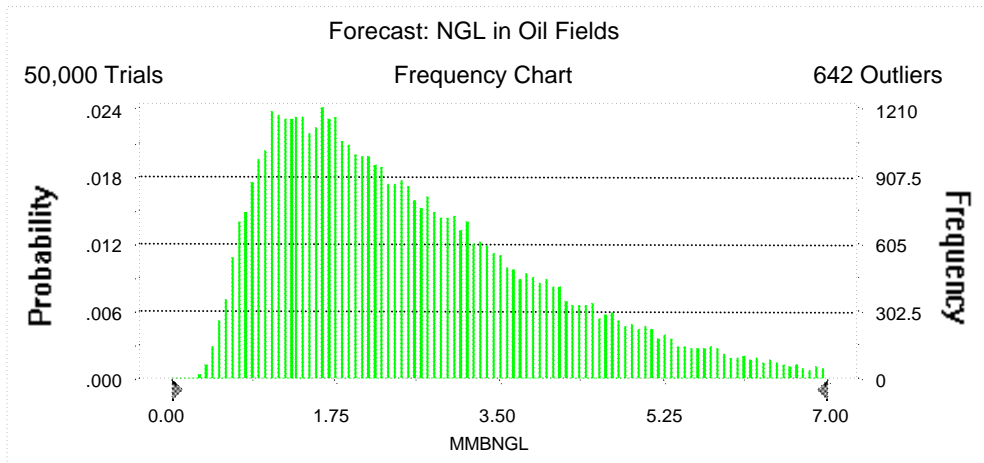
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Forecast: NGL in Oil Fields

Summary:

Display range is from 0.00 to 7.00 MMBNGL
 Entire range is from 0.28 to 11.42 MMBNGL
 After 50,000 trials, the standard error of the mean is 0.01

| Statistics: | <u>Value</u> |
|----------------------------|--------------|
| Trials | 50000 |
| Mean | 2.61 |
| Median | 2.27 |
| Mode | --- |
| Standard Deviation | 1.51 |
| Variance | 2.27 |
| Skewness | 1.12 |
| Kurtosis | 4.36 |
| Coefficient of Variability | 0.58 |
| Range Minimum | 0.28 |
| Range Maximum | 11.42 |
| Range Width | 11.14 |
| Mean Standard Error | 0.01 |



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Forecast: NGL in Oil Fields (cont'd)

Percentiles:

| <u>Percentile</u> | <u>MMBNGL</u> |
|-------------------|---------------|
| 100% | 0.28 |
| 95% | 0.81 |
| 90% | 1.00 |
| 85% | 1.15 |
| 80% | 1.30 |
| 75% | 1.45 |
| 70% | 1.61 |
| 65% | 1.76 |
| 60% | 1.92 |
| 55% | 2.09 |
| 50% | 2.27 |
| 45% | 2.47 |
| 40% | 2.67 |
| 35% | 2.90 |
| 30% | 3.15 |
| 25% | 3.43 |
| 20% | 3.77 |
| 15% | 4.17 |
| 10% | 4.71 |
| 5% | 5.54 |
| 0% | 11.42 |

End of Forecast

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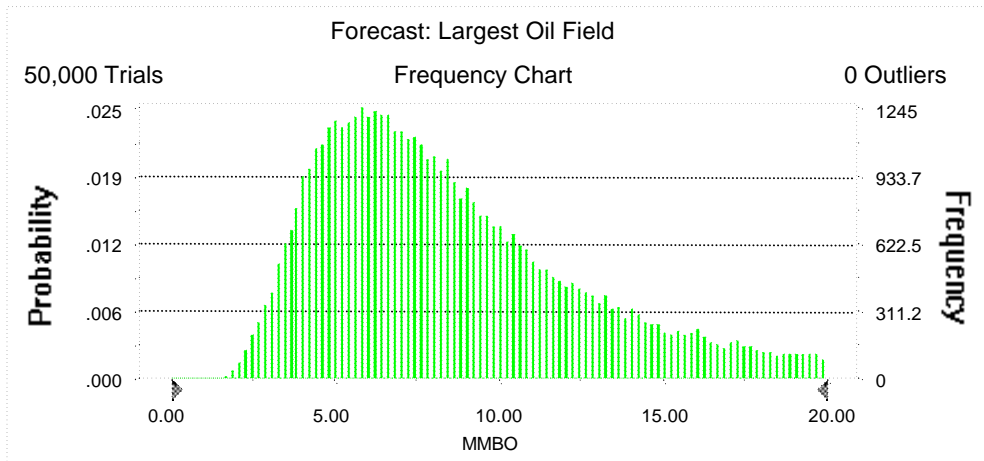
Forecast: Largest Oil Field

Summary:

Display range is from 0.00 to 20.00 MMBO
Entire range is from 1.32 to 20.00 MMBO
After 50,000 trials, the standard error of the mean is 0.02

Statistics:

| | <u>Value</u> |
|----------------------------|--------------|
| Trials | 50000 |
| Mean | 8.46 |
| Median | 7.66 |
| Mode | --- |
| Standard Deviation | 3.84 |
| Variance | 14.74 |
| Skewness | 0.83 |
| Kurtosis | 3.14 |
| Coefficient of Variability | 0.45 |
| Range Minimum | 1.32 |
| Range Maximum | 20.00 |
| Range Width | 18.68 |
| Mean Standard Error | 0.02 |



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Forecast: Largest Oil Field (cont'd)

Percentiles:

| <u>Percentile</u> | <u>MMBO</u> |
|-------------------|-------------|
| 100% | 1.32 |
| 95% | 3.56 |
| 90% | 4.19 |
| 85% | 4.69 |
| 80% | 5.12 |
| 75% | 5.54 |
| 70% | 5.95 |
| 65% | 6.36 |
| 60% | 6.77 |
| 55% | 7.21 |
| 50% | 7.66 |
| 45% | 8.15 |
| 40% | 8.66 |
| 35% | 9.24 |
| 30% | 9.89 |
| 25% | 10.64 |
| 20% | 11.55 |
| 15% | 12.69 |
| 10% | 14.14 |
| 5% | 16.27 |
| 0% | 20.00 |

End of Forecast

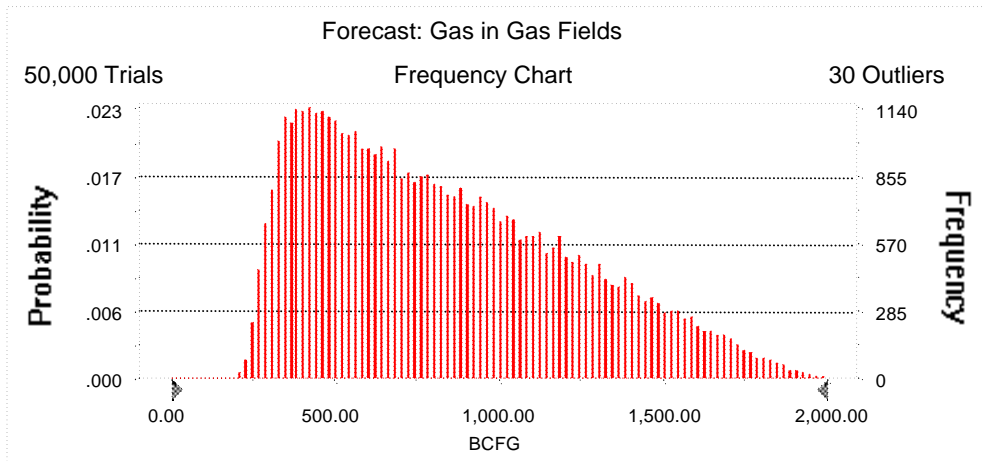
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Forecast: Gas in Gas Fields

Summary:

Display range is from 0.00 to 2,000.00 BCFG
 Entire range is from 190.47 to 2,157.72 BCFG
 After 50,000 trials, the standard error of the mean is 1.75

| Statistics: | <u>Value</u> |
|----------------------------|--------------|
| Trials | 50000 |
| Mean | 833.84 |
| Median | 767.48 |
| Mode | --- |
| Standard Deviation | 391.17 |
| Variance | 153,011.96 |
| Skewness | 0.59 |
| Kurtosis | 2.49 |
| Coefficient of Variability | 0.47 |
| Range Minimum | 190.47 |
| Range Maximum | 2,157.72 |
| Range Width | 1,967.25 |
| Mean Standard Error | 1.75 |



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Forecast: Gas in Gas Fields (cont'd)

Percentiles:

| <u>Percentile</u> | <u>BCFG</u> |
|-------------------|-------------|
| 100% | 190.47 |
| 95% | 324.77 |
| 90% | 371.83 |
| 85% | 416.34 |
| 80% | 460.66 |
| 75% | 505.28 |
| 70% | 553.22 |
| 65% | 602.40 |
| 60% | 655.09 |
| 55% | 708.45 |
| 50% | 767.48 |
| 45% | 827.23 |
| 40% | 890.72 |
| 35% | 956.89 |
| 30% | 1,027.05 |
| 25% | 1,106.51 |
| 20% | 1,193.49 |
| 15% | 1,292.98 |
| 10% | 1,410.03 |
| 5% | 1,568.90 |
| 0% | 2,157.72 |

End of Forecast

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Monte Carlo Results

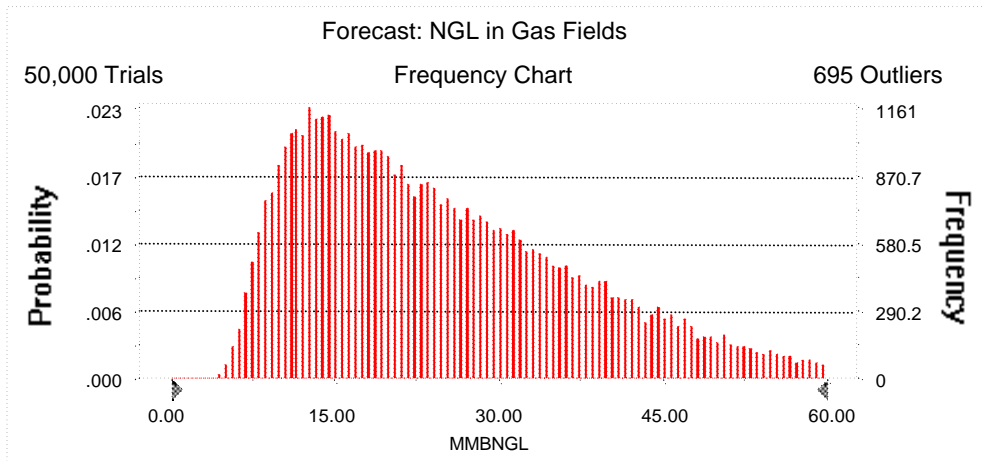
Forecast: NGL in Gas Fields

Summary:

Display range is from 0.00 to 60.00 MMBNGL
 Entire range is from 3.59 to 89.90 MMBNGL
 After 50,000 trials, the standard error of the mean is 0.06

Statistics:

| | <u>Value</u> |
|----------------------------|--------------|
| Trials | 50000 |
| Mean | 25.04 |
| Median | 22.35 |
| Mode | --- |
| Standard Deviation | 13.03 |
| Variance | 169.85 |
| Skewness | 0.87 |
| Kurtosis | 3.37 |
| Coefficient of Variability | 0.52 |
| Range Minimum | 3.59 |
| Range Maximum | 89.90 |
| Range Width | 86.31 |
| Mean Standard Error | 0.06 |



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Forecast: NGL in Gas Fields (cont'd)

Percentiles:

| <u>Percentile</u> | <u>MMBNGL</u> |
|-------------------|---------------|
| 100% | 3.59 |
| 95% | 8.86 |
| 90% | 10.54 |
| 85% | 11.97 |
| 80% | 13.32 |
| 75% | 14.66 |
| 70% | 16.04 |
| 65% | 17.53 |
| 60% | 19.04 |
| 55% | 20.62 |
| 50% | 22.35 |
| 45% | 24.19 |
| 40% | 26.13 |
| 35% | 28.25 |
| 30% | 30.49 |
| 25% | 32.99 |
| 20% | 35.90 |
| 15% | 39.35 |
| 10% | 43.73 |
| 5% | 50.20 |
| 0% | 89.90 |

End of Forecast

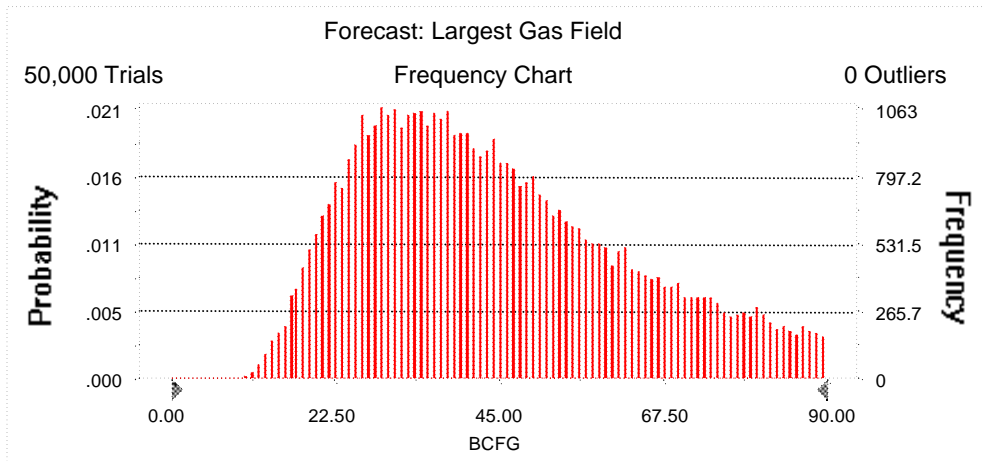
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Forecast: Largest Gas Field

Summary:

Display range is from 0.00 to 90.00 BCFG
Entire range is from 6.60 to 89.99 BCFG
After 50,000 trials, the standard error of the mean is 0.08

| Statistics: | Value |
|----------------------------|--------|
| Trials | 50000 |
| Mean | 44.50 |
| Median | 41.55 |
| Mode | --- |
| Standard Deviation | 17.88 |
| Variance | 319.68 |
| Skewness | 0.55 |
| Kurtosis | 2.54 |
| Coefficient of Variability | 0.40 |
| Range Minimum | 6.60 |
| Range Maximum | 89.99 |
| Range Width | 83.39 |
| Mean Standard Error | 0.08 |



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Forecast: Largest Gas Field (cont'd)

Percentiles:

| <u>Percentile</u> | <u>BCFG</u> |
|-------------------|-------------|
| 100% | 6.60 |
| 95% | 20.03 |
| 90% | 23.35 |
| 85% | 26.02 |
| 80% | 28.28 |
| 75% | 30.46 |
| 70% | 32.64 |
| 65% | 34.81 |
| 60% | 37.02 |
| 55% | 39.22 |
| 50% | 41.55 |
| 45% | 44.09 |
| 40% | 46.65 |
| 35% | 49.48 |
| 30% | 52.58 |
| 25% | 56.17 |
| 20% | 60.39 |
| 15% | 65.34 |
| 10% | 71.40 |
| 5% | 79.23 |
| 0% | 89.99 |

End of Forecast

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Assumptions

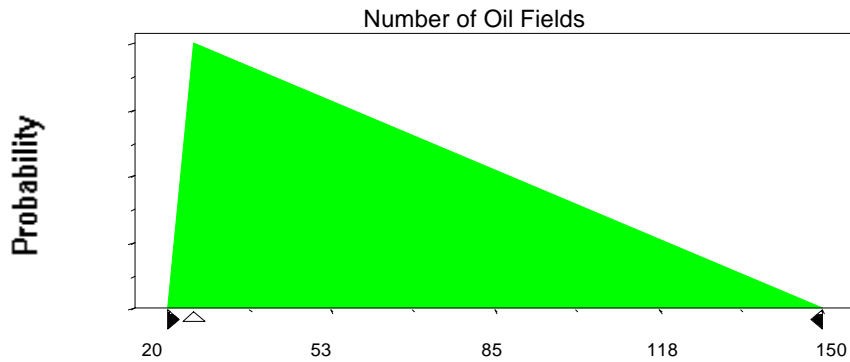
Assumption: Number of Oil Fields

Triangular distribution with parameters:

| | |
|-----------|-----|
| Minimum | 20 |
| Likeliest | 25 |
| Maximum | 150 |

Selected range is from 20 to 150

Mean value in simulation was 65



Assumption: Sizes of Oil Fields

Lognormal distribution with parameters:

| | |
|--------------------|------|
| Mean | 1.01 |
| Standard Deviation | 1.77 |

Shifted parameters

| |
|------|
| 1.51 |
| 1.77 |

Selected range is from 0.00 to 19.50

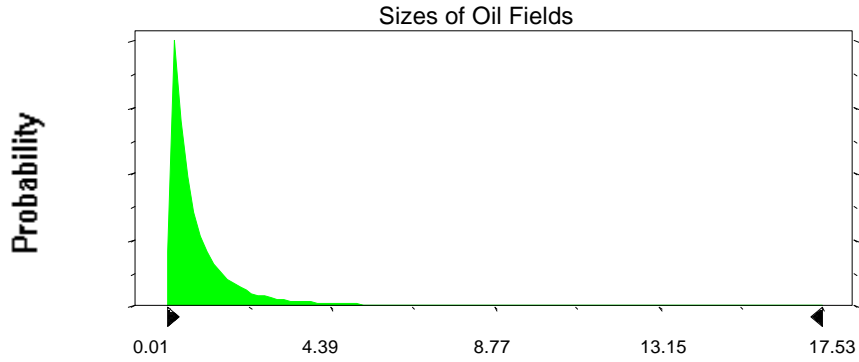
0.50 to 20.00

Mean value in simulation was 0.98

1.48

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Assumption: Sizes of Oil Fields (cont'd)



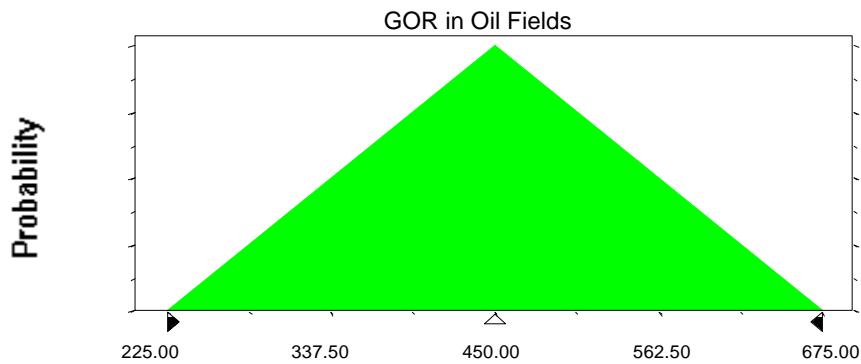
Assumption: GOR in Oil Fields

Triangular distribution with parameters:

| | |
|-----------|--------|
| Minimum | 225.00 |
| Likeliest | 450.00 |
| Maximum | 675.00 |

Selected range is from 225.00 to 675.00

Mean value in simulation was 450.14



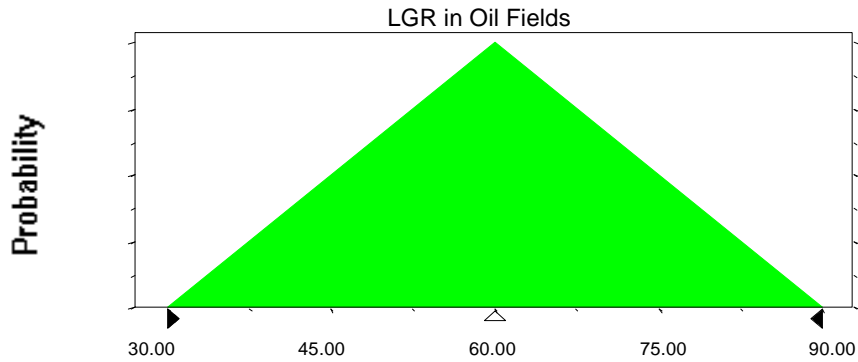
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Assumption: LGR in Oil Fields

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 60.06



Assumption: Number of Gas Fields

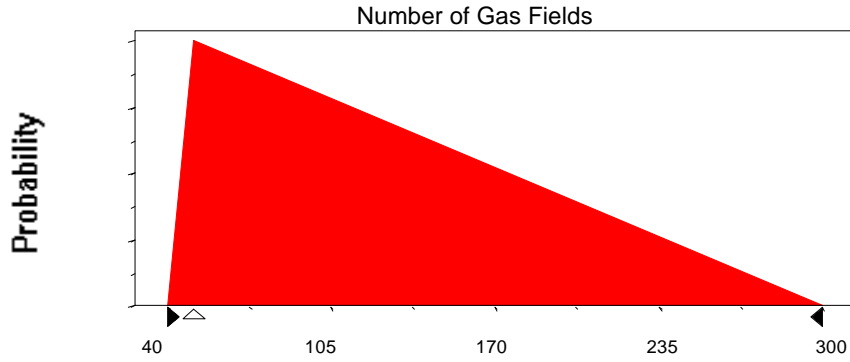
Triangular distribution with parameters:

| | |
|-----------|-----|
| Minimum | 40 |
| Likeliest | 51 |
| Maximum | 300 |

Selected range is from 40 to 300
Mean value in simulation was 130

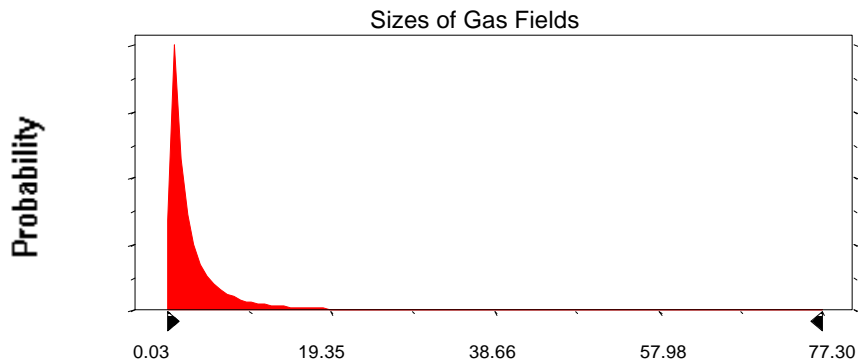
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Assumption: Number of Gas Fields (cont'd)



Assumption: Sizes of Gas Fields

| | | |
|---|------|--------------------|
| Lognormal distribution with parameters: | | Shifted parameters |
| Mean | 3.56 | 6.56 |
| Standard Deviation | 7.65 | 7.65 |
| Selected range is from 0.00 to 87.00 | | 3.00 to 90.00 |
| Mean value in simulation was 3.46 | | 6.46 |



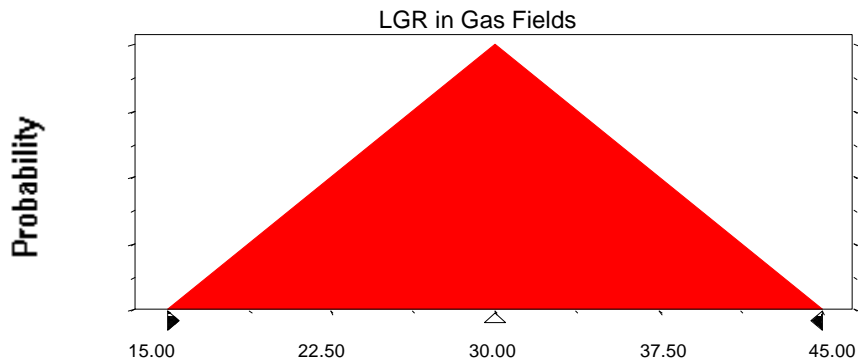
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Assumption: LGR in Gas Fields

Triangular distribution with parameters:

| | |
|-----------|-------|
| Minimum | 15.00 |
| Likeliest | 30.00 |
| Maximum | 45.00 |

Selected range is from 15.00 to 45.00
Mean value in simulation was 30.04



End of Assumptions

Simulation started on 10/21/99 at 15:47:44
Simulation stopped on 10/21/99 at 17:26:06