## Kohat-Potwar Intrathrust Basin, Assessment Unit 80260101
## 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 | 53 | 136 | 267 | 145 | 107 | 292 | 621 | 319 | 6 | 17 | 39 | 19 | 11 | 27 | 79 | 33 |
| Gas Fields | 6 | | | | | | 46 | 192 | 562 | 233 | 2 | 7 | 20 | 8 | 22 | 79 | 299 | 108 |
| Total | | 1.00 | 53 | 136 | 267 | 145 | 153 | 484 | 1,183 | 551 | 7 | 24 | 60 | 27 | | | | |

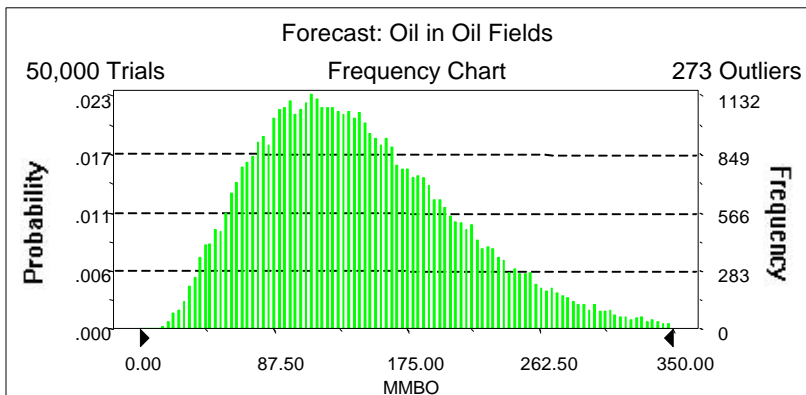**Forecast:  Oil in Oil Fields**

Summary:
    Display range is from 0.00 to 350.00 MMBO
    Entire range is from 10.88 to 509.65 MMBO
    After 50,000 trials, the standard error of the mean is 0.30

| Statistics: | Value |
|---|---|
| Trials | 50000 |
| Mean | 145.06 |
| Median | 136.40 |
| Mode | --- |
| Standard Deviation | 65.99 |
| Variance | 4,354.83 |
| Skewness | 0.71 |
| Kurtosis | 3.44 |
| Coefficient of Variability | 0.45 |
| Range Minimum | 10.88 |
| Range Maximum | 509.65 |
| Range Width | 498.77 |
| Mean Standard Error | 0.30 |



Forecast: Oil in Oil Fields
50,000 Trials    Frequency Chart    273 Outliers

**Forecast:  Oil in Oil Fields  (cont'd)**

Percentiles:

| Percentile | MMBO |
|---|---|
| 100% | 10.88 |
| 95% | 52.61 |
| 90% | 67.00 |
| 85% | 77.72 |
| 80% | 87.38 |
| 75% | 95.67 |
| 70% | 103.89 |
| 65% | 112.06 |
| 60% | 119.87 |
| 55% | 128.06 |
| 50% | 136.40 |
| 45% | 144.84 |
| 40% | 153.71 |
| 35% | 163.39 |
| 30% | 173.96 |
| 25% | 185.51 |
| 20% | 198.54 |
| 15% | 214.65 |
| 10% | 234.98 |
| 5% | 266.95 |
| 0% | 509.65 |

End of Forecast

**Forecast:  Gas in Oil Fields**

Summary:
Display range is from 0.00 to 800.00 BCFG
Entire range is from 17.97 to 1,333.55 BCFG
After 50,000 trials, the standard error of the mean is 0.72

| Statistics: | Value |
|---|---|
| Trials | 50000 |
| Mean | 318.71 |
| Median | 291.95 |
| Mode | --- |
| Standard Deviation | 160.81 |
| Variance | 25,860.63 |
| Skewness | 0.96 |
| Kurtosis | 4.20 |
| Coefficient of Variability | 0.50 |
| Range Minimum | 17.97 |
| Range Maximum | 1,333.55 |
| Range Width | 1,315.58 |
| Mean Standard Error | 0.72 |

**Forecast:  Gas in Oil Fields  (cont'd)**

Percentiles:

| Percentile | BCFG |
|---|---|
| 100% | 17.97 |
| 95% | 107.39 |
| 90% | 136.17 |
| 85% | 159.95 |
| 80% | 180.50 |
| 75% | 199.46 |
| 70% | 218.33 |
| 65% | 236.44 |
| 60% | 254.12 |
| 55% | 272.90 |
| 50% | 291.95 |
| 45% | 311.55 |
| 40% | 332.82 |
| 35% | 356.37 |
| 30% | 381.11 |
| 25% | 409.00 |
| 20% | 442.55 |
| 15% | 482.87 |
| 10% | 535.72 |
| 5% | 620.94 |
| 0% | 1,333.55 |

End of Forecast
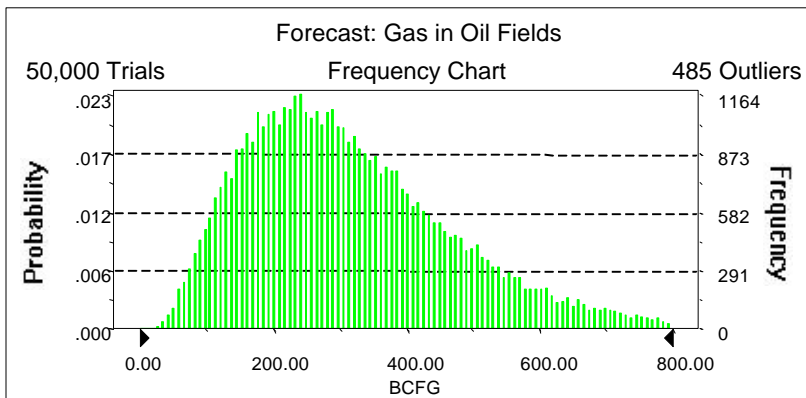
**80260101**
**Kohat-Potwar Intrathrust Basin**
**Monte Carlo Results**

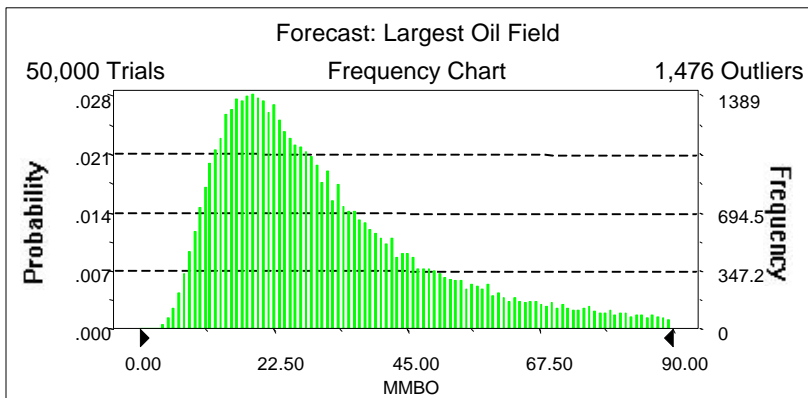**Forecast:  NGL in Oil Fields**

Summary:
    Display range is from 0.00 to 50.00 MMBNGL
    Entire range is from 0.71 to 99.69 MMBNGL
    After 50,000 trials, the standard error of the mean is 0.05

| Statistics: | Value |
|---|---|
| Trials | 50000 |
| Mean | 19.13 |
| Median | 17.08 |
| Mode | --- |
| Standard Deviation | 10.59 |
| Variance | 112.25 |
| Skewness | 1.19 |
| Kurtosis | 5.09 |
| Coefficient of Variability | 0.55 |
| Range Minimum | 0.71 |
| Range Maximum | 99.69 |
| Range Width | 98.98 |
| Mean Standard Error | 0.05 |



Forecast: NGL in Oil Fields

**Forecast: NGL in Oil Fields  (cont'd)**

Percentiles:

| Percentile | MMBNGL |
|---|---|
| 100% | 0.71 |
| 95% | 5.93 |
| 90% | 7.62 |
| 85% | 8.99 |
| 80% | 10.22 |
| 75% | 11.37 |
| 70% | 12.49 |
| 65% | 13.59 |
| 60% | 14.74 |
| 55% | 15.87 |
| 50% | 17.08 |
| 45% | 18.33 |
| 40% | 19.71 |
| 35% | 21.18 |
| 30% | 22.82 |
| 25% | 24.66 |
| 20% | 26.88 |
| 15% | 29.61 |
| 10% | 33.27 |
| 5% | 39.45 |
| 0% | 99.69 |

End of Forecast

**Forecast: Largest Oil Field**

Summary:

Display range is from 0.00 to 90.00 MMBO

Entire range is from 2.48 to 124.98 MMBO

After 50,000 trials, the standard error of the mean is 0.10

| Statistics: | Value |
|---|---|
| Trials | 50000 |
| Mean | 33.38 |
| Median | 27.31 |
| Mode | --- |
| Standard Deviation | 21.35 |
| Variance | 455.99 |
| Skewness | 1.55 |
| Kurtosis | 5.54 |
| Coefficient of Variability | 0.64 |
| Range Minimum | 2.48 |
| Range Maximum | 124.98 |
| Range Width | 122.50 |
| Mean Standard Error | 0.10 |

Forecast: Largest Oil Field

50,000 Trials      Frequency Chart      1,476 Outliers

**Forecast:  Largest Oil Field  (cont'd)**

Percentiles:

| Percentile | MMBO |
|---|---|
| 100% | 2.48 |
| 95% | 10.73 |
| 90% | 13.15 |
| 85% | 15.07 |
| 80% | 16.77 |
| 75% | 18.43 |
| 70% | 20.03 |
| 65% | 21.71 |
| 60% | 23.43 |
| 55% | 25.28 |
| 50% | 27.31 |
| 45% | 29.48 |
| 40% | 31.88 |
| 35% | 34.64 |
| 30% | 37.88 |
| 25% | 41.77 |
| 20% | 46.60 |
| 15% | 53.26 |
| 10% | 62.76 |
| 5% | 78.88 |
| 0% | 124.98 |

End of Forecast

**Forecast:  Gas in Gas Fields**

Summary:
    Display range is from 0.00 to 700.00 BCFG
    Entire range is from 6.44 to 1,654.11 BCFG
    After 50,000 trials, the standard error of the mean is 0.75

| Statistics: | Value |
| --- | --- |
| Trials | 50000 |
| Mean | 232.66 |
| Median | 191.84 |
| Mode | --- |
| Standard Deviation | 168.05 |
| Variance | 28,239.98 |
| Skewness | 1.56 |
| Kurtosis | 6.55 |
| Coefficient of Variability | 0.72 |
| Range Minimum | 6.44 |
| Range Maximum | 1,654.11 |
| Range Width | 1,647.67 |
| Mean Standard Error | 0.75 |
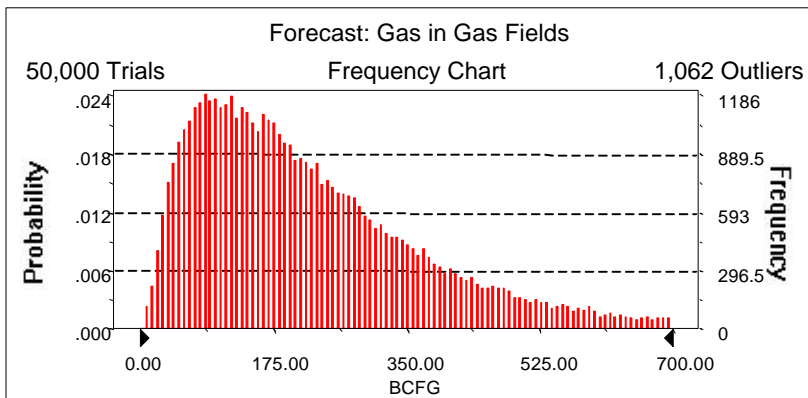

Forecast: Gas in Gas Fields

**Forecast:  Gas in Gas Fields  (cont'd)**

Percentiles:

| Percentile | BCFG |
|---|---|
| 100% | 6.44 |
| 95% | 45.73 |
| 90% | 64.07 |
| 85% | 79.93 |
| 80% | 94.68 |
| 75% | 109.98 |
| 70% | 125.30 |
| 65% | 141.21 |
| 60% | 157.56 |
| 55% | 174.33 |
| 50% | 191.84 |
| 45% | 211.16 |
| 40% | 232.00 |
| 35% | 255.03 |
| 30% | 280.63 |
| 25% | 309.79 |
| 20% | 345.05 |
| 15% | 388.82 |
| 10% | 453.15 |
| 5% | 562.26 |
| 0% | 1,654.11 |

End of Forecast

**Forecast: NGL in Gas Fields**

Summary:

Display range is from 0.00 to 25.00 MMBNGL
Entire range is from 0.19 to 58.61 MMBNGL
After 50,000 trials, the standard error of the mean is 0.03

| Statistics: | Value |
|---|---|
| Trials | 50000 |
| Mean | 8.14 |
| Median | 6.60 |
| Mode | --- |
| Standard Deviation | 6.13 |
| Variance | 37.62 |
| Skewness | 1.71 |
| Kurtosis | 7.44 |
| Coefficient of Variability | 0.75 |
| Range Minimum | 0.19 |
| Range Maximum | 58.61 |
| Range Width | 58.42 |
| Mean Standard Error | 0.03 |
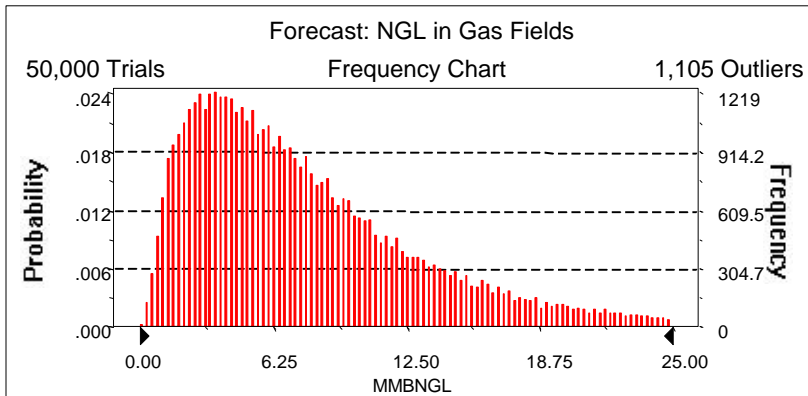


Forecast: NGL in Gas Fields

50,000 Trials   Frequency Chart   1,105 Outliers

**Forecast: NGL in Gas Fields (cont'd)**

Percentiles:

| Percentile | MMBNGL |
|---|---|
| 100% | 0.19 |
| 95% | 1.51 |
| 90% | 2.14 |
| 85% | 2.69 |
| 80% | 3.22 |
| 75% | 3.74 |
| 70% | 4.26 |
| 65% | 4.80 |
| 60% | 5.37 |
| 55% | 5.97 |
| 50% | 6.60 |
| 45% | 7.26 |
| 40% | 7.99 |
| 35% | 8.80 |
| 30% | 9.72 |
| 25% | 10.77 |
| 20% | 12.09 |
| 15% | 13.77 |
| 10% | 16.09 |
| 5% | 20.16 |
| 0% | 58.61 |

End of Forecast

**Forecast: Largest Gas Field**

Summary:
Display range is from 0.00 to 400.00 BCFG
Entire range is from 6.44 to 748.66 BCFG
After 50,000 trials, the standard error of the mean is 0.43

| Statistics: | Value |
|---|---|
| Trials | 50000 |
| Mean | 107.88 |
| Median | 78.53 |
| Mode | --- |
| Standard Deviation | 96.63 |
| Variance | 9,337.96 |
| Skewness | 2.46 |
| Kurtosis | 11.15 |
| Coefficient of Variability | 0.90 |
| Range Minimum | 6.44 |
| Range Maximum | 748.66 |
| Range Width | 742.22 |
| Mean Standard Error | 0.43 |
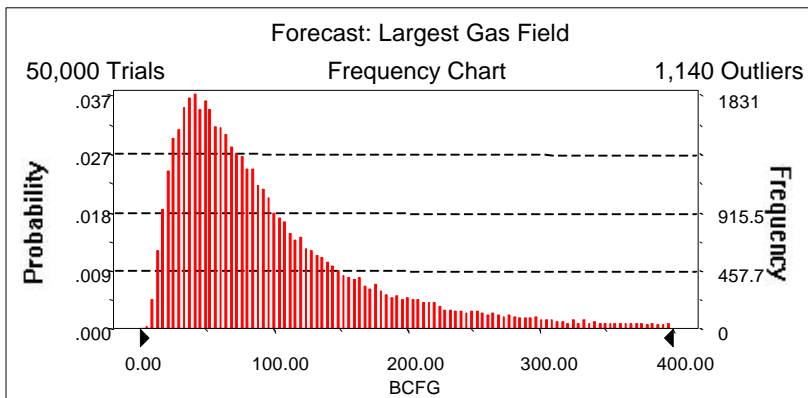


Forecast: Largest Gas Field
50,000 Trials    Frequency Chart    1,140 Outliers

**Forecast: Largest Gas Field (cont'd)**

Percentiles:

| Percentile | BCFG |
|---|---|
| 100% | 6.44 |
| 95% | 22.28 |
| 90% | 29.23 |
| 85% | 35.30 |
| 80% | 40.81 |
| 75% | 46.50 |
| 70% | 52.12 |
| 65% | 58.04 |
| 60% | 64.41 |
| 55% | 71.18 |
| 50% | 78.53 |
| 45% | 86.38 |
| 40% | 95.31 |
| 35% | 105.63 |
| 30% | 118.23 |
| 25% | 133.39 |
| 20% | 152.75 |
| 15% | 179.32 |
| 10% | 219.86 |
| 5% | 299.20 |
| 0% | 748.66 |

End of Forecast

## Assumptions

**Assumption:  Number of Oil Fields**

Triangular distribution with parameters:
| | |
|---|---|
| Minimum | 5 |
| Likeliest | 17 |
| Maximum | 40 |

Selected range is from 5 to 40
Mean value in simulation was 21



Number of Oil Fields
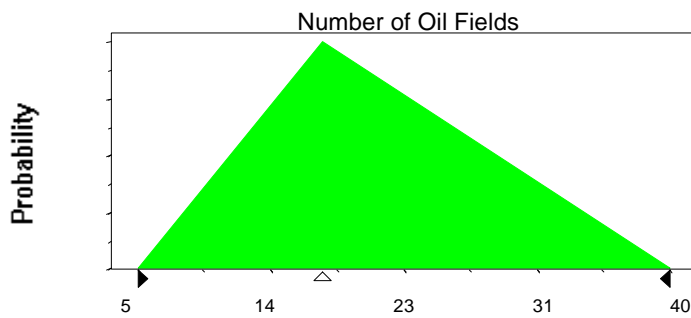
**Assumption:  Sizes of Oil Fields**

| Lognormal distribution with parameters: | | Shifted parameters | |
|---|---|---|---|
| Mean | 6.20 | | 7.2 |
| Standard Deviation | 11.20 | | 11.2 |
| | | | |
| Selected range is from 0.00 to 124.00 | | 1.00 to 125.00 | |
| Mean value in simulation was 6.10 | | 7.1 | |

**Assumption:  Sizes of Oil Fields  (cont'd)**



Sizes of Oil Fields
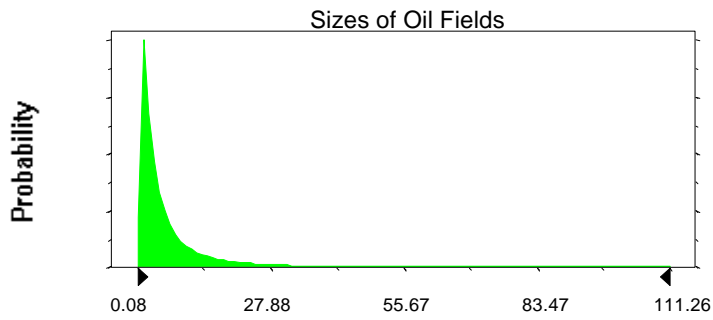
**Assumption:  GOR in Oil Fields**

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
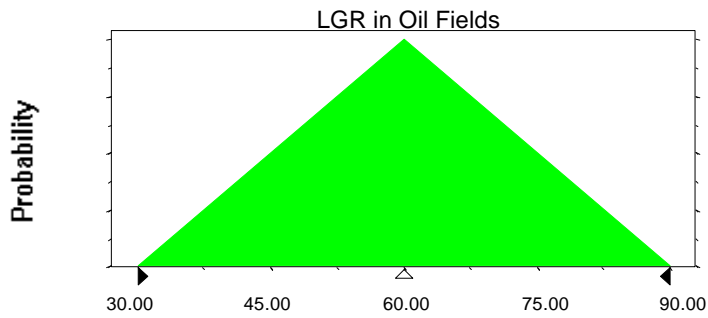Mean value in simulation was 2,199.00
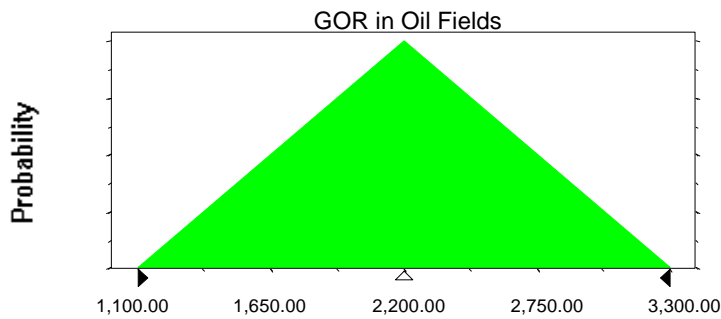


GOR in Oil Fields

**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
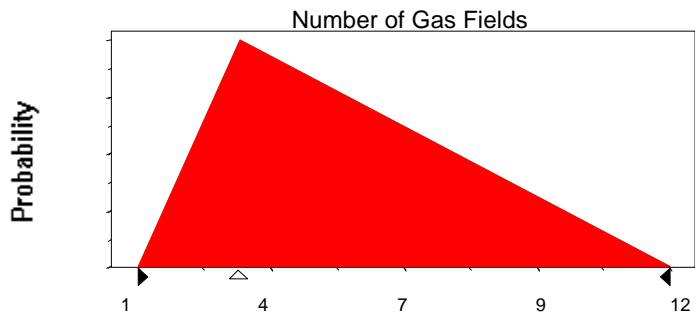Mean value in simulation was 60.06



**Assumption:  Number of Gas Fields**

Triangular distribution with parameters:
| | |
|---|---|
| Minimum | 1 |
| Likeliest | 3 |
| Maximum | 12 |

Selected range is from 1 to 12
Mean value in simulation was 5

**Assumption:  Number of Gas Fields  (cont'd)**



Number of Gas Fields

**Assumption:  Sizes of Gas Fields**

| Lognormal distribution with parameters: | | Shifted parameters | |
|---|---|---|---|
| Mean | 38.43 | | 44.43 |
| Standard Deviation | 67.56 | | 67.56 |

Selected range is from 0.00 to 744.00          6.00 to 750.00
Mean value in simulation was 37.39                    43.39



Sizes of Gas Fields
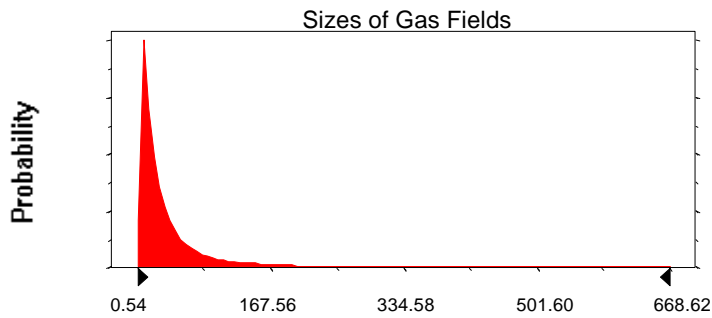
**Assumption:  LGR in Gas Fields**

Triangular distribution with parameters:
| | |
|---|---|
| Minimum | 20.00 |
| Likeliest | 35.00 |
| Maximum | 50.00 |

Selected range is from 20.00 to 50.00
Mean value in simulation was 34.96
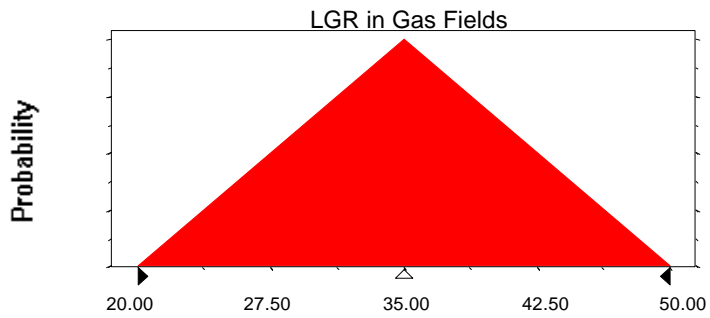


End of Assumptions


Simulation started on 10/18/99 at 12:52:52
Simulation stopped on 10/18/99 at 13:12:05