

**East Natuna, Assessment Unit 37020201**  
**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	5	1.00	20	82	254	102	41	175	573	224	2	10	36	13	11	35	145	51
Gas Fields	30		20	82	254	102	453	1,582	3,568	1,739	19	68	165	76	150	447	1,489	578
Total		1.00	20	82	254	102	494	1,757	4,142	1,963	21	78	201	90				

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**Forecast: Oil in Oil Fields**

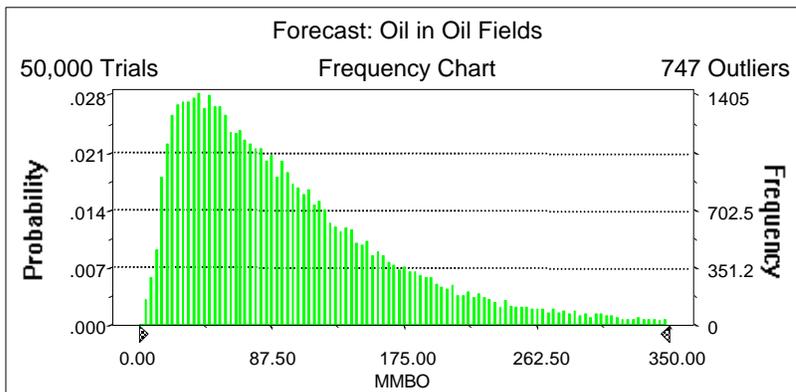
Summary:

Display range is from 0.00 to 350.00 MMBO

Entire range is from 5.11 to 774.22 MMBO

After 50,000 trials, the standard error of the mean is 0.35

Statistics:	<u>Value</u>
Trials	50000
Mean	101.82
Median	82.17
Mode	---
Standard Deviation	77.67
Variance	6,032.75
Skewness	1.75
Kurtosis	7.52
Coefficient of Variability	0.76
Range Minimum	5.11
Range Maximum	774.22
Range Width	769.11
Mean Standard Error	0.35



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

Percentiles:

<u>Percentile</u>	<u>MMBO</u>
100%	5.11
95%	19.73
90%	26.59
85%	33.09
80%	39.44
75%	45.88
70%	52.27
65%	59.03
60%	66.43
55%	74.06
50%	82.17
45%	90.69
40%	99.79
35%	110.35
30%	121.54
25%	135.25
20%	151.45
15%	172.34
10%	201.30
5%	253.51
0%	774.22

End of Forecast

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**Forecast: Gas in Oil Fields**

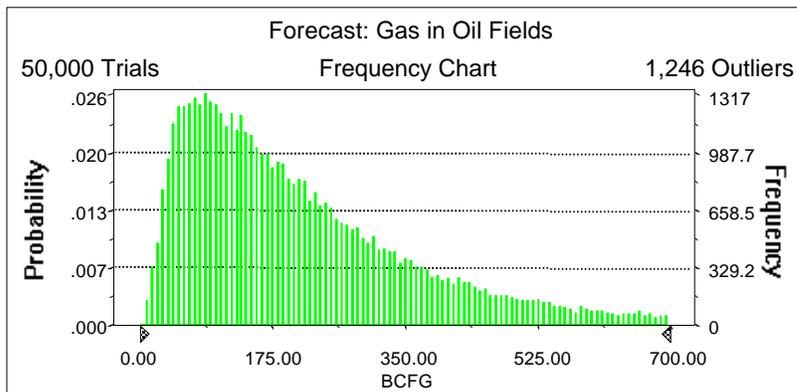
Summary:

Display range is from 0.00 to 700.00 BCFG

Entire range is from 7.14 to 1,880.03 BCFG

After 50,000 trials, the standard error of the mean is 0.80

Statistics:	Value
Trials	50000
Mean	223.96
Median	175.34
Mode	---
Standard Deviation	179.96
Variance	32,385.80
Skewness	1.94
Kurtosis	8.86
Coefficient of Variability	0.80
Range Minimum	7.14
Range Maximum	1,880.03
Range Width	1,872.89
Mean Standard Error	0.80



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

Percentiles:

<u>Percentile</u>	<u>BCFG</u>
100%	7.14
95%	40.95
90%	55.68
85%	69.64
80%	83.37
75%	96.74
70%	110.87
65%	125.93
60%	141.15
55%	157.37
50%	175.34
45%	194.52
40%	215.55
35%	238.40
30%	264.68
25%	295.90
20%	334.26
15%	382.96
10%	452.17
5%	573.30
0%	1,880.03

End of Forecast

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**Forecast: NGL in Oil Fields**

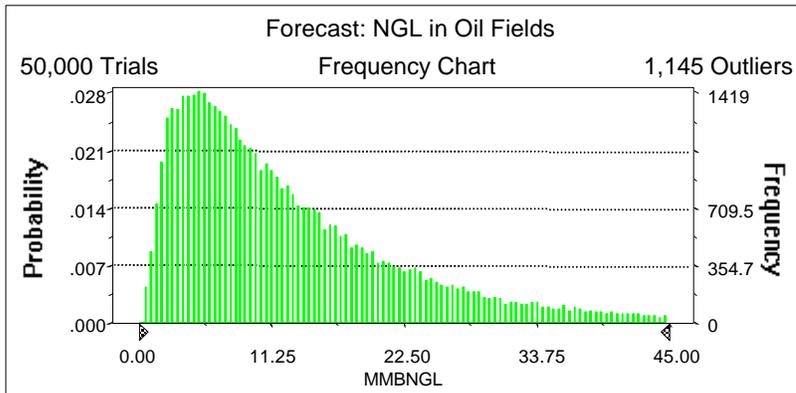
Summary:

Display range is from 0.00 to 45.00 MMBNGL

Entire range is from 0.37 to 132.11 MMBNGL

After 50,000 trials, the standard error of the mean is 0.05

Statistics:	Value
Trials	50000
Mean	13.46
Median	10.22
Mode	---
Standard Deviation	11.38
Variance	129.48
Skewness	2.13
Kurtosis	10.24
Coefficient of Variability	0.85
Range Minimum	0.37
Range Maximum	132.11
Range Width	131.74
Mean Standard Error	0.05



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

Percentiles:

<u>Percentile</u>	<u>MMBNGL</u>
100%	0.37
95%	2.30
90%	3.17
85%	4.00
80%	4.81
75%	5.60
70%	6.41
65%	7.28
60%	8.19
55%	9.17
50%	10.22
45%	11.41
40%	12.68
35%	14.14
30%	15.75
25%	17.71
20%	20.11
15%	23.30
10%	27.61
5%	35.59
0%	132.11

End of Forecast

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**Forecast: Largest Oil Field**

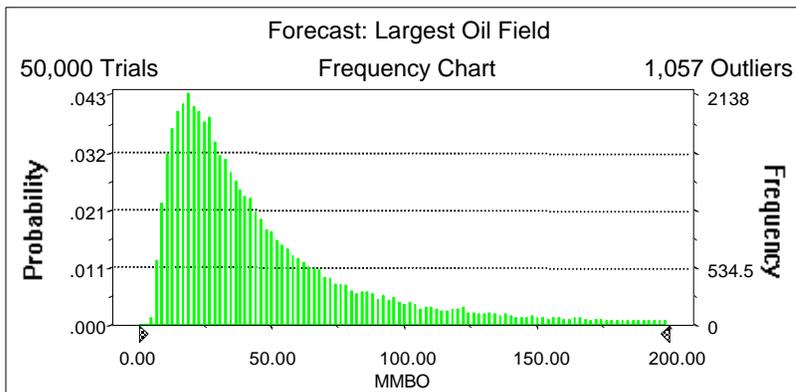
Summary:

Display range is from 0.00 to 200.00 MMBO

Entire range is from 5.11 to 399.04 MMBO

After 50,000 trials, the standard error of the mean is 0.22

Statistics:	<u>Value</u>
Trials	50000
Mean	50.76
Median	35.42
Mode	---
Standard Deviation	48.10
Variance	2,313.99
Skewness	2.72
Kurtosis	12.98
Coefficient of Variability	0.95
Range Minimum	5.11
Range Maximum	399.04
Range Width	393.93
Mean Standard Error	0.22



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

Percentiles:

<u>Percentile</u>	<u>MMBO</u>
100%	5.11
95%	10.90
90%	13.80
85%	16.31
80%	18.70
75%	21.14
70%	23.64
65%	26.29
60%	28.93
55%	32.08
50%	35.42
45%	39.21
40%	43.43
35%	48.28
30%	54.27
25%	61.61
20%	70.98
15%	84.80
10%	104.91
5%	144.81
0%	399.04

End of Forecast

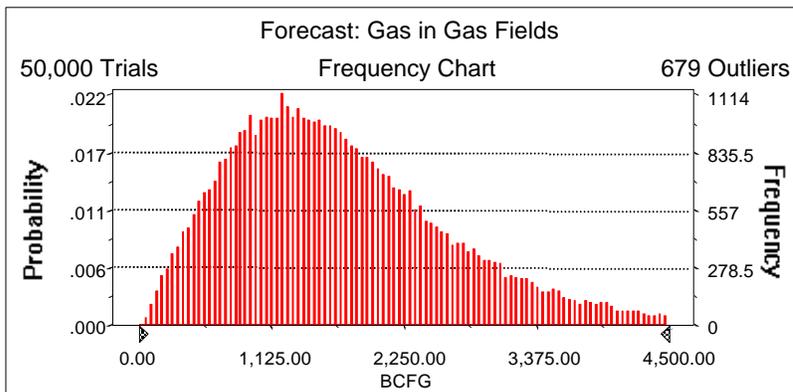
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**Forecast: Gas in Gas Fields**

Summary:

Display range is from 0.00 to 4,500.00 BCFG  
Entire range is from 33.60 to 8,767.18 BCFG  
After 50,000 trials, the standard error of the mean is 4.35

Statistics:	Value
Trials	50000
Mean	1,738.74
Median	1,581.98
Mode	---
Standard Deviation	972.83
Variance	946,396.89
Skewness	1.00
Kurtosis	4.45
Coefficient of Variability	0.56
Range Minimum	33.60
Range Maximum	8,767.18
Range Width	8,733.58
Mean Standard Error	4.35



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

Percentiles:

<u>Percentile</u>	<u>BCFG</u>
100%	33.60
95%	453.01
90%	636.67
85%	783.29
80%	908.34
75%	1,024.22
70%	1,137.13
65%	1,248.62
60%	1,356.57
55%	1,468.02
50%	1,581.98
45%	1,699.11
40%	1,823.79
35%	1,958.44
30%	2,105.87
25%	2,273.73
20%	2,466.16
15%	2,719.85
10%	3,043.09
5%	3,568.49
0%	8,767.18

End of Forecast

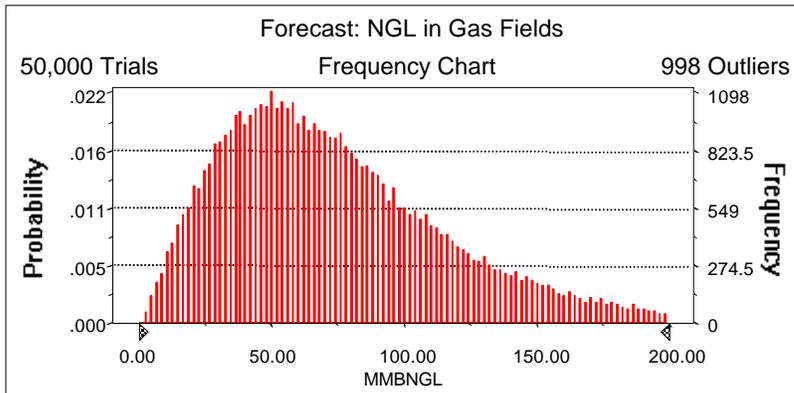
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**Forecast: NGL in Gas Fields**

Summary:

Display range is from 0.00 to 200.00 MMBNGL  
Entire range is from 1.41 to 427.20 MMBNGL  
After 50,000 trials, the standard error of the mean is 0.21

Statistics:	<u>Value</u>
Trials	50000
Mean	76.45
Median	67.57
Mode	---
Standard Deviation	46.44
Variance	2,156.93
Skewness	1.26
Kurtosis	5.47
Coefficient of Variability	0.61
Range Minimum	1.41
Range Maximum	427.20
Range Width	425.79
Mean Standard Error	0.21



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

Percentiles:

<u>Percentile</u>	<u>MMBNGL</u>
100%	1.41
95%	18.73
90%	26.32
85%	32.34
80%	37.68
75%	42.84
70%	47.72
65%	52.46
60%	57.33
55%	62.30
50%	67.57
45%	73.08
40%	78.71
35%	84.97
30%	91.88
25%	100.03
20%	109.61
15%	121.41
10%	138.20
5%	164.94
0%	427.20

End of Forecast

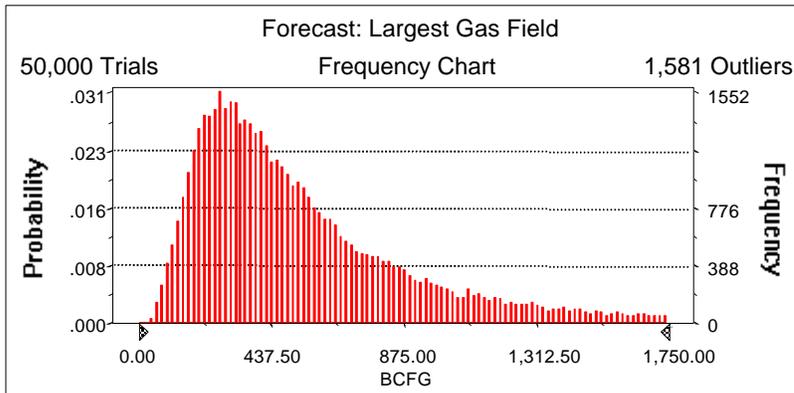
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**Forecast: Largest Gas Field**

Summary:

Display range is from 0.00 to 1,750.00 BCFG  
Entire range is from 33.60 to 2,996.28 BCFG  
After 50,000 trials, the standard error of the mean is 1.99

Statistics:	Value
Trials	50000
Mean	578.47
Median	447.41
Mode	---
Standard Deviation	444.66
Variance	197,720.03
Skewness	2.04
Kurtosis	8.23
Coefficient of Variability	0.77
Range Minimum	33.60
Range Maximum	2,996.28
Range Width	2,962.69
Mean Standard Error	1.99



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

Percentiles:

<u>Percentile</u>	<u>BCFG</u>
100%	33.60
95%	150.12
90%	191.58
85%	223.87
80%	255.15
75%	284.24
70%	313.72
65%	344.24
60%	376.73
55%	410.09
50%	447.41
45%	488.03
40%	533.66
35%	583.30
30%	643.51
25%	718.44
20%	814.73
15%	938.09
10%	1,131.89
5%	1,489.43
0%	2,996.28

End of Forecast

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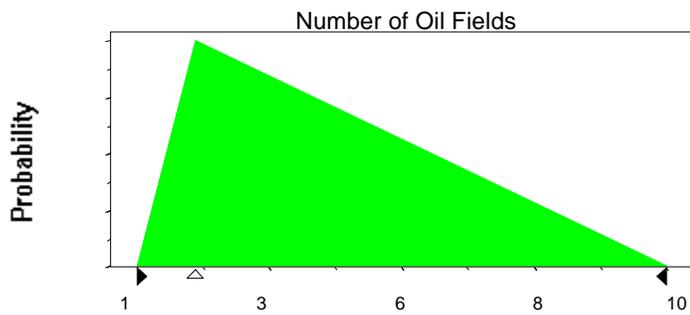
Assumptions

**Assumption: Number of Oil Fields**

Triangular distribution with parameters:

Minimum	1
Likeliest	2
Maximum	10

Selected range is from 1 to 10  
Mean value in simulation was 4



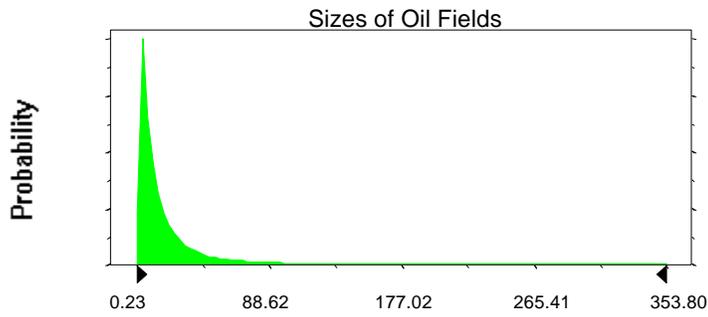
**Assumption: Sizes of Oil Fields**

Lognormal distribution with parameters:	Shifted parameters	
Mean	19.03	24.03
Standard Deviation	35.46	35.46

Selected range is from 0.00 to 395.00                      5.00 to 400.00  
Mean value in simulation was 18.60                                      23.6

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Assumption: Sizes of Oil Fields (cont'd)

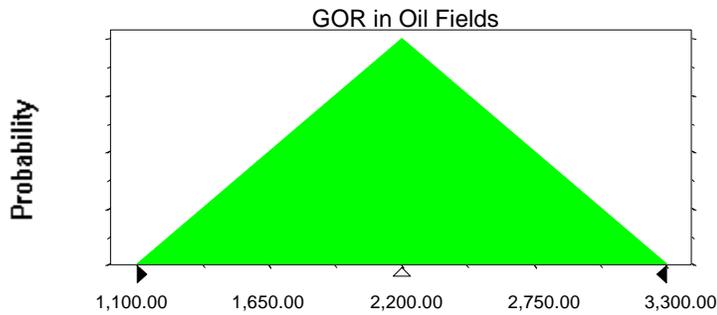


Assumption: GOR in Oil Fields

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 2,200.18



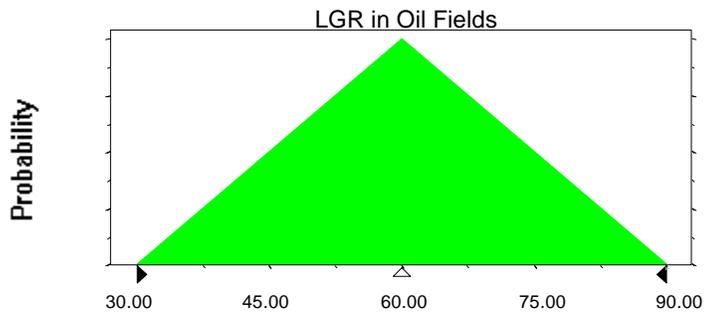
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**Assumption: LGR in Oil Fields**

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 60.03



**Assumption: Number of Gas Fields**

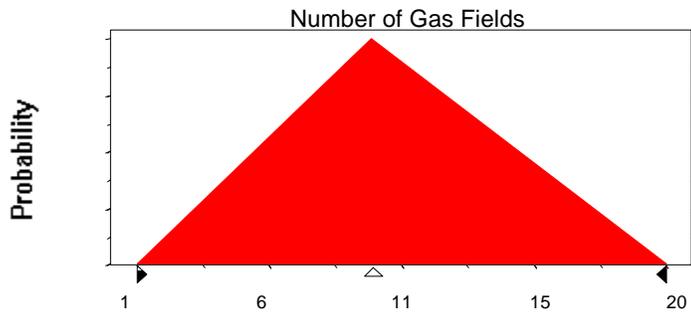
Triangular distribution with parameters:

Minimum	1
Likeliest	9
Maximum	20

Selected range is from 1 to 20  
Mean value in simulation was 10

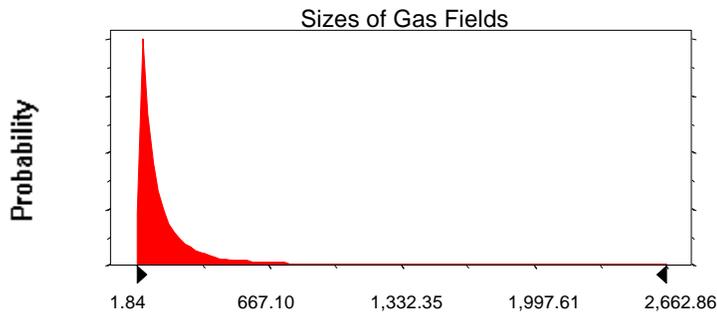
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Assumption: Number of Gas Fields (cont'd)



Assumption: Sizes of Gas Fields

Lognormal distribution with parameters:	Shifted parameters	
Mean	146.06	176.06
Standard Deviation	267.50	267.5
Selected range is from 0.00 to 2,970.00	30.00 to 3,000.00	
Mean value in simulation was 142.39	172.39	



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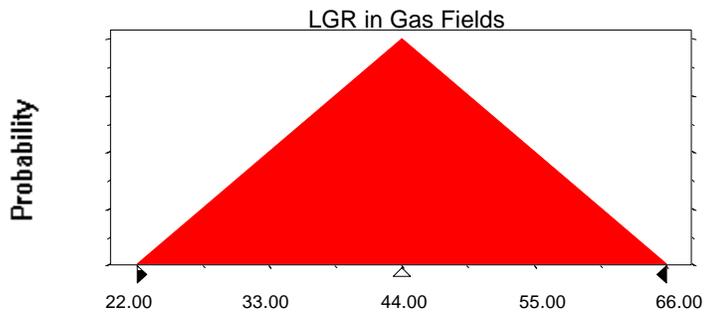
**Assumption: LGR in Gas Fields**

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 43.99



End of Assumptions

Simulation started on 8/23/99 at 10:00:40  
Simulation stopped on 8/23/99 at 10:15:13