Yerington XRF Measurement Precision Optimization Determination - Using Copper Measurements

60-second Measurement Duration

Meas. No.	Duration (seconds)	Cu Conc. (ppm)	Statistical Calculations	
1	60	1395	Mean	1367
2	60	1393	Standard Deviation	24.0
3	60	1335	Variance	575
4	60	1381	Coef. Of Variation	0.0175
5	60	1374		
6	60	1341		
7	60	1394		
8	60	1366		
9	60	1339		
10	60	1351		

80-second Measurement Duration

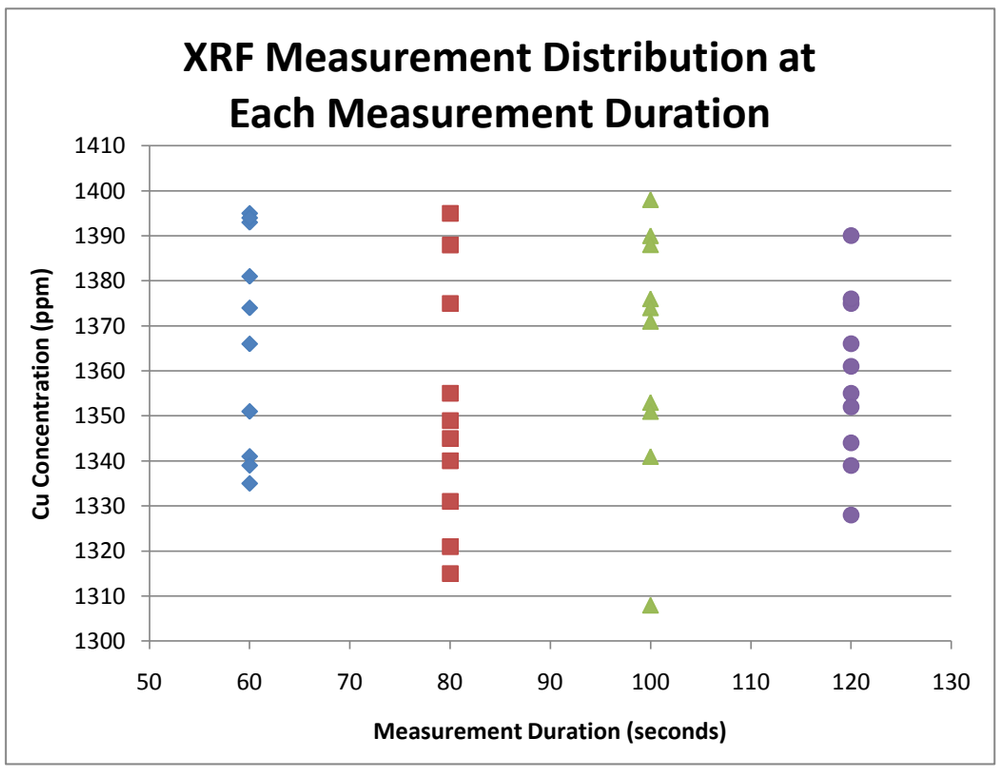
Meas. No.	Duration (seconds)	Cu Conc. (ppm)	Statistical Calculations	
1	80	1331	Mean	1351
2	80	1388	Standard Deviation	27.2
3	80	1315	Variance	739
4	80	1349	Coef. Of Variation	0.0201
5	80	1345		
6	80	1355		
7	80	1395		
8	80	1340		
9	80	1375		
10	80	1321		

100-second Measurement Duration

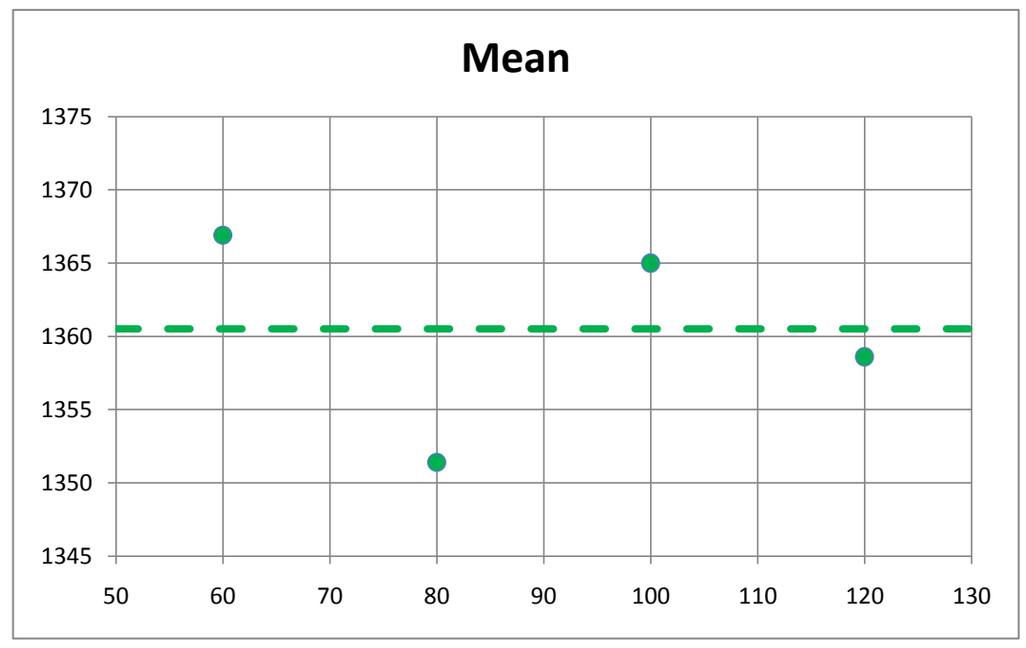
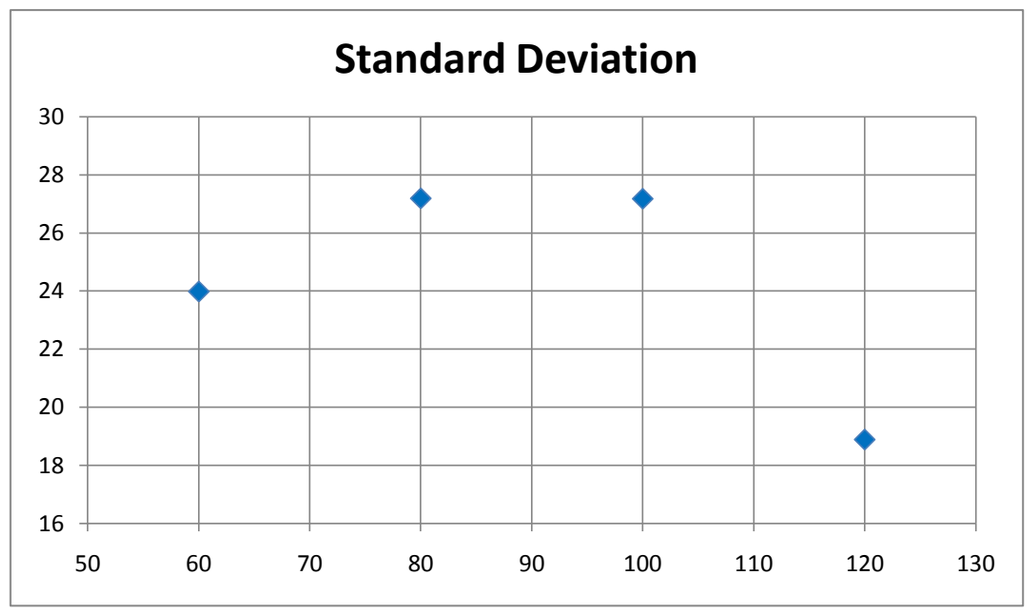
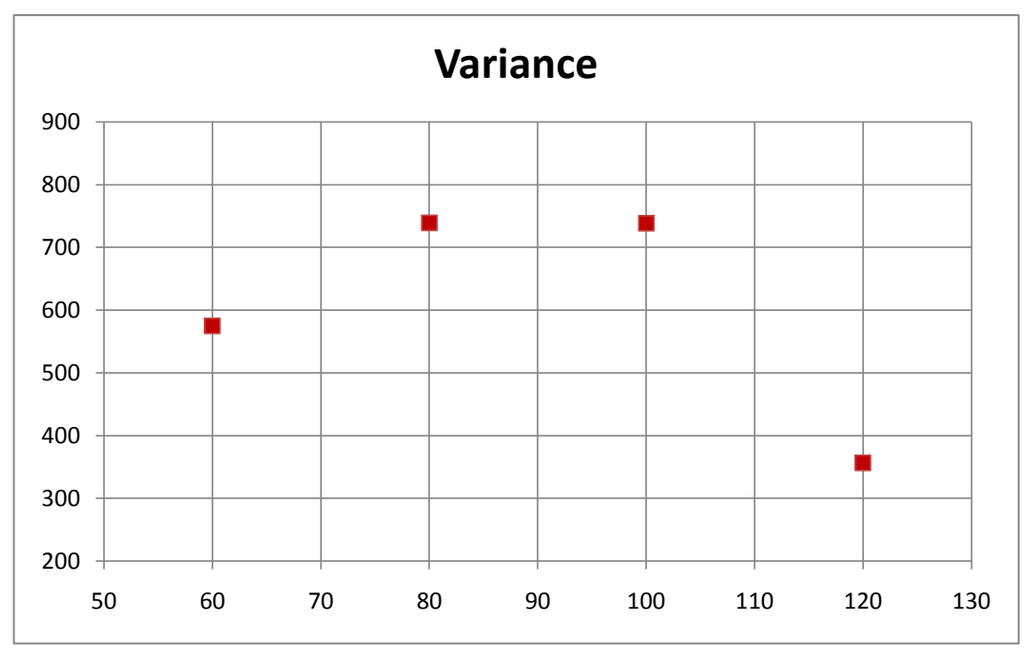
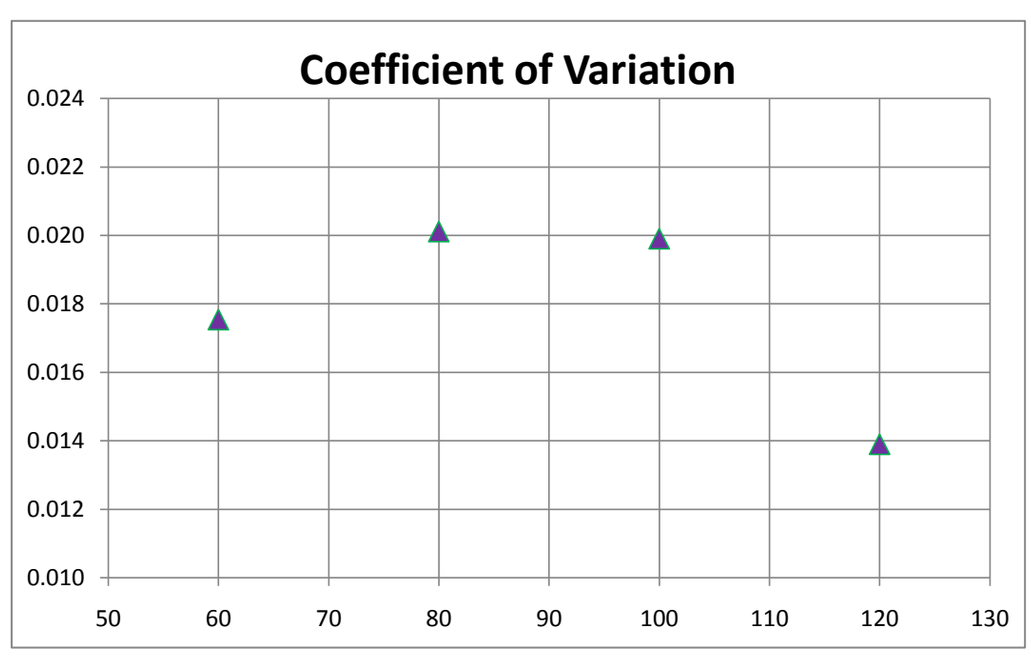
Meas. No.	Duration (seconds)	Cu Conc. (ppm)	Statistical Calculations	
1	100	1390	Mean	1365
2	100	1308	Standard Deviation	27.2
3	100	1376	Variance	738
4	100	1374	Coef. Of Variation	0.0199
5	100	1371		
6	100	1353		
7	100	1398		
8	100	1388		
9	100	1341		
10	100	1351		

120-second Measurement Duration

Meas. No.	Duration (seconds)	Cu Conc. (ppm)	Statistical Calculations	
1	120	1355	Mean	1359
2	120	1328	Standard Deviation	18.9
3	120	1390	Variance	356
4	120	1366	Coef. Of Variation	0.0139
5	120	1361		
6	120	1375		
7	120	1344		
8	120	1339		
9	120	1376		
10	120	1352		



Summary Statistics for Plotting

Duration (seconds)	Mean	Standard Deviation	Variance	Coefficient of Variation
60	1367	24.0	575	0.0175
80	1351	27.2	739	0.0201
100	1365	27.2	738	0.0199
120	1359	18.9	356	0.0139

Note: The mean value for all measurements (60, 80, 100, and 120 second data sets combined) was 1361. A comparison of the mean values for individual data sets indicates that the mean of the 120 second data set most closely reflects the mean of all data. This result is consistent with the other statistical values which indicate measurements in the 120 second data exhibit the least amount of scatter around the mean (i.e., measurements are most comparable to one another).