2) Yes, by visual inspection the histogram indicates that the machines are capable of meeting specification.

4) By visual examination it seems like the N-5 is unstable and N-7 may be in control.

5) Control charts contain data about process averages within a sample which is far more valuable than a frequency distribution because with process averages you can calculate variation which is a true measure of process capability.

Quantitative

1) N-5
   Average  9.583
   Standard Dev  2.526

   N-7
   Average  8.783
   Standard Dev  3.125

2) N-5, 6*2.526=15.159
   N-7, 6*3.125=18.750

4) N-5 was stable during the when the sample data was taken but N-7 wasn’t stable during study. N-7 has a disproportionate amount of data outside of the control limits and no assignable cause is given.

5) 6*stdev< (USL-LSL)
    6*stdev=(USL-LSL)

6) N-5, (6*6.50)/2.534= 9.945
   N-7, (6*4.20)/2.534= 15.391

   N-7, because it’s capability is closer to 6*stdev=(USL-LSL) than N-5.

7) See attached page