Nickel powders are used in coatings used to shield electronic equipment. A random sample is selected, and the sizes of nickel particles in each coating are recorded (they are assumed to be approximately normally distributed):

3.26, 1.89, 2.42, 2.03, 3.07, 2.95, 1.39, 3.06, 2.46, 3.35, 1.56, 1.79, 1.76, 3.82, 2.42, 2.96

a. At the 5% significance level, on average, do these nickel particles seem to be smaller than 3?

b. Find a 99% confidence interval for the standard deviation of the size of nickel particles.