Figure 4.3 is a graph of the normalized velocity of water around the sphere vs. the normalized distance away from the sphere. The experiment started by using a LDA measurement device to record the velocity of the particles at a given point (determined by the point that is made when the lasers crossed). That point measured directly underneath the sphere starting about 5 mm away and moving with a step size of .2 mm toward the sphere until the point was only .2 mm away. The last .2 mm next to the sphere was not measured because the number of samples that the LDA took are based on the velocity of the fluid. When the velocity of the material it is measuring approaches zero there will be almost no samples taken, so this will provide useless data because it is not averaged with as many samples. When this is compared to a theoretical graph of what the velocity next to a sphere would look like, they are very similar. As can be seen the velocity doesn’t drop off linearly, but rather more or less exponential, the

In the figure above, the relationship between the Reynolds number and coefficient of drag is explained. In order to understand the behavior displayed at a Critical Reynolds number, the pressure distribution was measured at thirty-six points over the sphere surrounding the area in which the drag coefficient dropped drastically and rapidly. From the experiment, it was found that this behavior is due to two factors: the separation point moving towards the back of the sphere body and the separation point becoming more turbulent than laminar.