Test 2- Reflection

For test two, the problems provided helped to reinforce the course learning objectives of computing friction losses in pipes, as well as apply Bernoulli's equation and the principles of conservation of energy. I was able to compute flow rate at various parts of a pipe system by applying Bernoulli's equation, using systems of equations, and iterations as well.

When comparing my test with the solutions, I do see that I followed the process fairly well. In problem one, I used the moody chart and got a different value for Fsubt. This changed the values that I got versus what was posted. I also had some differences in my iterative process, and the combination of those two things, left me with varying results. They were close in value, but not spot on. For problem #2, I assume room temperature water for the fountain, so my density and viscosity values were different. I also had different F sub t values for this problem. My answers were correct in terms of the values I used, and close- but different from the solutions provided because of these differences. I think that I need a better understanding of when to calculate the friction factor and when to use a table value.

PROBLEM 1)

1. Correct application of 2 Bernoulli's + Conservation of mass? 3/12
2. Were all minor losses handled? 2/12
3. Have the equations worked out with numbers? 1/12
4. Was there an iterative procedure to solve system of eqs? 3/12
5. Was the velocity criterion checked? 1/12
6. Are the results correct? 1.5/12

TOTAL **11.5/12**

PROBLEM 2)

1. Used Bernoulli's to determine velocity to then compute Q? 2/12
2. Was the pipe sized using velocity criterion? 2/12
3. Was the pump head computed from Bernoulli's eq? 1/12
4. Were ALL energy losses included? 3/12
5. Was the annulus energy loss handled with hydraulic diam? 1/12
6. Was the pump power computed? 1/12
7. Are the results correct? 1.5/12

TOTAL **11.5/12**

FINAL GRADE:

(90/2)*(11.5/12 + 11.5/12) = 86.25

During the test, I had a lot of confusion about how to apply the iterative process in excel to question number one. This took a lot of time for me. I looked back on how I practiced along with the module examples several times, and eventually landed on what felt correct. I approached the test with as much patience as possible, tried to consider what steps made the most sense to move forward. I wrote and rewrote the equations many times.

There is not much that I could change, given the amount of time I had to practice and learn. I believe with practice I will become better at applying these equations, and understanding the design considerations on a deeper level. I believe that these concepts will be useful in a variety of ways for engineers and in my career, including, pipe design and pump specifications, along with designing fountains, and water drainage systems, which are critical parts of buildings and other infrastructure.

I believe I have improved a lot in understanding how to manipulate Bernoulli's equation, and recognizing the values that cancel out, given a variety of circumstances. It feels less intimidating than it did initially, but I still have much to learn. I also feel that the way I have organized my information and explained the process, is more clear than the last test. That was a goal of mine, which I feel that I met.

I took a significant amount of time on this test. I would say 8+ hours. A lot of that time consisted of me rewatching module videos, checking the book for resources and processes, and working on the iterations in excel. Honestly, I don’t know how to organize my time in a better way, I feel that I am learning some challenging material, in a short period of time, and in a way that is not natural to me. With that being said, I am doing my best.