Test 2 demonstrated work to a few of the course learning objectives listed in the syllabus. For one, students were able to explain the fluid dynamics in pipes and fittings on both problems. Additionally, students applied the principles of conservation of energy and mass several times for different equipment layouts on this test. Finally, both problems allowed students to compute friction losses in each system.

Problem 1.

It seems as if my answer to this question matched up fairly well with the provided solutions. There were slight differences in the values obtained while moving through the calculations, but this was likely due to a slight difference in the equation set up and also could have been attributed to rounding differences. The procedure seemed to match up fairly well with differences in what reference points were chosen. For the second part of the problem I only took the velocity at one of the points instead of all three like the solution, but the same answer was ascertained nonetheless. I would advise myself to allow for more time on the problem and to be a little more organized if I were to take this test again in the future.

Problem 2.

For the second problem, it seemed as though I might've had the right idea as far as procedure went but did not take the time to do a detailed analysis of the system which therefore made it so my calculation for the losses was thrown off. This was probably due to the fact that I was pressed for time while doing the last problem, and in my overview of the system I missed some details in the configuration that would've allowed me to perform a more thorough calculation. I would advise myself to allow myself more time to run through the problem next time so that I could take into account all minor losses that may occur and have time to set up my problem and equations in a more organized fashion so that it would be easier to follow along with my own work and perhaps catch any mistake before submission.

Problem 1	
Correct Application	3/12
Minor Losses	2/12
Worked Out Eq.	.8/12
Iteration	3/12
Vel. Criterion	.9/12
Results	1.9/12
Total	**11.6/12**

Problem 2	
Use Bernoullis	2/12
Pipe Sized	1.7/12
Pump Head	1/12
Energy Loss	2/12
Annulus Energy	.9/12
Pump Power	1/12
Results	1.5/12
Total	**10.1/12**

Based on the rubric provided and using the available solutions as comparison my grade should be roughly an 81.4. I believe that the strengths of my test lie within the overall set up and inspection of the problems and use of Bernoullis but there are weaknesses when it comes to taking into account all minor losses in the system.

I wouldn't say I ran into many issues while completing the test. The only glaring one would be lack of time but of course that is on me. To complete the whole test I tried to take it one problem at a time. After looking at the system I would try to imagine how to apply Bernoulli's equation first then go from there drawing on my knowledge of the material and examples in class. I have learned how to apply fluid dynamics to pipes, pumps, and fittings in real world problems and (through the solutions) how to calculate the cost of operating a system. I'm sure engineers use these concepts when designing any number of systems involving pipes and fluids for a number of different applications, as well as seeing how economical these designs would be in practice. I think that I will use everything that I have learned in future courses as well as my career at some point. I believe I was most successful at using bernoulli's equation for the different parts of the system and using it effectively to obtain values that I needed. I spent roughly 7-8 hours on this test, with roughly 4 hours spent on the first problem and 3 hours on the second. I would give myself more time to tackle these problems effectively and in detail in the future to make sure I could have enough time to come up with the right answers.