Test Reflection 3

1) How and why the test demonstrates your work toward one, or more, of the course learning objectives. Be specific on the course objectives you decide to mention.

- Identify and solve for different very specific industrial problems, such as, open-channel flow, cavitation, water hammer, drag, lift, forces in pipes, and learn about different instruments to measure fluid flow quantities (such as, pressure, fluid velocity, flow velocity, etc.) Also applied the principles of conservation of energy (Bernoulli's equation) and mass to fluid flow systems. We also computed friction losses in pipes for a variety of configuration (series & parallel for this test)

2) How your test compares against the available solution. State the mistakes you made and what you will do next time to avoid making the same mistakes. Please point out exactly where you made the mistake, say why you made the mistake, and how you should have done it. If you were taking this test again, what advice would you give yourself to ensure that you had a successful test?

- One of the major differences between my test and the answers was that I carried out my calculations in English units. Also in part B I did not properly set up my 2 equations to relate power to my bernoulli's equations. Looking back at it now, if I received a problem similar to this one I'd be able to compute the problem next to perfect.

3) What your grade should be. Base it on the writing rubric provided in the test and the correctness of your solution. What are the strengths and weaknesses of your test?

- Based on Rubric. Strengths- Computing the losses and friction coefficients went well for me on this test. Weaknesses - Overthinking the link that power had in linking the series to a parallel piping system. If I got the correct Bernoulli's equation utilizing power I wouldn't have been working against myself so hard in the excel. It came to a point where I changed equations around just to get a return value.

PUMP HEAD

Initial setup – labeling, reference, points	*1/5 out of 1/5*
Appropriate use of Bernoulli's to solve for hA	*1/5 out of 1/5*
Compute all 11 energy losses	*1/5 out of 1/5*
Compute pump power	*1/5 out of 1/5*
Correct final results	*0.94/5 out of 1/5*

TOTAL FLOW RATE AFTER OPENING VALVE

Setting up the equations (2 eq from Bernoulli)	*1/7 out of 2/7*
Consider ALL energy losses in each branch	*1/7 out of 1/7*
Setting up the iteration process	*1/7 out of 1/7*

Solving the equations using excel *1/7 out of 1/7*
Tried all valve opening cases *1/7 out of 1/7*
Correct final results *0/7 out of 1/7*

FINAL GRADE:
(90/2)(4.94/5 + 5/7) = 76.6*

4) Discuss the following:

a. What issues did you encounter in completing the test? How did you troubleshoot them?

- I had trouble figuring out the link between series and parallel in my Bernoulli's equations in part B. Through trial and error and ultimately emailing the professor.

b. What steps did you take to complete the whole test? Would you change something?

- I followed many of the steps from the lectures that involved finding losses across the system to find the overall flow. I would change how I articulated some of my questions when attempting to get help. In hindsight I could have asked it in a different way to fully understand the concept.

c. What new concepts have you learned?

- How to utilize pump power to determine flow rate going through a parallel piping system.

d. Where do you think engineers use those concepts (provide specific examples)?

- Yes, in the real world piping systems go from series to parallel all the time. Engineers must still be able to evaluate the relationship between them to find the information that they need. .

e. Where do you think you will be using everything you learned?

- I believe that I will be able to utilize some of these concepts on future lab reports that may involve a piping system like this.

f. Do you think what you learn is important for your professional career?

- Yes indeed, I ultimately want to be a test engineer for different subsystems so this could come about and I would know what direction to tackle it.

g. How, when, where and why you might use this information or skill in the future?

- I will be able to use skills learned during this exam to apply to finishing up our group project piping system design.

h. Have you been able to apply concepts you have learned in the course to what you do at work or in other courses?

- Yes I have especially in fluid lab reports.

i. What areas did you feel you were most successful, or improved the most?

- I improved the most by organizing my work in a way that it flowed into what I needed next.

j. How do you see this course's content intersecting with your field or career?

- Yes in the shipbuilding industry concepts of fluids and piping come up on the regular basis. There are so many various piping systems on a ship that it is important to know what is going on.

k. How much time did you spend on the test? How was the time organized? What Would you do differently? Why?

- I essentially spent 2.5 days on it sporadically to complete this test. I would spend more time making sure I had equations right first before I moved to excel.