For every test you archived in your ePortfolio Google drive, you should have a reflection that briefly discusses:

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.

This test demonstrates multiple objectives, including fluid properties, buoyancy, stability, horizontal and vertical forces with fluid moving through a pipe system, flow nozzle calculations, open channel designs, water hammer and/or cavitation and fluid flow drag. The test had an elevated tank with a gate valve to release a fluid into a tanker truck. I had to determine the size of the buoy that would allow a gate seal to open when the height of the fluid changed in the tank, determine the horizontal and vertical forces of the discharge pipe so the Civl Engineer could determine a support, determine what the pressure drop would be if there was a flow nozzle added to the pipe system, determine the size of a trapezoidal open channel to handle a possible spillage of 400 GPM, determine where water hammer could occur and if cavitation would be possible, and finally determine if an object at it's max weight would move in the open channel from the fluid force.

2) How your test compares against the available solution. State the mistakes you made and what you will do next time to avoid making 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?

There again the solution shows a lot more detail than what I had on my test. I think there were some similarities. I thought since this was based off of the previous test, I assumed the numbers would be referenced from it. Mistakes I made, were the following: writing the procedure as what was written on the test, which is what you mentioned in the email from the pre-test, I just didn't figure that out until I saw on the solution what you actually meant, the MB for the stability of the buoy, I think there was a lot missed for the horizontal and vertical forces in the pipe section, the open channel section, I used CAD to determine a size that would hold more than the volume of the tank, I missed to the thickness calculation on the pipe, and the fluid drag over an object, I think I was off there as well. If I were taking the test again the advice, I would give myself is to try to think what Dr. Ayala would think or say. There was a lot of detail I would not have known to put in it.

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?

I know this time; I think I did better with following the rubric for the sections of the test. My strengths would be visualizing the system and understanding systems. My weaknesses would be setting up the problem and putting it down on paper correctly, as well as portraying all the details needed, and getting in a hurry. I always tell myself to slow down but apparently not in this case. Trying to get inside your head to know what your thinking and how you would do these problems. I think my grade would be passing, at least I hope. 4) Discuss the following:

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

I looked at this as if I really had to take over someone else's design, I typically would have rather start over from scratch. I this case like the problem statement mentioned "You are hired to complete the design..." Trying to dissect the problem and carve out the details is not a strong suit for me.

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

I tried to make sure I answered all the questions. In the test, I would have gone about doing something differently. I think more guidance on what is needed, needs to be portrayed a little more. I'm still missing some detail to make this go smoother.

c. What new concepts have you learned?

How to look at things arounds us completely different in our surrounding world. There are all kinds of fluid mechanics all around us.

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

They probably use this at oil fields, concrete plants, large farm for tractor sprayers...

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

I am not sure where I will be using what I have learned from this test in my current job. Currently, I do not have these types of problems or designs where I work. I do see where I will be using other topics being discussed in the class in my career.

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

Maybe in future job positions.

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

If I am looking for a job in the future, I can expand my search with these new skills I am learning.

h. Have you been able to apply concepts you have learned in the course to what you do

at work or in other courses?

Not yet, but upcoming chapters look like there will things I can use at work.

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

I'm not sure I would be the most successful at working on these types of problems. Doing this type of work, you can see that experience goes a long way. There is always room for improvement no matter what.

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

In the upcoming chapters, there looks to be a lot of topics that could correlate with work related projects which include drag and lift, instrumentation, and pumps.

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

I spent close to 5 days working on the test and that includes the pre-test. I think maybe working with our groups on the next test would be beneficial to may be help learn things at a similar pace and asking questions to our peers might be easier.

In the reflection, you should describe the test using facts and feelings providing relevant details. You should identify strengths and weakness of the test and connect the test with experience. Finally, you should also clearly explain the quality of the artifact and give insight and state reason for judgment.

You have the option of writing your reflection on a document or you could also create an audio. In either of the cases, you must upload the reflection to your website.

This test was a challenge, a lot of gears turning and reading notes and re-watching lectures and going over the lecture problems. I am not a good test taker. I have never been a good test taker. I excel at hands-on task and completing task on time. I get in a hurry a lot of times and that is where most of my mistakes are made. So, slowing down would be something I need to do more often. I will always be harder on myself because I want to strive to be perfect. We will never be perfect, but always wanting to be better I think is a good quality. I will always want more, know more, learn more, get more, give more...

<u>WRITI</u>	NG RUBRIC			
1.	Purpose		0.5/10.0 out of 0.5/1	.0.0
2.	Drawings		1.0/10.0 out of 1.0/2	10.0
3.	Sources		1.0/10.0 out of 1.0/1	0.0
4.	Design considerat	ions	1.0/10.0 out of 1.0/10.0	
5.	Data and variable	S	0.5/10.0 out of 0.5/10.0	
6.	Procedure		2.0/10.0 out of 2.0/1	0.0
7.	Calculations		2.0/10.0 out of 2.0/2	10.0
8.	Summary		0.5/10.0 out of 0.5/1	0.0
9.	Materials		0.5/10.0 out of 0.5/1	0.0
10.	Analysis		1.0/10.0 out of 1.0/1	10.0
TOTA	AL Í		10.0/10.0 out of 10.0/10.0	
1	Design of buoy to	onen gate		
1.		Hydrostatic force	e on the gate	
	i Magnitude and location $1/4$			1/4 out of $1/4$
	b. Solve for buoy force with moment conservation 1/4 out o			
c. Us		Using buoyancy,	get sphere diameter.	0 out of 1/4
	d.	Buoy stability		1/4 out of 1/4

2. Pipe-elbow forces

4.	Tipe cibow forces			
	a.	Free body diagram and correct forces	1/8 out of 1/4	
	b.	Handling of the pressures	0 out of 1/4	
	с.	Force in x	1/8 out of 1/4	
	d.	Force in y (weight)	1/8 out of 1/4	
3.	Flow-nozzle flowr	neter pressure drop		
	a.	Right equation and A1/A2	1/2 out of 1/2	
	b.	C value	1/2 out of 1/2	
4.	Open-channel des	sign		
	a.	Correct equation	1/8 out of 1/2	
	b.	Area and hydraulic radius	1/8 out of 1/2	
5.	Water hammer & cavitation			
	a.	Water hammer		
		i. Wave velocity (units?) & pressure in	ncrease $0 \text{ out of } 1/4$	
		ii. Operating pressure & Max pressure	0 out of 1/4	
		iii. Pipe thickness	0 out of 1/4	
	b.	Cavitation		
		i. Lowest pressure	0 out of 1/4	
6.	6. Drag force on object at the bottom			
	a.	Right eq: Fdrag>Ffriction	1/4 out of 1/4	
	b.	Correct area	0 out of 1/4	
	с.	Correct velocity	0 out of 1/4	
	d.	How Cd was obtained?	0 out of 1/4	
<u>FINA</u>	L GRADE:			
(· C				

(if everything is correct) 10.0 + (80/6)*(3/4 + =3/8 + 2/2 + 1/4 + 0 + 1/4) = 40.5