## **Test #2 Reflection**

This test makes me demonstrate what I have learned about the following course objectives. For one of the parts I have to use what I learned about pressure, magnitude, and location. For another part of this test, I had to use what I learned about buoyancy and stability to determine if a log would float and if it was stable. For several parts of the test, I had to use what I learned about Bernoulli's equation in different forms. Finally, I had to use what I learned about open channel flow, drag, and lift to determine how deep the channel was and how much drag force a log would experience if it were stuck at the bottom.

My test compared to the solutions is somewhat similar but definitely not correct. For several of the parts I had the correct equation but did not come out with the correct answer. For some of the parts I had an equation used to find what I was trying to find but I used the wrong equation pertaining to units. For instance, there are two different forms of the manning's equation. One is for SI, and one is for English units. I had trouble using the correct one. The thing that hit me the hardest on this test was using the correct units and keeping them right throughout the calculations. For numerous parts of this test, I had the correct equation and had started off correctly but before the end of my calculations I had the units all mixed up and thus my answer was wrong. If I were taking this test again some tips, I would give myself are to make sure you have the correct equations and to be super careful with your units. Go back and double check them even if you have already double checked. My strengths on this test were understanding what was being asked and beginning the process correctly. My weaknesses were using the correct equations and keeping the units correct throughout the process of calculations. My calculated grade is below in the rubric. Some issues I encountered on this test were using the correct equations and converting the units correctly. I tried to overcome this by double checking myself, but it did not work. The steps I took in taking this test was I did the pretest then I looked over it one night and got an idea of what I needed to do. Then a different night I worked on it till I was tired and burned out. Then I worked on it all the next day. And then I worked on it again for several hours the day before it was due. If I could change something I would give myself two weeks to do this test. By learning the concepts on this test, I learned about pressure, magnitude, location, direction, buoyancy and stability, Bernoulli's equation, open channel flow, cavitation, drag, and lift. I mean clearly engineers use these concepts when designing something to carry logs down an open channel. Most of these things could also be used on water parks and pools. I hope to use everything I learned at my future job. Yes, I do think what I learned is important for my career, especially the part about keeping my units correct. If I ever have a job dealing with water or moving fluid is where I would most likely use this information in the future. No, I have not been able to apply what I have learned in this class to my job mainly because I do not currently work in the engineering field. I feel I was most successful at understanding what was being asked and what needed to be found. Hopefully I will have a job one day that I will be able to use some of this knowledge to design things. I spent roughly twenty hours on this test and the time was spaced out over several days so I would not get burned out. If I could do anything differently, I would spend forty hours on this test.

## WRITING RUBRIC (Applied to the whole test, not to particular problems)

1.	Purpose	0.5/10.0
2.	Drawings	1.0/10.0
3.	Sources	1.0/10.0
4.	Design considerations	1.0/10.0
5.	Data and variables	0.5/10.0
6.	Procedure	2.0/10.0
7.	Calculations	2.0/10.0
8.	Summary	0.5/10.0
9.	Materials	0/10.0
10	Analysis	1.0/10.0
	TOTAL	9.5/10.0

## PROBLEM 1)

1.	Open channel depth (y)		
		Correct equation	1/2
	a.	Area and Hydraulic radius	1/2
2.	Pipe-elbow forces		
	•	Free body diagram and correct forces	0/3
	a.	Force in x	0.5/3
	b.	Force in y (weight)	1/3
3.	Largest wood log		
		Size	1/2
	a.	Stable?	1/2
4.	Flow-nozzle flowmeter pressure drop		
		Right equation and A1/A2	0.5/2
	a.	C value	0.5/2
5.	Water hammer pressure increase		
		Wave velocity (units?)	0.5/2
	a.	Pressure increase	0.5/2
6.	Drag f	orce on a stuck log	
		Correct area	0.5/3
	a.	Correct velocity	0.5/3
	b.	How Cd was obtained?	1/3
7.	Force on the flange		
		Magnitude	0/2
	a.	Location	0/2
8.	Final a	actual values of the results	0.5/1

## FINAL GRADE:

 $\overline{9.5+(80/10)^*(2/2+1.5/3+2/2+1/2+1/2+2/3+0/2+0.5/1)} = 46.83$