Client Interview

Scott Smith

1) Can you give us a quick explanation of the problem?

- Chilled water tank collects sediment at the bottom of the tank that eventually needs to be removed. Only solution is costly and cumbersome. Need a solution that can clean tanks easier.

2) Can you explain the current method of removing the sediment?

- Drain 2.5 million gallon tank and suck the sediment out with a vacuum.

3) How quickly does the sediment build up and how often is it cleaned?

- Sediment buildup varies but tanks are cleaned annually.

4) When is next scheduled tank cleaning and can we watch the process firsthand?

- Tanks are cleaned during the chilling season. Next chilling season may-october. Probably not until near the end of our senior year which would not help us.

5) How much does it cost to remove sediment with current method?

- The cost is around $200,000 in chemistry to clean tanks and scuba divers cost around $80,000 for them to go in and inspect the tanks.

6) What is the current method of measuring tank sediment buildup?

- Scuba divers go in and measure sediment buildup.

7) Do you want all of the sediment removed at one time? Is leftover sediment going to be a problem?

- Not crucial. It is recommended to do a slow but continuous cleaning process so tanks are clean year round.

8) What is the sediment made up of?

- Needs to be discovered. Most of it is the products of corrosion and dead biogrowth. Use chemicals like chlorine to kill biogrowth.

9) What is the sediment consistency? Is there a solid buildup at the bottom of the tanks that turns into a solution?

- Mostly a gooey solution. Does not collect at bottom. More floaty than mud, kind of like a fine silt.

10) Where is the removed sediment relocated?

- Cleaners take it away and not sure where they relocate it.

11) What are the dimensions of the tank?

- 88 ft high and 67 ft diameter

12) Do you have a blueprint of the tanks?

- Yes and he will get them to us.

13) Is water gravity fed out of tanks or is there a pumping system to remove the water?

- All of the water is pumped out of the water tanks.

14) How is the water currently filtered?

- Water is filtered by sand filters that are side stream filters. Small stream leaves the pipe and is filtered by side stream filter then returns to the stream that is run continuously so water is always filtered. Sand filters are insoluble in water and are 40 micron filters.

15) Are there regulations for the tanks? Where can these regulations be found?

- No regulations for chilled water tanks but drinking water tanks do have regulations. Can visit with people from the EPA to get regulations.

16) Do you want a permanent structure or something that can be moved from tank to tank?

- To be decided in our design.

17) Should this be manually run or automated on scheduled intervals?

- To be decided in our design.

18) Are scuba divers going to be available for us to use?

- Doubtable. Cross that bridge when we get there if we need them.

19) Do you have any specific deadlines of when you would like to see our deliverables?

- Yes, system should prove working at least before design expo. Other deliverables are on BBLearn.

20) What kind of budget can we work with?

- Not determined but will be determined in next few weeks.

21) Can we schedule a date and time to get a tour of the tank to get a better understanding of how it works?

- Yes we will set up at time with doodle.

22) Are we only proposing our design ideas to you, or will there be others involved in deciding which one we go with?

- He will put up a panel to present our proposals then they will decide on them and tell us which one to push. Panel is real engineers so presentation needs to be fine tuned.

23) What type of modeling or research should we include in our design idea proposals?

- Any resource we have. For design, we can use solidworks or any other design programs we wish for our project.