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Cistern User Scenario

Joe is a Georgia Tech Facilities Management maintenance worker who specializes in the electrical field. He is used to most day to day tasks that an electrician must face. Recently, Georgia Tech decided to go greener by collecting rainwater at Tech Green and other miscellaneous sources to serve as toilet water in newly constructed buildings such as the Clough Undergraduate Learning Commons or the Engineered Biosystems Building (EBB). Joe receives a phone call in the morning from John, the building manager for the EBB, complaining that the toilets won't flush. Joe rushes to the EBB and goes to the skid, a 20x20 foot area where the cisterns are managed. There are 7 mechanisms that he suspects could go wrong with the cistern system. He asks himself "Why didn't the domestic water turn on? Is there enough water there to pump? Did one of the filters get clogged up? Did an electrical outage take out one of the pumps?"

To understand what the problem was, Joe first inspects the 800 gallon tank (filled with water), filtration system, blue dyeing system (used to highlight that the water isn't domestic), and proper pumps. First, he glances at the tank and notices water is filled in the tank. Next, he uses his audible device to trace the circuit out to make sure that the power is coming to the panel properly. His device releases a constant tone as he traces the circuit to ensure that current is flowing throughout the wire. If there is no electrical current, no sound is made. Since there there was a constant tone signifying electrical flow, he knew everything was getting energy where it was needed. Next, Joe looked at the domestic water gauge and realized there was enough pressure there. After full inspection, Joe tries reaching down with his hand & audible device in the 800 gallon day tank to check to make sure that the valve is open. If there is flowing water detected, the audible device would release a constant beeping tracker sound with tempo based on how fast the water is flowing. Since, the noise was constant and there were no repetitive beeping sounds, he knew that the valve was not open.

He looks at the tank gauge and realized it read to be 850 gallons, over the 800 gallon limit. As a result, the system was shut off. Any tanks that are below 50 gallons or over 800 gallons make the system turn off. He removed 50 gallons from the tank, making sure the gauge read 800 gallons. Now, he re-tested the system with the audible device, noting a constant beeping tracker sound with intervals between beeps about every 1.5 seconds. With the help of his sidekick tool, he was able to use sound information to understand the status of valve data in the cistern tank network.