**Adaptations**

Many variations can be made from this theme specifically or more generally. (In fact, I modify the theme of this project each year while continuing to use Uncle Mort as the customer.) Specifically, a snow making system can be designed for the hillside, a sprinkler system, or a fountain system that does not need potable water.

Generally pipe/pump systems can be the theme for opportunity recognition in other ways. One scenario has Uncle Mortimer supplying water on his manmade island off the coast of Dubai. A pipe/pump system with a desalination unit is the standard design option; the opportunity lies in the fact that potable water can be pumped directly from the Dubai city water supply 2 miles away. In another scenario, Uncle Mortimer is having a 20 feet by 12 feet salt water aquarium installed on the main floor of his mansion with a small aquarium installed directly above the large tank in his office. Many students try to design a single pipe/pump system for both aquariums. This is costly; two pumps appropriately sized reduces the cost and complexity drastically.

I have also created problem-based learning (i.e., EML) modules for a swimming pool filtration system, a fire suppression system, and a hydraulic gantry crane. These three projects included a customer, but they did not include an “Easter egg” for opportunity recognition.

Finally, the rich uncle theme can be replace with water delivery systems for remote communities or for a large industry. The key is to have a customer/stakeholder.

The Wilderness Resort Lodge project has been implemented at multiple universities with success.