Stepping Down into Cooler Water (Fountains vs. Waterfalls)

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The purpose of this experiment was to measure the decrease in temperatures of warm water that a re-circulating fountain system can produce compared to that of a re-circulating waterfall system. This experiment was created to compare fountains to waterfalls, to learn which structure will have a bigger impact on cooling the hot waters of FPL, Turkey Point Nuclear Power Plant's 5,900 acres of cooling canals. To compare the two structures, and find a more suitable, proactive, and efficient structure for the canals, two models were built, and tested in the same conditions, to see which design produced a greater decrease in temperature. The procedures of each trial, and the testing of both structures are what made this project so accurate. The comparison of waterfalls to fountains is a very important study to the FPL Engineers, because fountains are the most commonly used structure in proposed ideas. However, with the results of the average cooling temperature of the fountain system being only 0.77 degrees Celsius in 3 minutes, compared to the average 9.9 degrees Celsius in 30 seconds of the waterfall system, the waterfall is more suitable and efficient compared to fountains. The comparison of waterfalls to fountains is very helpful to the community, because it shows what structure should be used for quicker and more efficient results. The effect that the waterfall system can have on the surrounding environment and the community compared to the fountain system is more dramatic, and it can change the environment of the 5,900 acres of FPL's cooling canals, as well as other nuclear power plants around the world.

Awards Won:

Third Award of $1,000