For our chemical neutralization mission our primary objective is finding and neutralizing a pool of water within the given amount of time. We are required to navigate within 250 millimeters of a polluted fresh water pool with the water being between 650 and 850 milliliters and the pollution being between 2 and 5 pH. Once we reach the pool we must measure the pH level of the pool and report back to command the pH level to within 0.3 units. After testing the pH level we must then extract a 10-15 milliliter sample of the polluted water. Once we have successfully collected the sample of water we can then begin to neutralize the pool and bring the pH level back to between 6 and 8 and report our level to the command.

To navigate to the pool, we will use distance sensors and angular turning to navigate around the obstacles. After the obstacles are cleared, the OSV will drive to the coordinates of the pool. Once over the pool, the OSV will lower the inner platform into the pool. From here it will extract the sample of the polluted water, measure the pH of the pool, and send the pH reading back to base. After this part is complete, the OSV will dispense the fully saturated sodium bicarbonate solution until the pH of the pool reaches 6 using a closed feedback loop. While the base is being dispensed, the pump will be agitating the pool to mix in the base. Once the pH meter reads a pH within the range of 6 to 8, the OSV will stop dispensing base and will report the measured pH to base.