Project Progress Report #3

A PID controller can now be constructed using the parameters determined previously. While tuning, we had to reduce the gain (Kp) by 25%, because of oscillations that occurred and caused the system to occasionally spend excess time outside the safety zone in more areas than the large jump at t = 212 days. As mentioned earlier, it is important to reduce the oscillations or excessive wear and tear that may occur and cause catastrophic failure.

Occasionally the systems need to be serviced and turned off. Due to the limitations of the controller, initial startup of the system and changing from high to low power will require manual adjustment; otherwise the system will be operating outside the safety zones for a whole week, where it can be damaged severely. Once the adjustments are made, then the controller can be reactivated for safe automated operation.

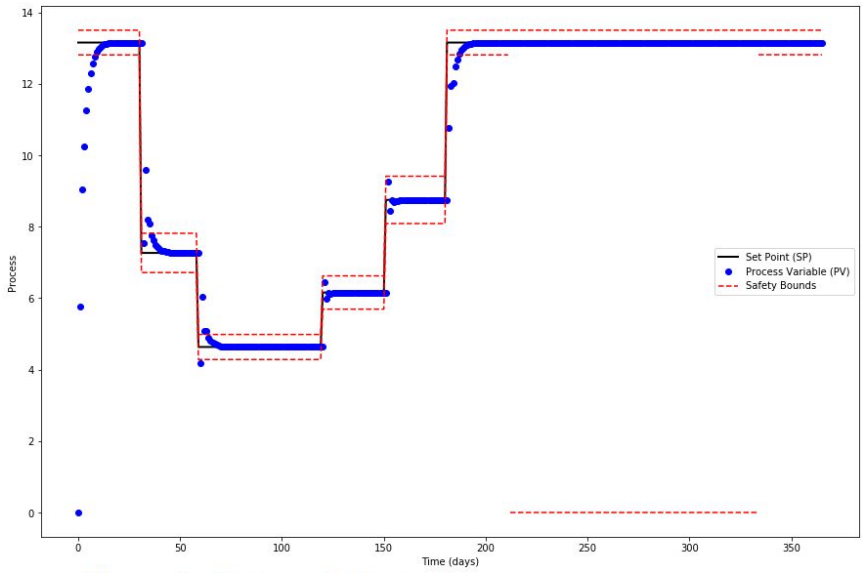

Figure 2 - Untuned Controller

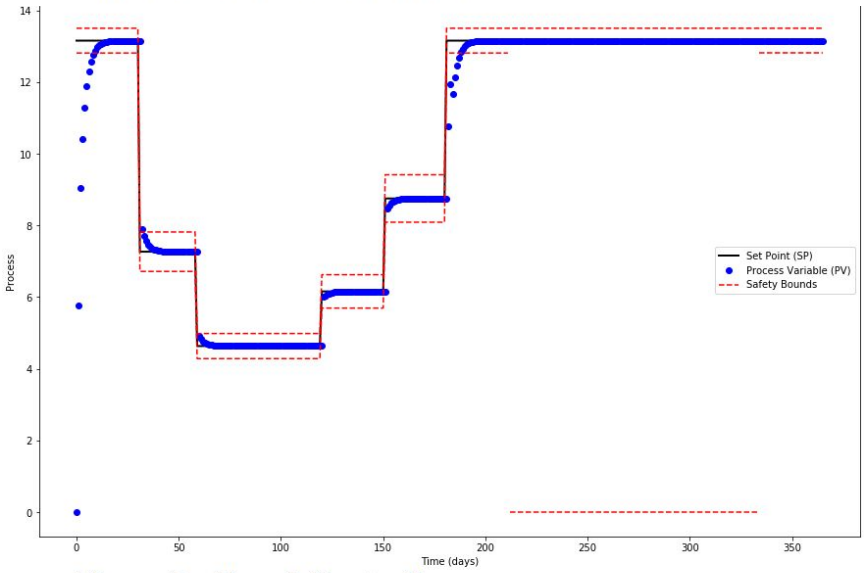

Figure 3 - Tuned Controller