Boiler Controller User Stories

- As the boiler operator, I want the application to be flexible enough that I can replace the boiler in my system or request that the application includes additional boiler features so that these updates occur with a relatively quick turnaround and minimal downtime.
- As a boiler operator, I want the user interface to remain responsive while boiler operations occur so that I can always shut down the boiler in the event of an emergency.
- As a boiler operator, I want to ensure that when I shut down the system, the boiler controller does not suspend execution until the boiler finishes shutting down so that the boiler controller is always aware of the current state of the boiler.
- As a boiler operator, I want to test the functionality of the application by running it with code that simulates the behavior of a boiler, so that I can verify the correct operation before I implement the system.
- As a boiler operator, I want the system to include sufficient user documentation, so that new users can easily learn to operate the boiler controller.
- As a boiler operator, I want to control the boiler start-up process from the user interface and observe the current state of the boiler, so that I can readily identify if the boiler behaves correctly at each step.
- As a boiler operator, I want to specify the configuration settings that the boiler controller uses so that I can reuse the controller for boilers with different configuration settings.
- As a boiler operator, I want the boiler controller to prevent the boiler from entering an unsafe state because of a critical error.
- As a boiler operator, I want the system to be robust enough that minor errors do not result in system shutdown so that the boiler only shuts down if the error prevents safe operation.
- As a boiler operator, I want information about critical errors to be logged to disk so that I can identify and troubleshoot the cause of the error later.
- As a boiler operator, I want to click a button to reset the boiler to a known good state, so that the run interlock (safety control) on the boiler indicates that conditions have been satisfied for the boiler to run safely.
- As a boiler operator, I want the user interface to let me modify only the controls that I am allowed to use at that stage of boiler operation so that I do not accidentally execute any start-up steps out of sequence.
- As a boiler operator, I want the boiler controller to write status information when the boiler transitions between operating states, so that I can review the state information later if an error occurs.
- As a boiler operator, I want to click a button to execute the pre-purge process, which runs the primary fan for a pre-set period to purge gases from the combustion chamber prior to lighting the pilot, so that the system does not explode.
- As a boiler operator, I want to click a button to start the flow of gas, ignite the pilot, prove the pilot flame, and start the boiler so that these steps always occur in the proper order to ensure safe operation.

- As a boiler operator, I want to adjust the rate at which fuel enters the boiler furnace, so that I can adjust the temperature of the boiler and the fuel level is always within safe levels.
- As a boiler operator, when the boiler is running, I want to click a button to shut down the boiler without exiting the system, so that the system always follows the boiler shutdown procedure, and the boiler safely shuts down.