FR-1000 AND FR-251 THEORY

F-251 and F-1000 are the two preheat furnaces located in the block. The operation and start up features of both furnaces are both very similar. F-251 is located north of T-251 and F-1000 is located east of the waste heat boiler and west of R-300.

F-251 uses methane as a fuel gas for its burner. The furnace is used to heat up Dowtherm G which we used on our R-250's to heat up the reactor that happens there. The feed for the burner here comes through a 2" line from the fuel gas header. Also here we have FI-1406 which indicates the fuel gas flow. PV-1398 and PIC-1398 regulates the flow and helps to hold a constant supply pressure - LPSDV-1400 if 1) the oil flow out of F-251 is low, 2) LPS-1400 gives a low burner supply pressure, or 3) FFS-1407 fails to see a pilot light. Also these same alarms will shut off EV-1408 which is on the fuel gas to the pilot. PRV-1399 holds a constant supply pressure to the F-251 pilot. PSV-251 is a 1x0x2 safety valve set at 75 psig which protects the F-251 tubes from over pressuring. KE-1408 is an automatic pilot igniter and is designed to quench a fire should one start due to a ruptured tube.

Over in FR-1000 basic operation and start up are the same. Except here we take methane and use it on both the tube and shell side, and the methane here is used to preheat our reactors R-200/300 and R-400.