



BOILER SEQUENCE OF OPERATION AND SCHEMATIC

BOILER ROOM A-110
BOILER REPLACEMENT AND SYSTEM UPGRADES
 FOR
CLINTON COUNTY CORRECTIONAL FACILITY
 58 PINE MOUNTAIN ROAD, McELHATTAN, PA 17748

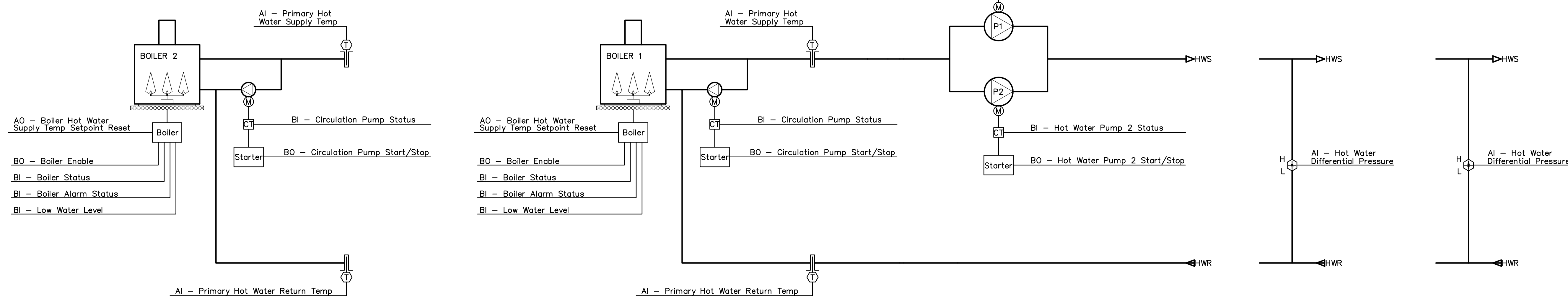


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HOT WATER SYSTEM CONTROL DIAGRAM

HOT WATER SYSTEM SEQUENCE OF OPERATION

BOILER SYSTEM - RUN CONDITIONS:
THE BOILER SYSTEM SHALL BE ENABLED TO RUN WHENEVER OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).

THE TWO BOILERS SHALL OPERATE IN LEAD/STANDBY FASHION

THE LEAD BOILER SHALL RUN FIRST.

ON FAILURE OF THE LEAD BOILER, THE STANDBY BOILER SHALL RUN AND THE LEAD BOILER SHALL TURN OFF.

THE DESIGNATED LEAD BOILER SHALL ROTATE UPON ONE OF THE FOLLOWING CONDITIONS (USER SELECTABLE):

- MANUALLY THROUGH A SOFTWARE SWITCH
- IF BOILER RUNTIME (ADJ.) IS EXCEEDED
- MONTHLY

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- BOILER 1
- FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
- BOILER 2
- FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.

THE BOILER SYSTEM SHALL BE ENABLED TO RUN WHENEVER OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).

TO PREVENT SHORT CYCLING, THE BOILER SYSTEM SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE), UNLESS SHUTDOWN ON SAFETIES OR OUTSIDE AIR CONDITIONS.

EACH BOILER SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

BOILER SAFETIES:

THE FOLLOWING SAFETIES SHALL BE MONITORED:

- BOILER ALARM.
- LOW WATER LEVEL.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- BOILER ALARM.
- LOW WATER LEVEL ALARM.

HOT WATER PUMP LEAD/STANDBY OPERATION:

THE TWO HOT WATER PUMPS SHALL OPERATE IN A LEAD/STANDBY FASHION.

- THE LEAD PUMP SHALL RUN FIRST.
- ON FAILURE OF THE LEAD PUMP, THE STANDBY PUMP SHALL RUN AND THE LEAD PUMP SHALL TURN OFF.

THE DESIGNATED LEAD PUMP SHALL ROTATE UPON ONE OF THE FOLLOWING CONDITIONS (USER SELECTABLE):

- MANUALLY THROUGH A SOFTWARE SWITCH
- IF PUMP RUNTIME (ADJ.) IS EXCEEDED
- MONTHLY

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- HOT WATER PUMP 1
- FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.
- HOT WATER PUMP 2
- FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.

CIRCULATION PUMP:

THE CIRCULATION PUMP SHALL RUN ANYTIME THE BOILER IS CALLED TO RUN AND SHALL HAVE A USER DEFINABLE (ADJ.) DELAY ON STOP.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- CIRCULATION PUMP FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- CIRCULATION PUMP RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- CIRCULATION PUMP RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.

BOILER ENABLE:

THE BOILER SHALL BE ENABLED WHEN THE BOILER SYSTEM IS COMMANDED ON. THE BOILER SHALL BE ENABLED AFTER PUMP STATUS IS PROVEN ON AND SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- BOILER FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- BOILER RUNNING IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- BOILER RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT.

HOT WATER SYSTEM SEQUENCE OF CONTROL AND SCHEMATIC DIAGRAM

NOT TO SCALE