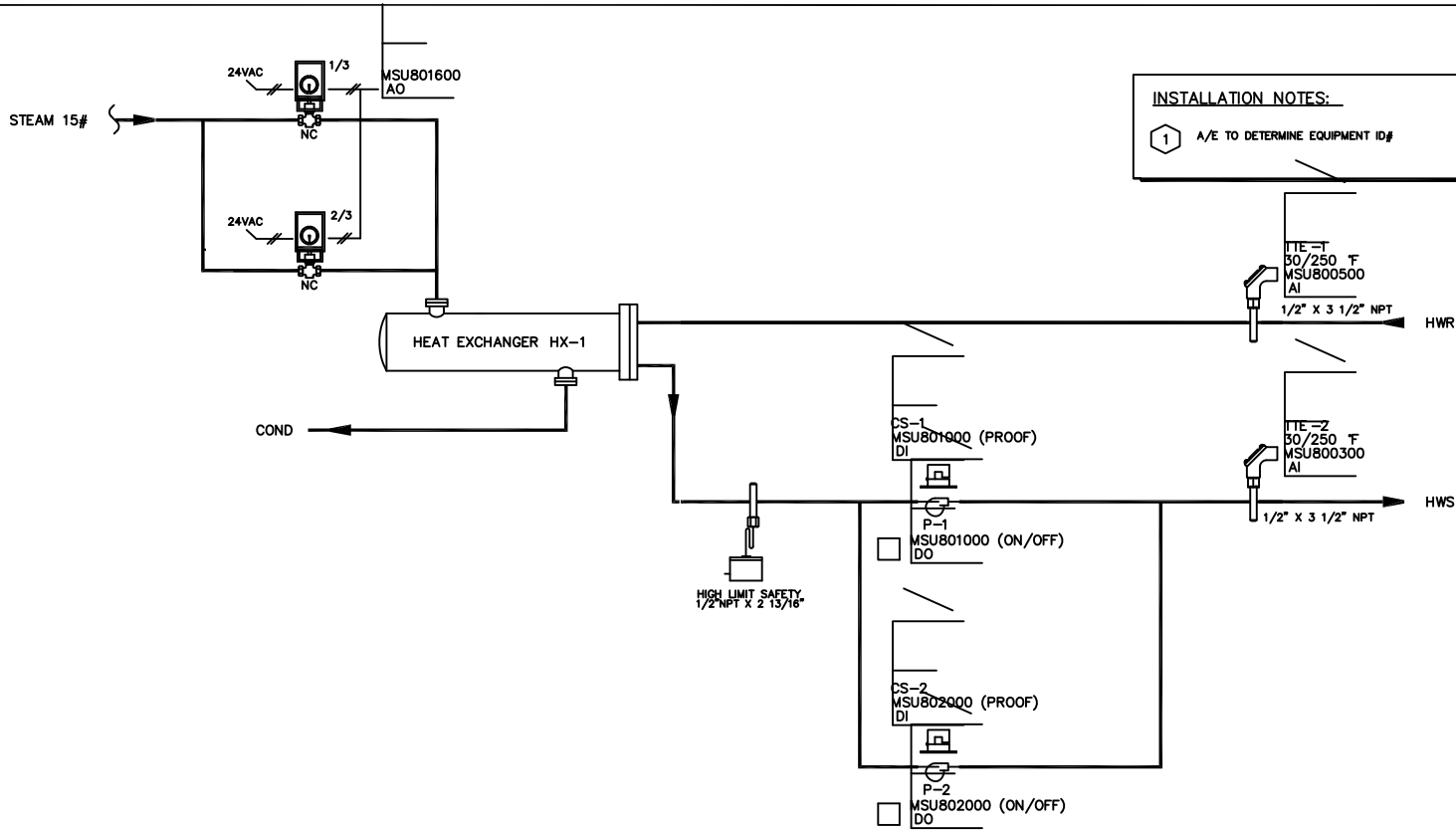


SINGLE HEAT EXCHANGER SYS CONTROL WITH CONSTANT VOLUME PUMPS CONTROL DIAGRAM



SINGLE HEAT EXCHANGER SYS CONTROL WITH CONSTANT VOLUME PUMPS CONTROL DIAGRAM

SEQUENCE OF OPERATION

HOT WATER HEATING SYSTEM WITH SINGLE HX AND CONSTANT VOLUME PUMPS

NOTE: ALL SETPOINTS AND TIME INTERVAL SETPOINTS DESCRIBED IN SEQUENCE SHALL BE ADJUSTABLE BY SYSTEM OPERATOR. (CREATE REQUIRED VIRTUAL POINTS)

- HOT WATER HEATING SYSTEM PUMPS P-01 AND P-02 SHALL HAVE START/STOP CAPABILITY FROM THE DDC SYSTEM. ONE OF THE TWO PUMPS SHALL BE ACTIVATED BY THE DDC TO OPERATE BASED ON OUTDOOR AIR TEMPERATURE. THE OTHER WILL SERVE AS STANDBY..
- DDC SHALL ALTERNATE PUMP OPERATION BASED ON MONTH. EVEN MONTHS THE EVEN NUMBERED PUMP SHALL RUN AND ON ODD MONTHS THE ODD NUMBERED PUMP SHALL RUN.
- DDC SHALL MONITOR OPERATING STATUS OF EACH PUMP THRU CURRENT SWITCHES TO CONFIRM THE PUMPS ARE IN THE DESIRED STATE. UPON PUMP FAILURE, DDC SHALL ACTIVATE FAILURE ALARM AND AUTOMATICALLY START THE STANDBY PUMP. DURING A LOSS OF COMMUNICATION WITH VFD FOR 60 SECONDS, DDC SHALL ACTIVATE FAILURE ALARM AND AUTOMATICALLY START THE STANDBY PUMP.

- UPON PUMP PROOF DDC SHALL MODULATE HX 1/3 AND 2/3 CONTROL VALVES IN SEQUENCE TO MAINTAIN TERMINAL HEATING SUPPLY (THS) TEMP SETPOINT. WHEN THE OUTDOOR AIR TEMPERATURE IS 0 DEGREES F, THE SET POINT IS 180 DEGREES F AND WHEN THE OUTDOOR AIR TEMPERATURE IS 60 DEGREES F, THE SET POINT IS 120 DEGREES F
- WHEN CIRC PUMP P-01 AND/OR P-02 ARE OFF, THE HX STEAM VALVES SHALL REMAIN CLOSED
- SAFETIES: UPON A CONTROLS FAILURE THE PUMPS WILL FAIL ON, THE STEAM CONTROL VALVES WILL FAIL CLOSED AND HARD-WIRED HIGH TEMPERATURE SENSORS (TE-1) WILL BE USED TO CLOSE THE STEAM VALVES WHEN 200 DEG F (ADJ.) IS EXCEEDED, THERE SHALL ALSO BE A DDC POINT FOR REMOTE ALARMING AND MESSAGING. LOCAL PILOT-LIGHT INDICATION ON AUXILIARY PANEL FOR ALARM SHALL ALSO BE USED. 24HR ALARMS AND MESSAGES WILL BE USED TO INDICATE PUMP AND SYSTEM FAILURE. DDC TO MONITOR SUPPLY WATER TEMP SENSOR AND ALARM ABOVE 200 DEG F AND AT 40 DEG F LOWER THAN CURRENT SETPOINT. AFTER A SUSTAINED 30 MINUTES ALARM CONDITIONS A HEATING SYSTEM FAILURE TO BE SENT TO CENTRAL CONTROL. (MSU TO DEFINE MESSAGE STATEMENT)

ALARMING

- NORMAL**
- SUPPLY WATER TEMPERATURE (+/- 8 DEGREES FROM SETPOINT) (MAY BE "ENHANCED ALARMED")
- "ENHANCED" 24/7**
- PUMP FAILURE
 - HIGH TEMPERATURE LIMIT

CS_STD_MEC_230923_SINGLE_HX_CONSTANT_VOL.DWG

DATE 9/12/10

DRAWN

REVISION 7/11/16
RLANDRUM

DETAIL NO. XXXXXX-XX
SHEET



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