INSTRUMENT FUNCTION OUTLINE

DEPARTMENT 240

TITLE REBOILER FURNACE -307 - SHUTDOWN

LOOP NUMBER 307-1

SHEET 1 OF 2

CLASSIFICATION B-307-1

WRITTEN BY _____ DATE _____ REV.BY _____ DATE _____ REV.NO. _____

1.0 NEED FOR LOOP

The purpose of this description is to define the furnace shutdown system (interlock). The purpose of the system is to protect the personnel and plant against abnormal operating conditions.

1.1 Description of Loop

The shutdown loop is composed of:

a. 8 interlocks that will close all 3 ACV's in the fuel lines and sound an alarm.

b. 4 other interlocks will close on the one ACV in the fuel line affected and sound an alarm.

The first 8 are:

1.1.1 Power Failure

1.1.2 Main power switch in the furnace field cabinet.

1.1.3 Pushbutton on the panel board in the control room.

1.1.4 Switch on the panel board in the control room that is used to dead-head the jet.

1.1.5 High furnace stack temperature of 500°C. The thermocouple is located in the stack and the monitor (indicator) is located in the field cabinet, upper right side. If this interlock is in (tripped) a faint red glow will come from the light behind the small door and the reset must be pushed. Normal temperature when making 1016 is 400°C.

1.1.6 High Aroclor temperature from the furnace coil will trip the interlock at 330°C. The thermocouple is located in the coil outlet line under the furnace. The temperature is recorded and the interlock is on (TJRIA-300) in the control room, point #5.

1.1.7 Low flow from the furnace coil is set at 420 GPM. The alarm contact is in FI 307, located at the bottom of the furnace, north side. See IFO FIC-307-5.

REVIEW

PCB-ARCH-EXT0373561

INSTRUMENT FUNCTION OUTLINE

DEPARTMENT 246

TITLE REBOILER FURNACE - 307 - SHUTDOWN

LOOP NUMBER 307-1

SHEET 2 OF 2

CLASSIFICATION B-307-1

WRITTEN BY _____ DATE _____ REV.BY _____ DATE _____ REV.NO. _____

1.0 NEED FOR LOOP (cont'd.)

1.1 Description of Loop

1.1.8 High temperature of vapor from the vent cooler, on top of the column, will alarm at 55°C and the interlock will come in at 100°C. The thermocouple is located in the vacuum line by the dead-head valve. The recorder is in the control room. #7 point brings in the alarm (55°C), #16 point is the interlock (100°C). Both points read from the same thermocouple.

All the above interlocks will close the 3 ACV's in the fuel lines, gas or oil, to the furnace burners. They must all be satisfied before the furnace can be lighted.

All the interlocks will sound an alarm in the control room and the tel-alarm window "furnace shutdown" will light.

The alarm in the field cabinet will also sound.

The second four interlocks for individual burners are:

1.2.1 Pilot flame failure (purple peeper).

1.2.2 On-off switch in the field panel.

1.2.3 Individual stop buttons in the field panel.

1.2.4 A) Each burner has 2 pressure switches for gas pressure. High pressure is set for 40#. Low pressure is set for 10#. The normal pressure at at the regulator gauge is 33#.

The pressure switches are mercoids located before the ACV's.

B) Each burner has 2 pressure switches when using fuel oil. One (1) is for low fuel oil pressure and is set for 25-30#. The other is for low atomizing steam pressure and is set for 50#.

In all the above cases, if one burner goes down, the alarm will sound in the control room and the tel-alarm window "furnace shut down" will light. BUT if another burner goes down there will NOT be another alarm on the tel-alarm.

There is an alarm in the field cabinet. It will sound each time a burner goes down.

1.3 Also see drawings 2417, E5 and E6 and IFO FI307-5.

PCB-ARCH-EXT0373562