

REACTOR LOW LEVEL ALARMS

ABERDEEN CHEMICAL PLANT

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DTH 000052798

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ABERDEEN CHEMICAL PLANT

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REACTOR LOW LEVEL ALARMS

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I. PURPOSE OF DESIGN

This design will equip each vinyl reactor with low level alarm capabilities. These alarms will be interlocked to prevent charging a reactor that has not been completely drained.

The Oklahoma City PVC Plant is planning to install this type low level detection instrumentation on their reactors this year. Their experience with these devices will be used to determine their applicability to this service.

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II. DESCRIPTION OF DESIGN

For a description of this design please refer to the P & I diagram.

This design will install a low level transmitter on each vinyl reactor and instrumentation at each reactor control panel for indication and alarm capabilities.

The P & I and this description are for D-300 reactor, but are typical for all ten (10) vinyl reactors.

A new 1½" nozzle will be installed on each reactor bottom head at the same radius from the axial center line of the reactor as the main dump nozzle.

A new RF admittance type probe along with an on/off transmitter, LT-300, will be installed through the new nozzle for D-300. When this transmitter detects a low liquid level in D-300 it will send a signal to the vinyl control room.

This signal will cause indicator light, XL-300, which will be located on D-300 reactor panel, to illuminate when a low level is detected. This signal will also interlock with D-300 charge mode to prevent a charge permissive condition unless a low level is detected. Reactor low level alarm, LAL-300, will be actuated on D-300 alarm annunciator panel when D-300 is placed in the charge mode and a low level is not detected by LT-300.

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III. INSTRUMENT SPECIFICATIONS

<u>Item</u>	<u>Description</u>
LAL-300	D-300 Reactor Low Level Alarm
LAL-400	D-400 Reactor Low Level Alarm
LAL-500	D-500 Reactor Low Level Alarm
LAL-600	D-600 Reactor Low Level Alarm
LAL-700	D-700 Reactor Low Level Alarm
LAL-741	D-741 Reactor Low Level Alarm
LAL-742	D-742 Reactor Low Level Alarm
LAL-743	D-743 Reactor Low Level Alarm
LAL-744	D-744 Reactor Low Level Alarm
LAL-745	D-745 Reactor Low Level Alarm
LT-300	D-300 Low Level Transmitter
LT-400	D-400 Low Level Transmitter
LT-500	D-500 Low Level Transmitter
LT-600	D-600 Low Level Transmitter
LT-700	D-700 Low Level Transmitter
LT-741	D-741 Low Level Transmitter
LT-742	D-742 Low Level Transmitter
LT-743	D-743 Low Level Transmitter
LT-744	D-744 Low Level Transmitter
LT-745	D-745 Low Level Transmitter
XL-300	D-300 Low Level Indicator
XL-400	D-400 Low Level Indicator
XL-500	D-500 Low Level Indicator
XL-600	D-600 Low Level Indicator
XL-700	D-700 Low Level Indicator
XL-741	D-741 Low Level Indicator
XL-742	D-742 Low Level Indicator
XL-743	D-743 Low Level Indicator
XL-744	D-744 Low Level Indicator
XL-745	D-745 Low Level Indicator



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SPECIFICATION SHEET

A F E NO _____
DATE 5/16/93 W O NO _____
MADE BY SCH I N O NO _____
APP'D BY VEM R E Q NO _____
B M NO _____ P O NO _____

PLANT ABERDEEN CHEMICAL PLANT PROJECT REACTOR LOW LEVEL ALARMS

ITEM NO
SERVICE

LAL- 300, 400, 500, 600, 700, 741, 742, 743, 744, & 745

DESCRIPTION: REACTOR LOW LEVEL ALARM

QUANTITY: 10 (ONE FOR EACH REACTOR)

LOCATION: REACTOR ALARM ANNUNCIATOR PANEL

TYPE: A SINGLE WINDOW IS NEEDED ON EACH REACTOR
AUDIO-VISUAL ALARM ANNUNCIATOR PANEL

OPERATION: THIS ALARM WILL ACTUATE ONLY WHEN THE REACTOR
IS PLACED IN THE CHARGE MODE AND NO LOW LEVEL
IS DETECTED BY THE LEVEL TRANSMITTER

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B M NO. _____ P O NO. _____

PLANT ABERDEEN CHEMICAL PLANT PROJECT: REACTOR LOW LEVEL ALARMS

ITEM NO
SERVICE

LT-300, 400, 500, 600, 700, 741, 742, 743, 744, & 745

DESCRIPTION:

REACTOR LOW LEVEL TRANSMITTER

QUANTITY:

10

LOCATION:

BOTTOM REACTOR HEAD OF EACH REACTOR (1)

PROCESS CONDITIONS:

NORMAL

DESIGN

TEMP, °F

140 - 220

250

PRESS PSIG

150

300

FLUID

WATER WITH VCM + SUSPENDED PVC -

MECHANICALLY SWIRLED

TYPE SENSOR:

RF ADMITTANCE PROBE

PROBE INSERTION LENGTH:

14"

MFR:

DREXEL BROOK (2)

MODEL NO:

506-6000-6

MOUNTING CONNECTIONS:

1 1/2" 300# RF FLG

PRICE PER UNIT:

\$ 892.⁰⁰/_{XX}

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PLANT ABERDEEN CHEMICAL PLANT PROJECT REACTOR LOW LEVEL ALARMS

ITEM NO
SERVICE

NOTES:

(1.) A NEW NOZZLE WILL BE ADDED TO THE BOTTOM OF EACH
REACTOR FOR THE INSTALLATION OF THESE PROBES.

(2.) OR COMPANY APPROVED EQUAL.

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APP'D BY Vent R E Q. NO. _____
B M NO. _____ P O NO. _____

PLANT ABERDEEN CHEMICAL PLANT PROJECT REACTOR LOW LEVEL ALARMS

ITEM NO
SERVICE

XL-300, 400, 500, 600, 700, 741, 742, 743, 744, & 745

DESCRIPTION: LOW LEVEL INDICATING LIGHT

QUANTITY: 10 (ONE FOR EACH REACTOR)

LOCATION: REACTOR PANEL

FUNCTION: THIS LIGHT WILL ILLUMINATE WHEN THE LEVEL
TRANSMITTER SENSES A LOW LEVEL IN THE REACTOR

MFR: CUTLER - HAMMER

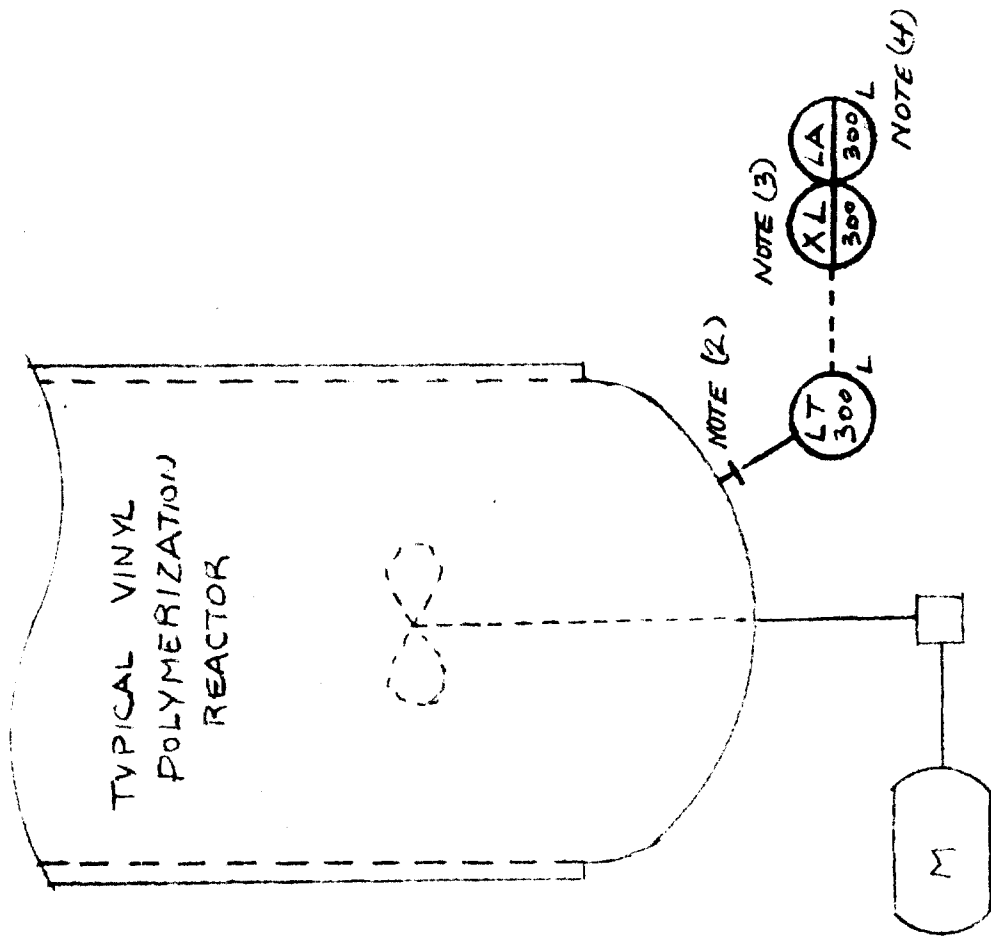
MODEL: STYLE E 30 TYPE F

LENS COLOR: YELLOW

INSCRIPTION: "REACTOR LOW LEVEL"

NOTES:

1. THIS DIAGRAM IS TYPICAL FOR D-300, 400, 500, 600, 700, 741, 742, 743, 744, AND 745 REACTORS.
2. A NEW NOZZLE WILL BE INSTALLED ON ALL THE REACTORS SO THAT THE LT CAN BE INSTALLED. THESE NOZZLES WILL BE LOCATED ON THE SAME RADIUS AS THE REACTOR MAIN DUMP VALVE.
3. A LOW LEVEL INDICATING LIGHT, XL, WILL BE INSTALLED ON THE PANEL TO INDICATE WHEN A LOW LEVEL IS DETECTED IN THE REACTOR
4. A LOW LEVEL ALARM, LAL, WILL BE AN ALARM BELL LOCATED ON THE REACTOR ANNUNCIATOR PANEL. THIS ALARM WILL BE INTERLOCKED THROUGH THE SYSTEM WITH THE CHARGE MODE SO THAT AN ALARM WILL NOT TRIGGER WHEN A REACTOR IS IN THE CHARGE MODE AND A LOW LEVEL IS NOT DETECTED. THE REACTOR WILL NOT BE ALLOWED TO BE CHARGED UNTIL A LOW LEVEL HAS BEEN DETECTED.



LEGEND

- EXISTING
- NEW
- XL LIGHT

AFE

ISU	DATE	DESCRIPTION	BY	CKD	APD
	5/16/83	1984 BUDGET DESIGN	SCM		APD

CONOCO CHEMICALS
ABERDEEN MISSISSIPPI

REACTOR LOW LEVEL ALARM
P&T DRAFTING

SCALE: 1/8" = 1'-0"

APPD: *[Signature]*
DATE: 5/20/83

No.

DTH 000052807