50-151

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August 28, 1992
**Docket No. 50-151**

Mr. Alexander Adams, Jr.
U.S. Nuclear Regulatory Commission
M.S. OWFN 11-B-20
Washington, DC 20555

Dear Sir,

On Friday, August 28, 1992, I talked to Ted Michaels about a potential problem with the way our current tank level backup scram and ECCS intiation is designed. I have enclosed a copy of the letter that I wrote to my Nuclear Reactor Committee and the appropriate schematics. Ted called back Friday afternoon with the general consensus between himself and Seymour Weiss that we were not in violation of anything, but we should probably change things. All of this is in the letter to my committee.

If you have any questions please call me at 217-333-7755.

Respectfully,

Richard L. Holm
Reactor Supervisor

Enc.

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August 28, 1992

TO: Nuclear Reactor Committee

FROM: Richard L. Holm
Reactor Supervisor

SUBJECT: Discrepancy with Technical Specifications Section 3.5 (Reactor Safety System)

In preparation for setting up a new tank water level monitoring system the question has come up as to whether we currently have two Reactor Tank Water Level Scram/ECCS initiation measuring channels as required in the Technical Specifications.

The current system utilizes a switch in the Yarway and a separate switch actuated by a float as the two low level scram functions. These switches are wired in series so that if either opens (they are normally closed) a low level scram is initiated. Everything downstream of the contacts is a single circuit. In other words both contacts feed the same relay (K16B) in the secondary control console which will cause a contact to open in the external scram circuit causing a single relay (K12) in the console to deenergize which opens a contact in the scram bus deenergizing the control rods.

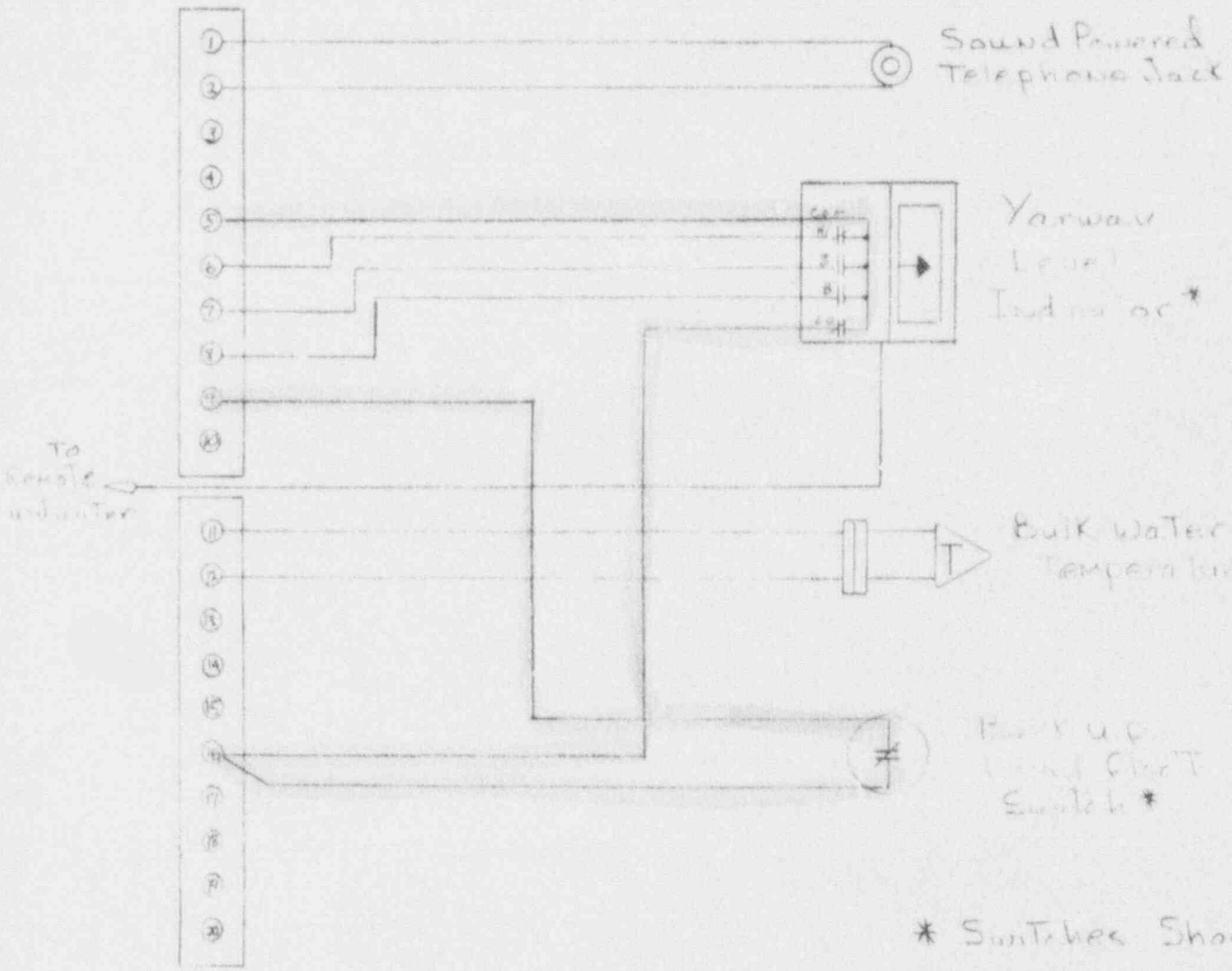
The question arises as to whether or not this system qualifies as two measuring channels. Our Technical Specifications define a measuring channel as follows:

> A measuring channel is the combination of sensor, lines, amplifiers and output device which are connected for the purpose of measuring the value of a process variable.

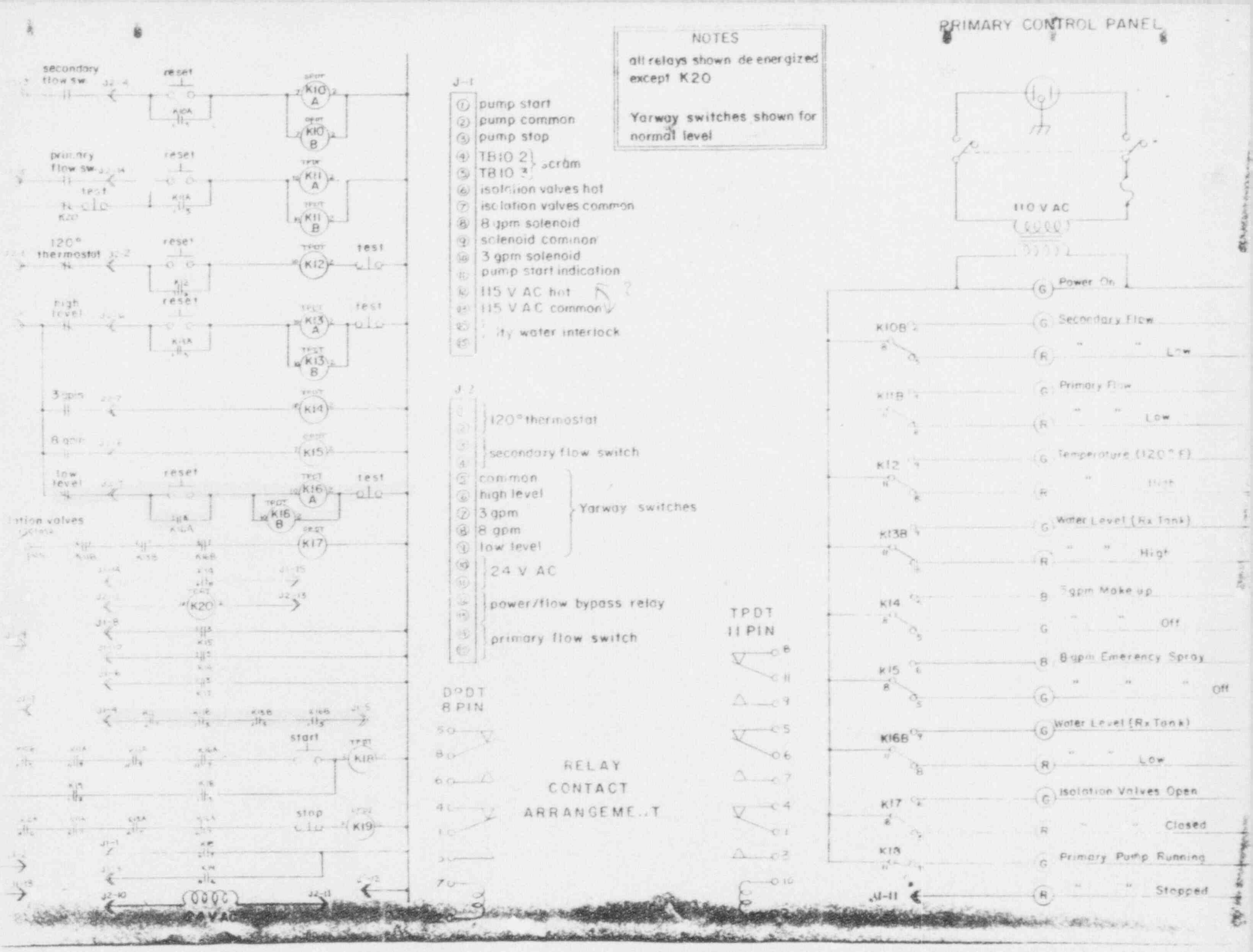
I underlined "output device" for emphasis because I think that is the critical part of the definition. We are required to have two measuring channels for Reactor Tank Water Level for the purposes of initiating a scram and emergency core cooling. I do not think that the current system satisfies this. The circuits are only duplicative in the initiating contacts, everything else is the same. In order to be a separate system they should be duplicated all the way up to and including a separate contact on the scram bus. In addition, the ECCS intiations should be independent of each other. That is not actually the case in the current plumbing system.

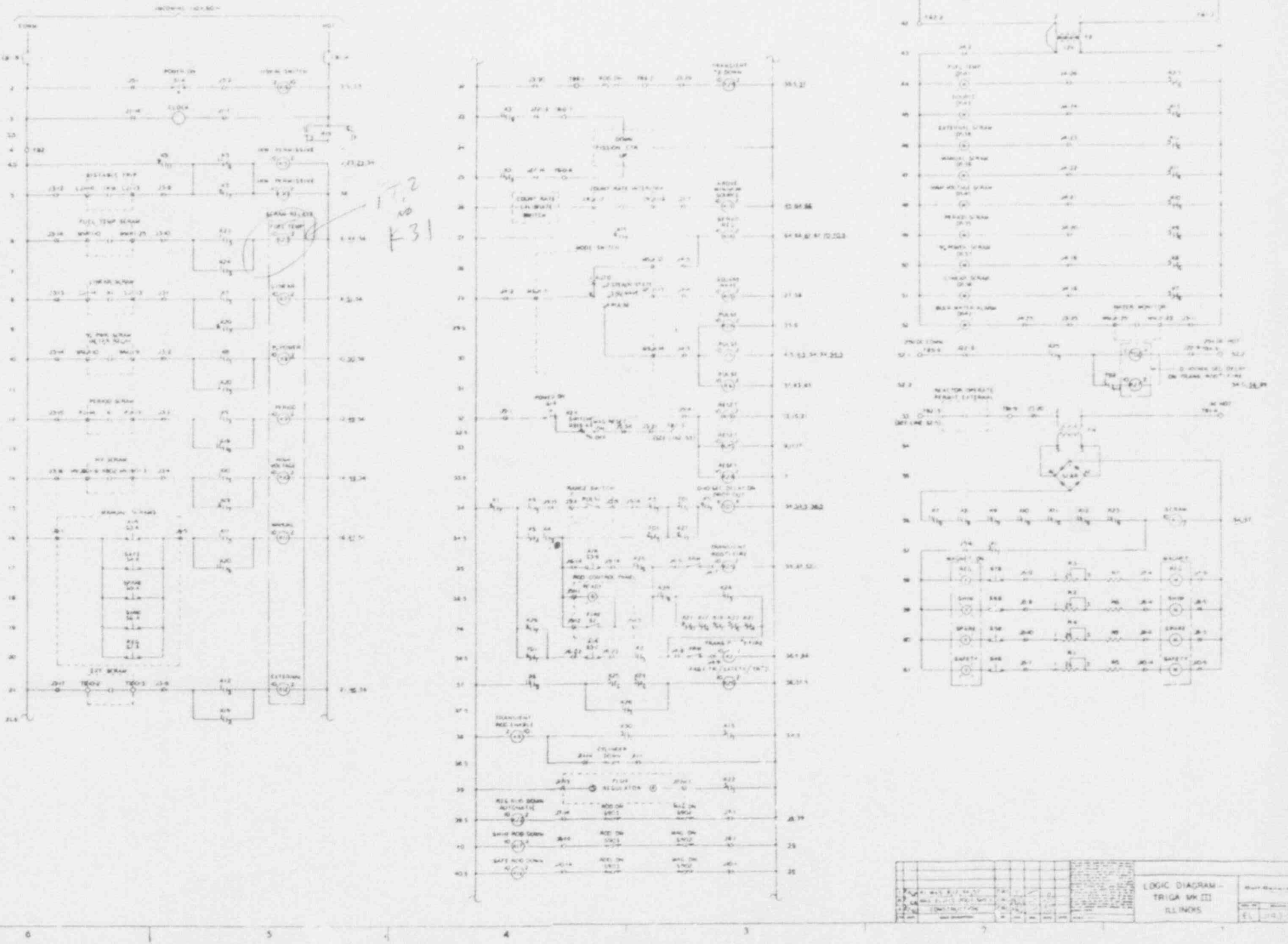
The NRC was notified of this dilemma after I discussed it with Dr. Jones. After discussion amongst themselves the NRC called back and agreed that what was described in our Technical Specifications was not what we truly had. Their suggestion was to either change the Technical Specifications to reflect what we were currently using or to change to two independent channels ( a more conservative approach). I intend to create two independent channels with the installation of the new continuous level monitoring and float system. In addition the plumbing in the Mechanical Equipment Room will be modified such that in the event of a failure of the 3 gpm solenoid valve that the 8 gpm solenoid valve will not be rendered inoperative for automatic makeup.

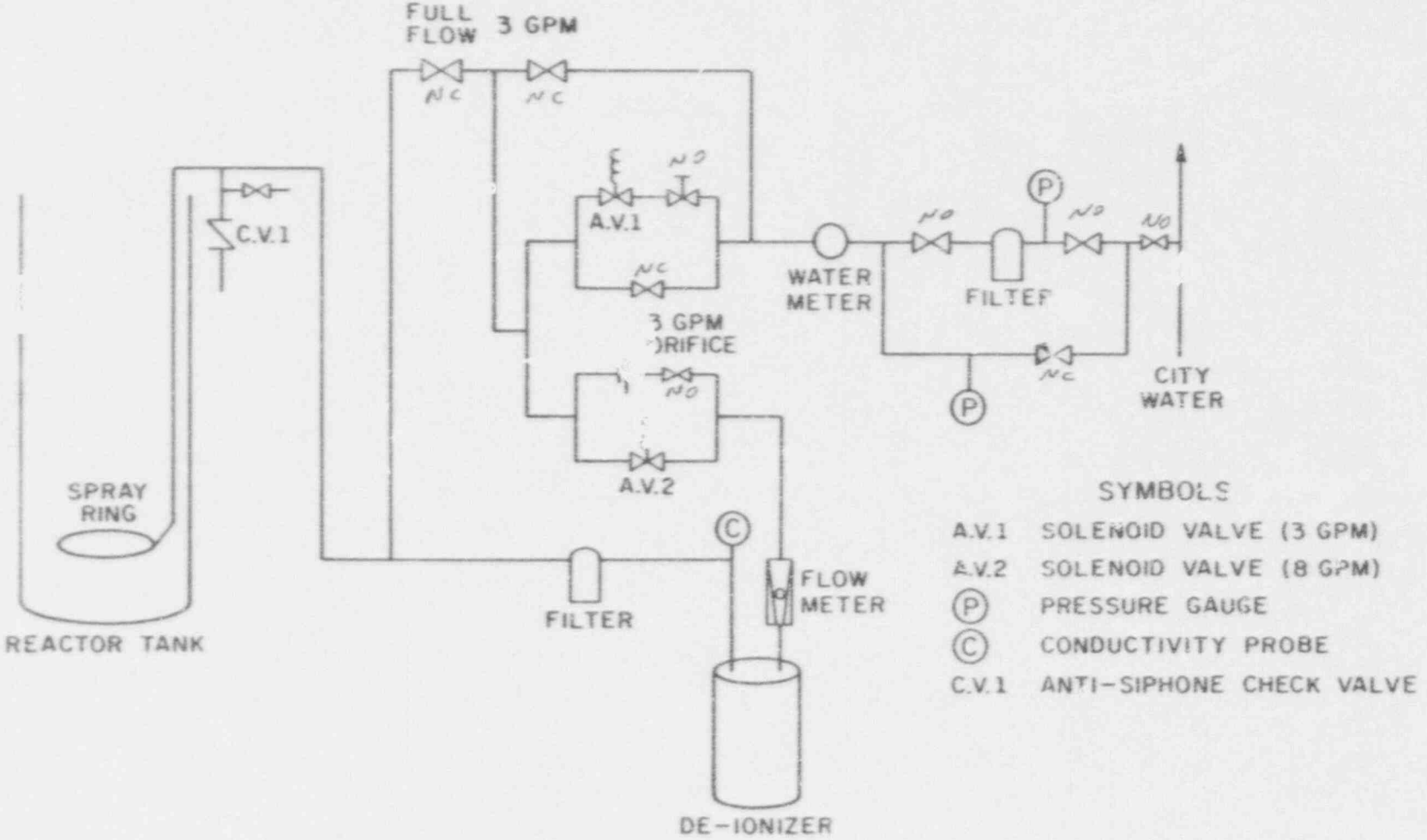
West face of Reactor Shield




* Switches Shown at Normal operating Level


PRIMARY CONTROL PANEL
NOTES
all relays shown de energized except K20
Yarway switches shown for normal level
secondary flow sw.
primary flow sw.
120° thermostat
high level
3 gpm
8 gpm
low level
reset
test
start
stop
K10A
K10B
K11A
K11B
K12
K13A
K13B
K14
K15
K16A
K16B
K17
K18
K19
K20
J1-1 pump start
pump common
pump stop
TB10 2
TB10 3
isolation valves hot
isolation valves common
8 gpm solenoid
solenoid common
3 gpm solenoid
pump start indication
115 V AC hot
115 V AC common
city water interlock
J2-1
120° thermostat
secondary flow switch
common
high level
3 gpm
8 gpm
low level
Yarway switches
24 V AC
power/flow bypass relay
primary flow switch
J2-10
J2-11
24 VAC
DPDT 8 PIN
RELAY CONTACT ARRANGEMENT
TPDT 11 PIN
110 V AC
Power On
K10B Secondary Flow ... Low
K11B Primary Flow ... Low
K12 Temperature (120° F) ... High
K13B Water Level (Rx Tank) ... High
K14 3 gpm Make up ... Off
K15 8 gpm Emerency Spray ... Off
K16B Water Level (Rx Tank) ... Low
K17 Isolation Valves Open ... Closed
K18 Primary Pump Running ... Stopped
J1-11


LOGIC DIAGRAM -
TRIGA MK III
ILLINOIS




# FLOW DIAGRAM
# MAKE-UP WATER AND EMERGENCY CORE SPRAY