



**PUBLIC SERVICE COMPANY OF COLORADO**

P. O. BOX 840 - DENVER, COLORADO 80201

OSCAR R. LEE  
VICE PRESIDENT

January 15, 1982  
Fort St. Vrain  
Unit No. 1  
P-82016

Mr. John T. Collins  
Regional Administrator  
Region IV  
Office of Inspection and Enforcement  
Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76012



Docket No. 50-267

Subject: IE Bulletin No. 80-06  
Engineered Safety Feature  
(ESF) Reset Controls

- References:
- 1) NRC letter from K.V. Seyfrit to C.K. Millen, dtd 3/13/80
  - 2) PSC letter from D. Warembourg to K.V. Seyfrit, P-80063, dtd 3/27/80
  - 3) PSC letter from O.R. Lee to K.V. Seyfrit, P-81265, dtd 10/30/81

Dear Mr. Collins:

PSC letter P-81265 provided an interim response to the generic question asked by IE Bulletin No. 80-06 concerning whether any component of the safety-related equipment comprising the Fort St. Vrain (FSV) Engineered Safety Features (ESFs) would return to its normal mode (resetting from its emergency mode) following reset of the associated Engineered Safety Feature Actuation Signal (ESFAS), and by this action, compromise the ESF protective action applied to the affected system.

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As was stated in letter P-81265, and supported by transmittal of applicable FSAR pages, only the steam generator steam/water dump system receives an electronic ESFAS which changes the system operating condition from the "normal" mode to the "emergency" mode by shutting down a loop and dumping the contents of the steam generator of the affected loop. Consequently, only the steam/water dump system needs to be addressed by the 4 Licensee Actions listed in IE Bulletin No. 80-06.

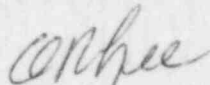
PSC has completed review of the steam/water dump system circuit drawings at the schematic/elementary diagram level, in accordance with Licensee Action 1 of IE Bulletin 80-06, to determine whether or not each safety-related component of the steam/water dump system remains in its emergency mode following reset of that particular ESFAS which initiated the steam/water dump system activity. Each of the 8 separate safety-related valve actions described in P-81265, which occur in the affected loop as the automatic consequence of a steam/water dump actuation signal, along with the reactor scram action, have been investigated in detail.

It has been determined that reset of the ESFAS will not cause any of these valves to return automatically to its normal mode, nor will the reactor scram function be affected. A representative analysis of the helium circulator steam turbine inlet and outlet valve automatic closing action and the deliberate operator-initiated action required to reset these valves to their normal operating mode is provided as an attachment to this letter. Each of the control circuits of the safety-related valves listed in P-81265, as well as the reactor scram circuitry, was analyzed in this fashion. Some variation in the valve actuation circuitry exists, however all valves characteristically require one or more deliberately initiated operator actions to reset the valve to its normal mode of operation.

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PSC response to Licensee Actions 2, 3 and 4 of IE Bulletin 80-06 has not been completed as yet, as was projected in P-81265, primarily because PSC has decided to perform a functional test of the steam/water dump system (involving both loop 1 and loop 2). This test is a more desirable way to verify the accuracy of the steam/water dump system schematics than the method originally proposed by P-81265. PSC plans to perform the functional test of the Loop 1 steam/water dump system and components immediately following completion of the Loop 1 Buffer Helium modification. The functional test of the Loop 2 steam/water dump system and components will be done immediately following completion of the Loop 2 Buffer Helium modification. Plant conditions are such at the moment, due to the Buffer Helium Loop Split modification work currently underway, that necessary system valve alignments cannot be readily made. At this writing, PSC anticipates the Loop 1 steam/water dump functional test will be done approximately February 1, 1982 and the Loop 2 test approximately February 15, 1982. Accordingly, PSC plans to submit its final response (disposition of Actions 2, 3, and 4) to the NRC by no later than March 1, 1982.

Very truly yours,



O.R. Lee, Vice President  
Electric Production

ORL/JRJ:pa

Attachment

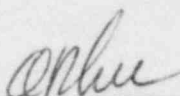
NOTED

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter )  
 )  
Public Service Company of Colorado ) Docket No. 50-267  
Fort St. Vrain Unit No. 1 )

AFFIDAVIT

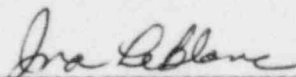
O. R. Lee, being duly sworn, hereby deposes and says that he is Vice President of Public Service Company of Colorado; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached response to the IE Bulletin No. 80-06; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information and belief.



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O. R. Lee  
Vice President

STATE OF Colorado )  
 )  
COUNTY OF Adams ) SS

Subscribed and sworn to before me, a Notary Public in and for State of Colorado on this 18<sup>th</sup> day of January, 1982.



\_\_\_\_\_  
Notary Public  
4026 E. 113<sup>th</sup> St  
Thornton, CO 80233

My commission expires August 19, 1983.

My Commission Expires Aug. 19, 1983

TYPICAL ENGINEERED SAFETY FEATURE ACTUATION SIGNAL RESET

Helium Circulator Steam Turbine Inlet (Speed Control) Valve and Outlet Valve Control Analysis: (See Figure 1.)

When the XCR (Control Relay Driver) receives an ESFAS, it causes the Control Relay to energize. Energizing the Control Relay causes the Control Relay Contacts in the inlet (speed control) and outlet valve closing circuits to close. This closes both valves. The Control Relay remains energized even when the actuating signal is removed.

Resetting the XCR and the Control Relay requires several steps. Two of these steps, involving the positioning of the inlet and outlet valves, are operator-initiated and insure the valves remain in the closed position until such time as the operator wishes to open them:

- 1) The handswitch which controls the outlet valve must be moved to the closed position. This ensures the outlet valve remains closed when the XCR/Control Relay is reset.
- 2) The inlet (speed control) valve's position is controlled by a variable position controller. In order to close the contacts in the Reset Circuit associated with the inlet valve, its position controller output must be reduced to zero percent of its controlling output. This action de-energizes the XSL Limit Switch (inlet valve controller output limit switch), closing the contacts in the Reset Circuit. When the XCR/Control Relay is reset, the inlet valve remains closed since its position controller output is zero percent.

As depicted in the Reset Circuit, the steam trap isolation valve handswitch associated with this helium circulator must be in the closed position for the associated contacts in the Reset Circuit to be closed. Likewise, the helium circulator brake and static seal must be removed to close the brake and static seal auxiliary contact in the Reset Circuit. The brake and static seal are applied during helium circulator shutdown. Obviously it would be undesirable to open the helium circulator steam turbine inlet and outlet valves while the brake and shutdown seal are applied.

Once each of the contacts in the Reset Circuit is closed, the XCR is reset and the Control Relay de-energized. As described above, circuit logic is such that de-energizing the Control Relay does not result in opening the helium circulator steam turbine inlet or outlet valves. The essential feature of this control circuit, in regards to IE Bulletin 80-06, is the design characteristic of the XCR (Control Relay Driver) whereby once the XCR is actuated its state becomes independent of the actuation signal. When the actuation signal is received the Control Relay is energized. Then, regardless of the existence of the actuation signal, the Control Relay remains energized until the XCR is reset. This feature insures that reset of the ESFAS has no effect upon the position of those valves which were repositioned upon receipt of the ESFAS.



ACTUATION  
SIGNAL

RESET CIRCUIT

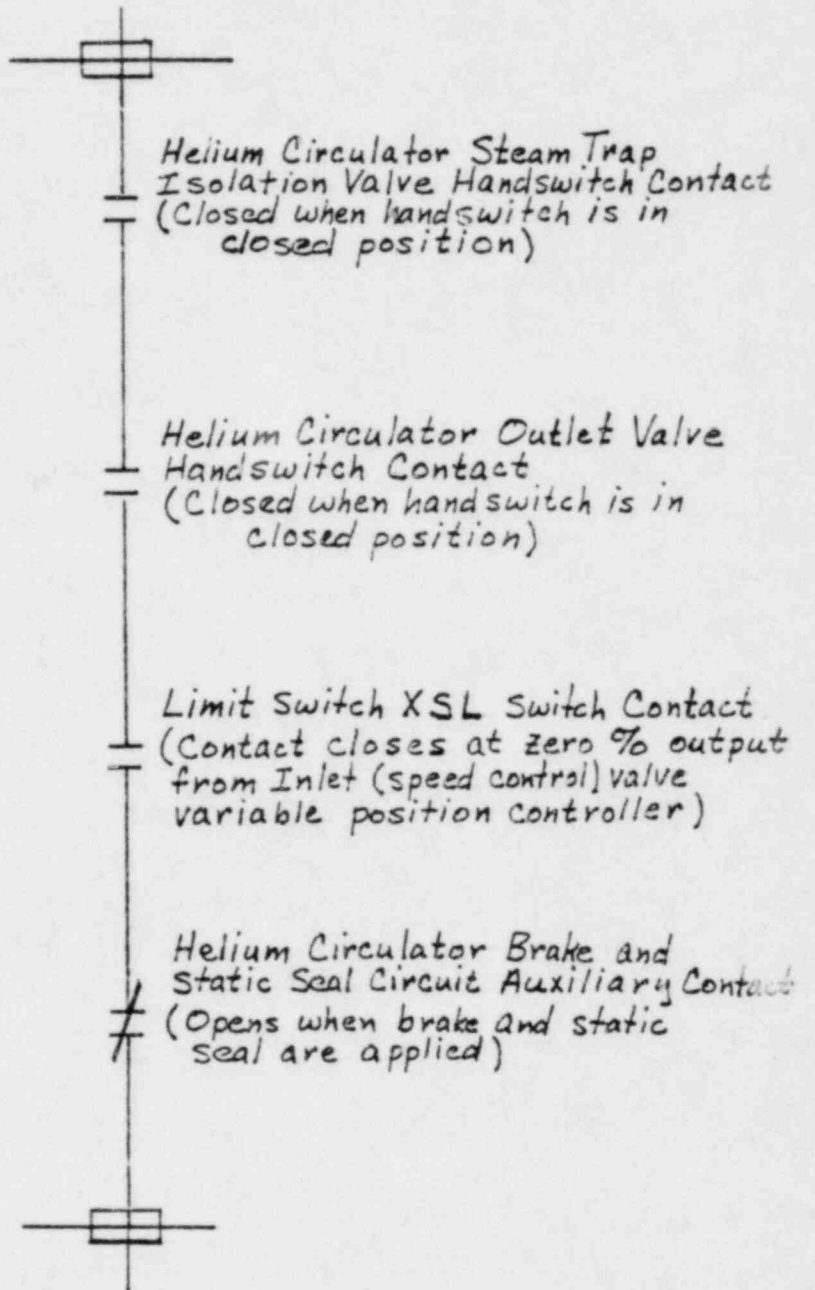
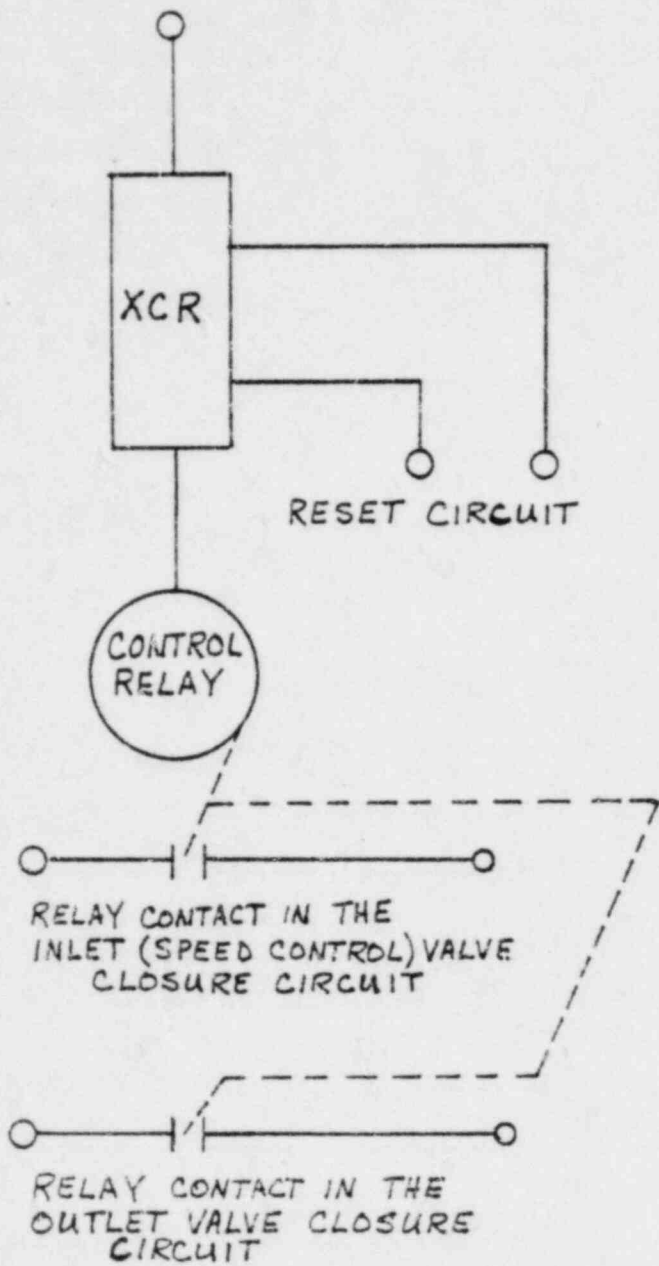


Figure 1. Helium Circulator Steam Turbine Inlet  
And Outlet Valve Actuation & Reset Circuitry