



Public Service Company of Colorado
P. O. Box 361, Platteville, Colorado 80651

March 14, 1975



Mr. E. Morris Howard, Director
Nuclear Regulatory Commission
Region IV
Office of Inspection & Enforcement
611 Ryan Plaza Drive
Suite 1000
Arlington, Texas 76012

Dear Mr. Howard:

REF: Facility Operating License
No. DPR-34

Docket No. 50-267

Enclosed please find a copy of Unusual Event Report No. 50-267/75/1,
preliminary, submitted per the requirements of the Technical
Specifications.

Very truly yours,

H. Larry Brey
Superintendent-Operations
Fort St. Vrain Nuclear
Generating Station

HLB:il

cc: Mr. Angelo Giambusso

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REPORT DATE: March 12, 1975

UNUSUAL EVENT

OCCURRENCE DATE: February 13, 1975

FORT ST. VRAIN NUCLEAR GENERATING STATION
PUBLIC SERVICE COMPANY OF COLORADO
P. O. BOX 361
PLATTEVILLE, COLORADO 80651

REPORT NO. 50-267/75/4

Preliminary

IDENTIFICATION OF
OCCURRENCE:

As the result of having very high moisture levels in the primary coolant circuit, we have experienced some erratic operation of control rod and orifice position indicators and in a few instances, failure of the potentiometers. This is defined as an Unusual Event per Technical Specification A.C. 7.6, Non-Routine Reports, c) 2.

*CONDITIONS PRIOR
TO OCCURRENCE:

<u>Steady State Power</u>	<u>Routine Shutdown</u>
<u>Hot Shutdown</u>	<u>Routine Load Change</u>
<u>Cold Shutdown</u>	<u>X Other (specify)</u>
<u>Refueling Shutdown</u>	<u>Reactor critical at approxi-</u>
<u>Routine Startup</u>	<u>mately 10⁻⁵ % of Rated Thermal</u>
	<u>Power for training purposes.</u>

The major plant parameters at the time of the event were as follows:

Power	RTR <u>0</u>	MWth
	Elect. <u>0</u>	MWe
Secondary Coolant	Pressure <u>1250</u>	psig
	Temperature <u>182</u>	°F
	Flow <u>~349,000</u>	#/hr.
Primary Coolant	Pressure <u>234</u>	psig
	Temperature <u>182</u>	°F Core Inlet
	<u>193</u>	°F Core Outlet
	Flow <u>2 x 10⁵</u>	#/hr.

DESCRIPTION OF
OCCURRENCE:

On February 13, 1975, on the 8-4 shift, preparations were being made to take the reactor critical to further study the reactor core reactivity anomaly (see Abnormal Occurrence 50-267/75/7) when it was noted that the control rod analog position indication from Region 7 was not indicating properly. A check of all control rod and orifice position indications indicated potential problems with ten (10) potentiometers out of a total of one hundred eleven (111).

APPARENT CAUSE
OF OCCURRENCE:

<u> </u> Design	<u> X </u> Unusual Service Cond. Including Environ.
<u> </u> Manufacture	<u> </u> Component Failure
<u> </u> Installation/Const.	<u> </u> Other (specify)
<u> </u> Operator	<u> </u>
<u> </u> Procedure	<u> </u>

Because of the location of the control rod drive assembly in the upper head of the vessel, it is exposed to the coolest portion of the system. Normally, a continuous purge of dry helium bathes the upper portion of the control rod drive assembly to prevent migration of primary coolant into the mechanism. Because of the high moisture levels experienced in the primary coolant system, see Abnormal Occurrence 50-267/75/3, we, at times, had both Helium Purification Trains expended and found ourselves regenerating one train with the other train needing regeneration. During these periods of time it was necessary to shut the purification system down and by so doing, the dry helium purge was lost.

Because of the high moisture levels in the primary coolant and lack of penetration purge flow, moisture apparently condensed in the subject potentiometers.

ANALYSIS OF
OCCURRENCE:

As discussed under cause, the presence of moisture in the potentiometer with voltage potential applied, produced a condition that caused some corrosion of the slide wire.

To be assured that only those potentiometers that read open or very low were affected by the moisture, a special test was developed by the manufacturer and run here at the plant on all the installed potentiometers.

The test was composed of two parts:

1. With an absolute pressure of ≤ 10 mm Hg. in the primary system, dissipate 5.5 watts of power for 8 hours in each potentiometer to dry it out and fail any unit which may have a particularly corroded through slide wire.

2. Measure resistance of each potentiometer at the end of the eight (8) hour dry out period. Acceptance Criteria $1000 \pm 50 \Omega$.
3. Stroke potentiometer to determine electrical noise level from brush.
4. Meggar the potentiometers to ground.

Step 3 and 4 have not yet been completed.

CORRECTIVE
ACTION:

Those potentiometers that fail the test will be replaced.

FAILURE DATA/
SIMILIAR REPORTED OCCURRENCES:

None. For associated information see Abnormal Occurrences 50-267/75/3 and 50-267/75/7.


PROGRAMMATIC IMPACT:

None

CODE IMPACT:

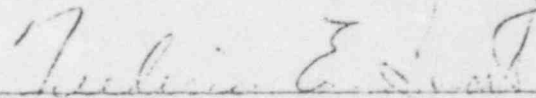
None

Recommended:



F. M. Mathie
Superintendent-Maintenance
Fort St. Vrain Nuclear
Generating Station

Approved:



Frederic E. Swart
Superintendent Nuclear Production
Public Service Company
of Colorado