

P. O. Box 361, Platteville, Colorado 80651

10-23-75

October 17, 1975

Mr. E. Morris Howard, Director  
Nuclear Regulatory Commission  
Region IV  
Office of Inspection and Enforcement  
Suite 1000  
Arlington, Texas 76012

REF: Facility Operating License  
No. DPR-34

Docket No. 50-267

Dear Mr. Howard:

Enclosed please find a copy of Unusual Event Report No. 50-267/75/19,  
Final, submitted per the requirements of the Technical Specifications.

Very truly yours,

Frederic E. Swart  
Superintendent, Nuclear Production  
Fort St. Vrain Nuclear  
Generating Station

FES/alk

cc: Mr. Roger S. Boyd

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REPORT DATE: October 17, 1975

UNUSUAL EVENT 75/19

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OCCURRENCE DATE: September 26, 1975

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

REPORT NO. 50-267/75/19

Final

IDENTIFICATION OF  
OCCURRENCE:

A spare control and orifice assembly had been modified by addition of new seals to reduce helium bypass flow. When an attempt was made to install the assembly in the core, the assembly was hindered in the refueling penetration, preventing installation.

CONDITIONS PRIOR  
TO OCCURRENCE:

_____ Steady State Power	_____ Routine Shutdown
_____ Hot Shutdown	_____ Routine Load Change
<u>X</u> Cold Shutdown	_____ Other (specify)
_____ Refueling Shutdown	_____
_____ Routine Startup	_____

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>*</u>	psig
	Temperature	<u>*</u>	°F
	Flow	<u>*</u>	#/hr.
Primary Coolant	Pressure	<u>-.5</u>	psig
	Temperature	<u>*</u>	°F Core Inlet
		<u>*</u>	°F Core Outlet
	Flow	<u>1 circulator at 4,000 rpm</u>	

\*These parameters have no bearing on this incident.

DESCRIPTION OF  
OCCURRENCE:

Control and orifice assembly serial #28 had been modified in accordance with FCN #2774.

After modification was complete, an attempt was made to install this assembly in region 21 replacing the assembly originally there which had been removed for the same modification.

Assembly #28 was one of seven spare assemblies which had not been installed in the core at the time the modification was approved. It was decided to modify the spare assemblies first and then use them as replacements for assemblies removed from the core for modification.

The original assembly had been removed from region 21 and placed in an equipment storage well using the auxiliary transfer cask. Assembly #28 was removed from an equipment storage well with the auxiliary transfer cask and moved to region 21 for installation. While the assembly was being lowered into the penetration it was observed that the indicated weight of the assembly was decreasing before the assembly had reached the vertical position at which this indicated weight decrease was to be expected. Installation of the assembly was stopped and the assembly raised back up into the auxiliary transfer cask.

APPARENT CAUSE  
OF OCCURRENCE:

Design

Unusual Service Cond.  
Including Environ.

X Manufacture

### Component Failure

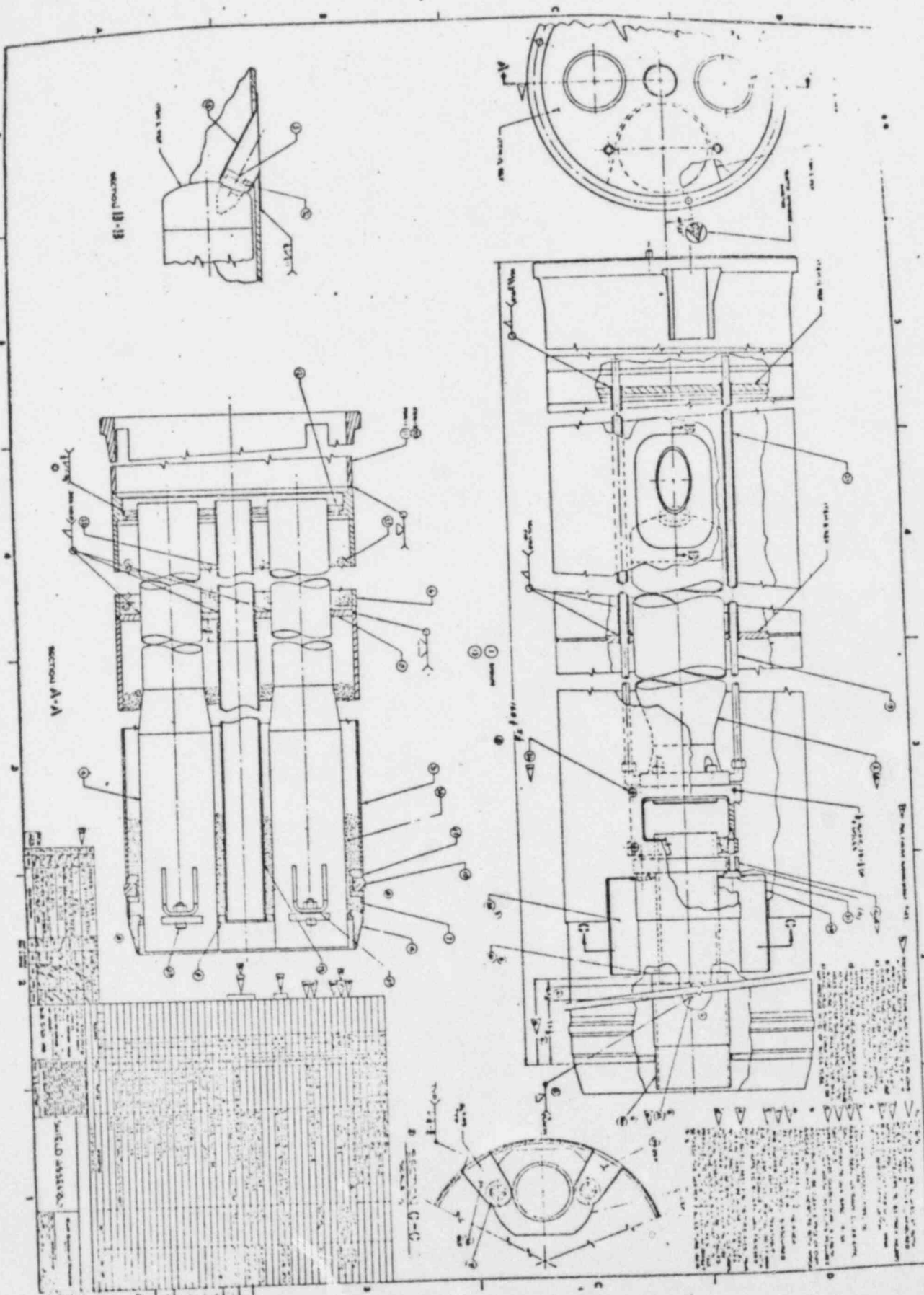
Installation/Const.

Other (specify)

Operator

### Procedure

When the control and orifice assembly was placed in a work stand for inspection it was found that the new seal ring (10 on drawing SLR D1201-700, attached) showed signs of rubbing over almost its entire periphery. This indicated that the ring had been fully compressed during installation of the assembly and had been the cause of the observed weight decrease when the seal ring began to bind in the refueling penetration. The apparent cause of the occurrence is therefore a seal ring slightly larger in outside diameter than the inside diameter of the refueling penetration.



ANALYSIS OF  
OCCURRENCE:

A dimensional check of the seal ring was made and the outside diameter of the ring was found to be 17.980 inches. A check of dimensions at the seal ring area where the penetration necks down and joins the cavity liner revealed that the penetration is slightly elliptical with a maximum diameter of 18.070 inches and a minimum diameter of 17.968 inches. The diameter of the penetration at the elevation where the seal ring was binding is believed to be of the same order.

The specified design size of the seal ring is  $17.960 +.005, -.000$ . The source of the increase in size over the design value was traced to a nitriding treatment. A total of 5 seal rings have been identified as having been nitrided with the original procedure, which resulted in these rings being slightly oversized. Of these 5 rings, the ring which was on assembly #28 and two others which were on assemblies outside the core at the time of this occurrence have been modified to bring them back within design tolerance. The remaining 2 rings are part of modified assemblies which had been successfully installed in the core before the problem occurred.

CORRECTIVE  
ACTION:

The seal ring on assembly #28 which caused the binding was removed and replaced with a new ring. The outside diameter of the new ring was 17.968\* inches. The assembly was reinstalled in region 21 with no indication of binding observed during installation.

The nitriding treatment has been modified to maintain seal ring size within tolerance. A check will be made of seal ring size prior to installation on each assembly.

\*This dimension was taken after application of a dry lube film which is an acceptable addition to design tolerance for ring size.

FAILURE/DATA/SIMILAR REPORTED OCCURRENCES:

None

PROGRAMMATIC IMPACT:

None

CODE IMPACT:

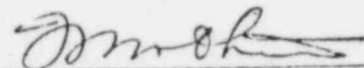
None



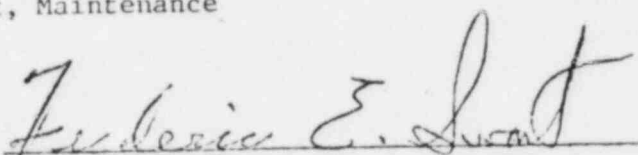
Submitted By:

  
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