

SUPPLEMENTARY SAFETY EVALUATION
BY THE NUCLEAR REGULATORY COMMISSION
PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION
DOCKET NO. 50-267
CONTROL ROD DRIVE AND POSITION INDICATION

I. INTRODUCTION

The NRC provided the results of the reviews of various Assessment Report issues in a Safety Evaluation (which included three additional evaluations as attachments) transmitted to Public Service Company of Colorado (PSC or the licensee) by letter dated July 12, 1985. Included in the issues discussed were control rod drive mechanisms (SE dated May 21, 1985), and the CRDM instrumentation (SE dated May 17, 1985). There were areas of concern, in both of the above issues, for which our review was not completed at the time of issuance of the SE. These areas of concern have now been resolved.

II. EVALUATION

1. Supplemental Evaluation of Control Rod Drive Mechanisms

As discussed in our initial safety evaluation on the Control Rod Drive Mechanisms dated May 21, 1985, the staff required the following actions by the licensee in order to conclude that the CRDMs were acceptable for plant restart. These are:

- ° The licensee must provide a commitment to operate the plant within the CRDM temperature limits accepted by the NRC. The temperature limits cannot be changed without NRC approval of new temperature limits or alternative methods of assuring CRDM operability; and
- ° The licensee must provide a commitment to submit an improved CRDM surveillance and preventative maintenance program within 6 months of plant restart.

By letters dated June 7, 1985 (P-85180) and July 3, 1985 (P-85233), the licensee submitted draft Technical Specifications for control rods. Technical Specification 3.1.1 in these submittals was a limiting condition for operation requiring that the CRDM motor temperature be less than or equal to 250°F. Additionally, Technical Specification 4.1.1 (P-85223) is a surveillance requirement for control rod operability. Section 4.1.1.A.1.a of this specification requires the licensee to record CRDM motor temperatures above 215°F and report the results to the NRC on a monthly (31 day) basis.

Additional clarification was provided in the resubmittal dated July 10, 1985 (P-85242) which specifies how the CRDM temperatures will be monitored.

The licensee has committed (P-85180 and P-85242) to operate the facility in accordance with procedures based upon these draft interim Technical Specifications until formal Technical Specifications are approved and implemented. The operating procedures that implement these Specifications would be in place prior to plant restart. By letter dated June 14, 1985 (P-85199), the licensee committed to submit an improved CRDM surveillance and preventative maintenance program within 6 months of plant restart.

We find these commitments are acceptable to close the open issues from our previous evaluation, and that the CRDMs are acceptable for plant restart.

2. Supplemental Evaluation of Control Rod Instrumentation

As discussed in our May 17, 1985 Safety Evaluation on Control Rod Position Instrumentation, all identified items were found to be acceptable with the exception of the following:

- ° Confirmation of Cautions on Control Rod Overdrive
- ° Additional Technical Specifications on Control Rod Position Instrumentation Operability
- ° Additional Surveillance Tests on Control Rod Position Instrumentation
- ° Initiation of the Reserve Shutdown System
- ° Wattmeter Testing

By letter dated July 10, 1985, the licensee provided interim Technical Specifications for Reactivity Control. The licensee committed to operate the plant under procedures based on these interim Technical Specifications until formal Technical Specifications are approved and implemented. By letter dated July 18, 1985, the licensee provided confirmation that all procedures involving possible control rod overdrive contained appropriate cautions and controls. We have evaluated the licensee's responses to the above items as follows:

Confirmation of Cautions on Control Rod Overdrive

In Section 3.2 of our May 17, 1985 evaluation, we found that the licensee has modified Procedure SOP 12-1 to preclude manual inward overtravel of rods following a reactor scram. It was not clear that this procedure covers all conditions in which manual inward motion of

a control rod could occur. By letter dated July 18, 1985, the licensee confirmed that all procedures in which rod travel beyond the full-in limit could occur contained appropriate cautions and controls to reduce the likelihood of damage to potentiometers and their couplings. Therefore, we find that the licensee has provided an acceptable response to this concern.

Additional Technical Specifications on Control Rod Position Instrumentation Operability

The licensee has proposed additional interim Technical Specifications to address the staff's concerns on operability of the Control Rod Position Instrumentation. Section 3.1.2 of these Technical Specifications is consistent with the Limiting Conditions for Operation described in Section 3.3 of our May 17, 1985 evaluation and are therefore acceptable.

Additional Surveillance Tests on Control Rod Position Instrumentation

The licensee has proposed additional surveillance requirements to address the staff's concerns on operability of the Control Rod Position Instrumentation. The combination of the licensee's proposed surveillance program and the additional surveillance stated in Section 3.4 of our May 17, 1985, evaluation combine to provide adequate assurance of RPI operability. The staff desired that the licensee: (1) verify each full-in limit indication prior to startup or during the first withdrawal of the rod from the full-in position; (2) verify the analog and digital position indications prior to startup or during the first withdrawal of the rod from the full-in position; and (3) verify reasonableness of the analog and digital control rod position indications. The proposed Technical Specifications (Section 4.1.2) are consistent with the desired concepts as described in Section 3.4 of our May 17, 1985, evaluation, and are therefore acceptable.

However, we note that Section 3.4 of our evaluation acknowledges a quarterly surveillance of the rod-out limit indication, based on the licensee's proposal of January 31, 1985 (P-85040). The proposed Technical Specifications are silent concerning a periodic check of the out-limit indication. The out-limit indication operability should be verified on a periodic basis, and can be accomplished in conjunction with other tests (such as the partial scram test of fully withdrawn rods required by Technical Specification 4.1.1.B). Plant restart is acceptable without a specific surveillance requirement on out-limit indication. However, this surveillance should be explicitly incorporated in the final Technical Specification upgrade program.

Initiation of the Reserve Shutdown System

The licensee has proposed additional Technical Specifications concerning initiation of the reserve shutdown system. As specified in Section 3.5 of our evaluation dated May 17, 1985, the licensee's backup shutdown procedure must be revised to assure adequate shutdown and certain verifications of rod positions shall be accomplished following each reactor scram. The proposed Technical Specifications (Section 4.1.6) provide consistent requirements for verification of rod position following a reactor scram, and are therefore acceptable.

Section 3.1.6 of the proposed Technical Specifications requires insertion of reserve shutdown material if within 1-hour, more than two control rods are not verified to be fully inserted. The staff requirement was to insert reserve shutdown material if more than one control rod cannot be verified to be fully inserted. The analysis of Section 3.5.3.1 of the Updated Final Safety Analysis Report demonstrates that adequate shutdown margin exists with two rods withdrawn and that the requirements of Technical Specification 3.1.4 (Shutdown Margin) can be met. Consequently, proposed Technical Specification 3.1.6 is acceptable.

Wattmeter Testing

In Section 3.6 of the May 17, 1985 evaluation, the staff concluded that the wattmeter test proposed by the licensee is an adequate method of verifying the rod full-in position provided that the ease of interpretation of the data is increased and the level of reliance on judgment and interpolation is decreased through the use of a more appropriate choice of wattmeter range and recorder speed. Although the staff expresses some concern over the licensee's method and procedures, this item requires no further action prior to facility restart. However, the licensee should confirm that they have addressed this recommendation as a long term item.

III. CONCLUSION

The staff has reviewed the interim Technical Specifications submitted by the licensee by letter dated July 10, 1985 (P-85242), and the additional confirmation concerning control rod overdrive procedures submitted by letter dated July 18, 1985, and finds that these submittals address the concerns in the staff's SE dated July 12, 1985. We conclude that the control rod drive mechanisms and associated position instrumentation is acceptable for plant restart and continued operation.

The staff has identified two items which should be pursued as long-term improvements in Technical Specifications and Plant procedures. These items are a specific surveillance test for the control rod out-limit indication and improvements to the wattmeter tests.

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