UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

October 16, 1986

Docket No. 50-267

Mr. R. O. Williams, Jr.
Vice President, Nuclear Operations
Public Service Company
of Colorado
Post Office Box 840
Denver, Colorado 80201-0840

Dear Mr. Williams:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR PLANT PROTECTIVE SYSTEM TRIP SETPOINTS AND SURVEILLANCE REQUIREMENTS FOR FORT ST. VRAIN NUCLEAR GENERATING STATION

Ref: (a) R. F. Walker letter to H. N. Berkow, Technical Specification Change Request To The Plant Protective System Trip Setpoints, May 15, 1986, Public Service Company of Colorado.

(b) O. R. Lee letter to E. H. Johnson, Proposed Changes to Sections 2.1, 3.3, 4.0, 5.0, LCO 4.4.1, and SR 5.4.1 of The Fort St. Vrain Technical Specifications, P-85214, June 21, 1985, Public Service Company of Colorado.

(c) H. N. Berkow letter to R. F. Walker, Fort St. Vrain - Plant Protection System Trip Setpoints, January 24, 1986, U. S. Nuclear Regulatory Commission.

We have reviewed the information you resubmitted with your letter dated May 15, 1986, Ref.(a), on Plant Protective System Trip Setpoints for the Fort St. Vrain Technical Specifications. Your previous submittal, Ref.(b), had combined Plant Protective System Trip Setpoints for the Fort St. Vrain Technical Specifications that accounted for instrumentation uncertainties as well as other upgrade considerations.

In Ref.(c), a draft Safety Evaluation was forwarded with a request for you to resubmit only the trip setpoint uncertainty material from your earlier submittal. The current request for additional information is a result of our review of your current submittal, against our draft.

Please provide the required information within 30 days of receipt of this letter. If you feel that further discussion would be helpful in resolving these open issues, please call me at (301) 492-8288.

October 16, 1986

The information requested in this letter affects fewer than 10 respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

original signed by
Kenneth L. Heitner, Project Manager
Standardization and Special
Projects Directorate
Division of PWR Licensing-B
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc w/enclosure:
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Kenneth L. Heitner

Kenneth L. Heitner, Project Manager
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Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc w/enclosure:
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ENCLOSURE

ADDITIONAL INFORMATION NEEDED TO COMPLETE REVIEW OF PLANT PROTECTIVE SYSTEM TRIP SETPOINTS AND SURVEILLANCE REQUIREMENTS FOR FORT ST. VRAIN NUCLEAR GENERATING STATION

The following is a list of requests for additional information needed to complete this review.

1.

Provide a more rigorous notation, such as ≥(Normal-64.6 psi). Presently, P.3.3-2a, Table 3.3-1, Item 1.c, the equal-to-or-less-than-sign on 64.6 psi can be interpreted to mean more than 64.6 psi below normal or less than 64.6 psi below normal.

2.

Provide the correct value for power runback in the FSAR for a circulator trip. The discussion on Circulator Speed-Low, P.43 of Attachment 4 to P-85214 (PSC June 21, 1985, Letter), states that the circulator trip initiates a power runback to 50%. FSAR Section 7.1.2.6 indicates a power runback to 65% on a circulator trip.

3.

Provide consistent values for steam ingress in the FSAR in Section 14.5. PSC's discussion of the Primary Coolant Pressure-High Scram setpoint relates comparison to existing FSAR Analyses in Section 14.5. However, the following discrepancies exist in the FSAR.

FSAR SECTION 14.5

Case	Table 14.5-3 Steam Ingress Value	Figure-Steam Ingress Value
2	14,580 lb	~20,000 lb (Figure 14.5-2)
4	2,160 lb	~1,400 lb (Figure 14.5-4)
6	8,080 lb	~7,000 lb (Figure 14.5-6)

4.

Provide additional information to justify deletion of Wide Range Channel Rate of Change-High, which was transmitted in the PSC June 21, 1985, letter, P.4.4-3c, Table 4.4-1 (Part 2), and included in the NRC markup letter of January 24, 1986. Although it is not in the specification section, this scram function is discussed in the basis on P.4.4-10a. This scram function is also listed in the FSAR scram function Table 7.1-2.

5.

Provide additional information to justify deletion of Primary Coolant Moisture High Level Monitor and Loop Monitor, which were transmitted in the PSC June 21, 1985, letter, P.4.4-4b, Table 4.4-2 (Part 1), and included in the NRC markup letter of January 24, 1986. These loop shutdown functions are also listed in the FSAR Loop Shutdown Function Table 7.1-3.

6.

Provide additional information to justify why the High Differential Temperature between Loop 1 and Loop 2 Loop Shutdown Function is not in the FSAR. Also, include in the Technical Specification basis a discussion of this loop shutdown function. Item 7c, P.4.4-4b, Table 4.4-2 (Part 1), is the Loop Shutdown Trip function High Differential Temperature between Loop 1 and Loop 2 which also appears in the existing Fort St. Vrain Technical Specifications (FSV TS) on P.4.4-5. Although this loop shutdown function is in the specification section, it is not discussed in the basis (PGs 4.4-11, 11a and 11b) of this loop shutdown function. Also, this loop shutdown function does not appear in the FSAR loop shutdown Table 7.1-3.

7.

Provide additional information to justify deletion of reference to figures 4.4-1a and 4.4-1b, P.4.4-5a, Table 4.4-3 (Part 1), item 1. These were previously included in the PSC letter of June 21, 1985, and were included in the NRC markup of the January 24, 1986, letter. Figures 4.4-1a and 4.4-1b for the Circulator Speed-Low should be retained.

8.

Provide additional information to justify deleting the Programmed Feedwater Flow-Low, P.4.4.-5a, Table 4.4-3 (Part 1). Specifications for Programmed Feedwater Flow-Low for Loop 1 and 2 for both circulators, and for one circulator, were included in PSC's letter of June 21, 1985, and the NRC markup of letter dated January 24, 1986, but they have been deleted without explanation in the resubmittal. Although they are not discussed in the specification section, a discussion of these circulator trip functions can be found in the basis on P.4.4-12. These circulator trip functions are also in the FSAR circulator trip function Table 7.1-4. In their May 15, 1986, letter, PSC states that additional analyses were agreed to in past commitments to analyze these trips using the ISA S67.04 methodology and that they would be forthcoming. The existing trip setpoints were to be included for the interim. NRC letter dated January 24, 1986, in the marked up tables, recommended incorporating of the existing Programmed Feedwater Flow-Low. Also, the NRC letter of January 24, 1986, did request additional analyses for the Fixed Feedwater Flow-Low setpoint, but PSC did not provide, or mention, these latter analyses in their letter.

9.

Provide additional information to justify why the specifications for RWP functions were deleted, P.4.4-6a, Table 4.4-4 (Part 1). The rod withdrawal prohibit (RWP) function for Startup Channel Rate of Change-High for Channels 1 and 2 and Wide Range Channel Rate of Change-High for Channels 3, 4, and 5 have been deleted without explanation. Although no specifications exist for these trips, they have been included in the basis section on Page 4.4-13. These RWP functions were previously submitted by PSC in their June 21, 1985, letter and were included in the NRC markup in the NRC letter of January 24, 1986. These functions are also listed in FSAR Section 7.1.2.2, Rod Withdrawal Prohibit Inputs.

10.

Provide additional information to justify why the RWP functions were deleted, P.4.4-6a, Table 4.4-4 (Part 1). The rod withdrawal prohibit functions for Linear Channel-High Power RWP for Channels 3, 4, and 5 and Channels 6, 7, and 8 were deleted without explanation. Although no specifications exist for these trips, they have been included in the basis section on Page 4.4-13. Also, these functions had previously been transmitted by PSC's June 21, 1985, letter and these functions and the associated Figure 4.4-2 were included in the NRC markup in the January 24, 1986, letter. These functions are also listed in FSAR Section 7.1.2.2, Rod Withdrawal Prohibit Inputs.

11.

Provide additional information to clarify why items 3a and 3b functional unit descriptions were changed from "Linear Channel-30% RWP" to "Linear Channel-High Power RWP," P.4.4-6a, Table 4.4-4 (Part 1), although the trip setpoints of $\leq$30% are unchanged. The deleted functions (see 10 above) functional unit descriptions had been "Linear Channel-High Power RWP" and were applicable up to 100% power per the deleted Figure 4.4-2. This change confuses the distinction between the two types of channels.

12.

Provide additional information to clarify deletion of RWP Function Multiple Rod Pair Withdrawal, P.4.4-6a, Table 4.4-4 (Part 1). Although included in the PSC June 21, 1985, letter, this function was deleted from the PSC May 15, 1986, letter. Although the NRC markup in the January 24, 1986, letter did not list this function, it should have.

13.

Provide additional information to clarify why, at least, the $\leq$30% of rated power RWP setpoint does not require instrument uncertainty to be taken into account, P.4.4-6a, Table 4.4-4 (Part 1). Also, re-evaluate the other RWPs to ensure that if they were deleted, an operator single failure in positioning the interlock sequence switch would not bypass required reactor protection trip functions. P.6, Attachment 3 to the PSC letter of June 21, 1985, stated that the rod withdrawal prohibits were not analyzed as part of the program to comply with the guidance of the ISA Standard 567.04, because no credit is taken for them in accident analyses. Without the rod withdrawal prohibit, high power operation ($\geq$30%) could be commenced with the interlock sequence switch (ISS) in the low power position with four scram functions and two circulator trip functions bypassed (FSAR Section 7.1.2.8). As this is an operator single failure defeat of part of the reactor protection system at high power, the 30% of rated power RWP appears to be a required safety function to prevent this occurrence. Therefore, at least this function of the RWP should have had instrument uncertainty taken into account for the setpoint. Otherwise, additional safety analyses are required to demonstrate safe operation with the above reactor protection system functions bypassed.

14.

Provide additional information to clarify for each circulator trip function how the associated equipment, if any, is protected if the trip is effectively bypassed per Item c. P.4.4-2. (Item c), which has been added,

would allow continued circulator operation even though the circulator trip instrumentation may be inoperable and may not be placed in the tripped condition (see note f) (P.4.4-8). If trip conditions were present but the trip was bypassed because of (Item c), then continued operation of the circulator might endanger the equipment which the trip is meant to protect. For example, the basis (P.4.4-12) for Circulator Speed-Low trip is to protect against flooding in the steam generator superheater section. Placing the Two-Loop-Trouble input on the affected circulator in the tripped condition per Item c, does not protect against flooding of the steam generator superheater section.

15.

Provide additional information to justify deletion of the asterisk footnote on Circulator Speed-High Water, P.4.4-5c.

16.

Provide additional information to clarify deletion of reference to notes (m) and (n) in Table 4.4-4 on rod withdrawal prohibit inputs, P.4.4-8. Although the NRC markup in the letter dated January 24, 1986, indicated deletion of (m) and (n) in Table 4.4-4, (m) and (n) clarify the inputs (5%, 30% or high power) to associate with the notes on P. 4.4-8. Also, if the high power RWPs are reinstated (see Item 10 above), the association to be made in Table 4.4-1 will be even less clear. Response to this comment should consider Comment 20 on consistent format for location of footnotes in Enclosure 4(a) to the NRC letter, dated January 24, 1986.

Provide additional information as to why many of the Allowable Values and Trip Setpoints in Table 3.3-1 and Tables 4.4-1, 4.4-2, 4.4-3, and 4.4-4 are the same, P.3.3-5. The basis on P.3.3-5 states that for these parameters; "The portion of the instrument channel which is tested monthly is checked only for logic operability; hence, no monthly drift is determined." The basis also states that: "The test selected for drift considerations was the monthly functional test, as opposed to the annual calibration test." However, ISA S67.04 specifically states (P.11, 4.3.3) that: "the trip setpoint shall be a value which allows margin for drift and adjustment," and further clarifies drift as: "Drift of that portion of the instrument channel which is tested when the setpoint is determined." Monthly functional checks which test only for logic operability do not, therefore, qualify as the tests for which setpoints are determined. PSC, by using the monthly functional tests in which setpoints are not determined, has eliminated the distinction between Allowable Value and Trip Setpoint intended by ISA S67.04. PSC states that they take drift into consideration in the allowances between the Analysis Value and the Allowable value. Although drift is thus accounted for, this approach does not segregate the instrument uncertainties per the intent of ISA S67.04. This choice of using the monthly functional tests was apparently specified by the NRC at the October 27, 1983, meeting. (See P. 5, Attachment 3, Ref 1). The intent of the ISA S67.04 Standard in segregating the drift allowance and setpoint tolerance allowance between the trip setpoint and the allowable value was to emphasize those uncertainties, inaccuracies, etc., that change. Lack of accounting for drift has been the subject of many LERs. Also, drift is the one inaccuracy that is subject to the most change and was segregated by the ISA Committee (Ref 6).

REFERENCES

1. O. R. Lee letter to E. H. Johnson, "Proposed Changes to Sections 2.1, 3.3, 4.0, 5.0, LCO 4.4.1, and SR 5.4.1 of the Fort St. Vrain Technical Specifications," June 21, 1985, Public Service Company of Colorado.

2. R. F. Walker letter to H. N. Berkow, "Technical Specification Change Request to the Plant Protective System Trip Setpoints," May 15, 1986, Public Service Company of Colorado.

3. ISA-S67.04, "Setpoints for Nuclear Safety-Related Instrumentation Used in Nuclear Power Plants," 1982, Instrument Society of America.

4. D. Warembourg letter to J. T. Collins, "Fort St. Vrain Plant Protective System Technical Specifications," March 9, 1984, Public Service Company of Colorado.

5. H. N. Berkow letter to R. F. Walker, "Fort St. Vrain-Plant Protection System Trip Setpoints," January 24, 1986, U.S. Nuclear Regulatory Commission.

6. Telephone communication, on July 28, 1986, J. C. Stachew, EG&G Idaho, with E. C. Wenzinger, U.S. Nuclear Regulatory Commission ISA-S67.04 Committee Member.