Omaha Public Power District
1623 Harney Omaha, Nebraska 68102
402/536-4000

March 5, 1985
LIC-85-020

Mr. James R. Miller, Chief
Office of Nuclear Reactor Regulation
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, DC 20555

References: (1) Docket No. 50-285
(2) Letter from J. R. Miller to W. C. Jones dated July 24, 1984
(3) Letter from R. L. Andrews to J. R. Miller dated December 7, 1984 (LIC-84-327)

Dear Mr. Miller:

Safety Parameter Display System (SPDS)

On December 7, 1984, the Omaha Public Power District provided a response to Reference (2).

Please find attached corrected pages to be incorporated into that response, Reference (3). These pages replace the corresponding pages of Reference (3). Correction of the typographical errors changes neither the intent nor the conclusions of Reference (3).

Sincerely,

R. L. Andrews
Division Manager
Nuclear Production

RLA/CWN/dao

Attachment

cc: LeBoeuf, Lamb, Leiby & MacRae
1333 New Hampshire Avenue, N.W.
Washington, DC 20036

Mr. E. G. Tourigny, NRC Project Manager
Mr. L. A. Yandell, NRC Senior Resident Inspector

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Attachment 1

Conclusions Regarding Changes to Technical Specifications

The District has reviewed the design basis for the SPDS and has concluded that no changes to the Fort Calhoun Station Technical Specifications are required for operation of the SPDS. This conclusion is based upon the following:

a) The SPDS is made up of the Emergency Response Facility Computer (ERFC), eleven ERFC terminals and the QSPDS. The QSPDS processes Class 1E electrical signals before transmittal to the ERFC. The Emergency Response Facility Computer provides displays for signals received from existing and/or new instrument loops that are covered, as required, by existing Technical Specifications, e.g., RPS and Engineered Safeguards System inputs. After ERF Computer processing, information is available to any of the eleven (11) ERFCS terminals to provide a consolidated, comprehensive source of plant status data.

b) The SPDS is intended to be used as a monitoring device and has not been assigned control functions of plant systems.

c) The SPDS is not necessary for safe operation of Fort Calhoun Station due to items a) and b) above. The existing control room instrumentation displays are sufficient to ensure safe operation of the plant.

The preceding formulates the basis for the conclusion that no new Technical Specifications are required as a result of the SPDS. Therefore, no new Technical Specifications are proposed.

Attachment 3

Proposal for a Human Factors Program

The initial design of the SPDS did not include a formal and documented review for human factors considerations. A human factors program is in the process of being developed in conjunction with the performance of the Detailed Control Room Design Review (DCRDR). Upon completion of the human factors review for the SPDS, a report will be submitted to the NRC.

The human factors program development and implementation will be completed on a schedule consistent with the implementation of the SPDS.

v. Y3286A Static Inverter A volts

w. Y3286B Static Inverter B volts

x. Y3286C Static Inverter C volts

y. Y3286D Static Inverter D volts

z. Digital Inputs Representing Status of Engineered Safety Function (ESF) Systems

The above signals are connected to ERFCS via isolating devices as described below:

1. T113: Technology for Energy Corporation, Model 156E Isolator.
2. T123, F0114A: Scientific Columbus, Model 7005-SC-BA Isolating Transmitter.
3. L387, L388: GEMS/Delaval Receivers, Model RE-36562.
   L599, L600: GEMS/Delaval Receivers, Model RE-36562.
4. HR81A/B: Comsip, Inc. - Delphi Systems Division, AGM Series 4000 Transmitter
5. P783, P784: Foxboro, Model N-2A0-V2I.
   P785, P786: Foxboro, Model N-2A0-V2I.
6. A/B/C/DR001: Reactor Protective System Buffered Voltage Outputs.
   R0003X,Y R0004X,Y: Reactor Protective System Buffered Voltage Outputs.
7. Y3286A/B/C/D: Scientific Columbus, Model VT110A2 Transducer.
8. Digital Inputs: Relay Contacts, Coil-to-Contact Isolation.

In our Engineering judgment, these devices provide adequate isolation for safety systems from noise generated in the ERF computer system. For a more detailed response to information request items a.-f. for these devices see attachment 4.1.

PROPOSED METHOD OF ISOLATION FROM SAFETY SYSTEMS

Signal: T123 Loop 2B Cold Leg Temp. - Wide Range
FO114A Primary Coolant Loop Flow - Channel A

Device: Scientific Columbus DC Voltage Transmitters Model #7005-SC-BA for T123 and FO114A.

These signals were directly connected to the plant process computer through a resistor which converts to 10-50 mA current signal to a voltage input signal for the process computer. As a part of ERFCS modification, Scientific Columbus voltage transmitters have been added to enable these signals to be "shared" between the ERFCS and the plant process computer. Loop 123 is used in the PORV Lo Pressure trip circuitry and loop 114A provides one input to the RPS. The Scientific Columbus signal modifiers are considered non safety related. There has been no change to the original design basis for the power plant.

a. Describe specific testing performed to demonstrate that the device is acceptable for its application:

Per vendor literature, (enclosure 2) these units surpass the IEEE recommended surge protection specification and have a 1500 VAC withstand capability.

By analysis: A single ground at the device input, an open signal lead of the device unit, or shorting the signal leads together at the device input will have no effect on the instrument loop except possibly causing the computer signal to be lost.

a. (cont'd) Elementary diagrams indicating test configuration and how maximum credible faults were applied to the devices:

Elementary diagrams showing the IEEE surge withstand test configuration were not provided by the vendor.

b. Data verifying that the maximum credible faults applied during the test were maximum voltage/current to which the device could be exposed, and define how maximum voltage/current was determined:

Test procedures describing isolation testing were not provided by the vendor.

The maximum credible voltage to which the device could be exposed to is either 120 VAC or 125-140 VDC. These are the maximum voltages located within the control board in the vicinity of the devices. The cables which carry these signals to the ERFCS are routed through the cable spreading room. The cables in this room consist mainly of instrument and control cables, basically 120 VAC, 125 VDC, or low energy signal and computer control circuits. There are no 4160 VAC or 480 VAC power cables installed in cable trays in the cable spreading room.

Attachment 5

Consideration of Adding Steam Generator Pressure, Containment Sump Level and Steamline Radioactivity to the SPDS

The District has reviewed the parameters included in the SPDS as a result of the Commission's request for additional information dated July 24, 1984, Reference (1). Upon completion of this review, it was determined that the parameters, Steam Generator Pressure, Containment Sump Level and Steamline Radioactivity, are monitored and displayed by the Fort Calhoun Station SPDS. These three parameters were inadvertently omitted from the October 28, 1983 submittal, Reference (2).

A revised SPDS Parameter Selection Safety Analysis is provided in addition to the relationship between the selected parameters and the Critical Safety Functions (CSF) provided in Attachment 6. Please note that the Containment Sump Level parameter is listed with the CSF "Containment Conditions," Steam Generator Pressure is listed with the CSF "Reactor Core Cooling and Heat Removal from the Primary System," and Steamline Radioactivity is listed with the CSF "Radioactivity Control."

3. NUREG-0737, Supplement 1, Critical Safety Function: Reactor Coolant System Integrity

Corresponding EPG Safety Function(s): RCS Inventory and Pressure Control

EPG Parameters	SPDS Variables
Pressurizer Level	Pressurizer Level
RCS Pressure	Pressurizer Pressure
RCS Subcooling	Saturation Margin Saturation Margin Upper Head Saturation Margin
ECCS Delivery	HPSI Flow LPSI Flow Reactor Vessel Level

4. NUREG-0737, Supplement 1, Critical Safety Function: Radioactivity Control

Corresponding EPG Safety Function(s): Containment Isolation

EPG Parameters	SPDS Variables
Containment Radiation Monitors	Containment Radiation Monitors
Containment Pressure	Containment Pressure
Containment Isolation Valve Status	Status of Cont. Iso. Valves
Steam Plant Radiation Monitors	Secondary System Activity Monitors - Main Steam Line Monitor - Gaseous Effluent Monitors - Condenser Off-Gas Monitor - Liquid Effluent Monitors

5. NUREG-0737, Supplement 1, Critical Safety Function: Containment Conditions

Corresponding EPG Safety Function(s): Containment Temperature, Pressure, and Combustible Gas Control

EPG Parameters	SPDS Variables
Containment Temperature	Containment Temperature
Containment Pressure	Containment Pressure