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SUBJECT: Identifies plant-specific backfit re accumulator tank level & pressure instrumentation, per 860121 SER concerning compliance to Reg Guide 1.97, Rev 2. Review of position re backfit requested.

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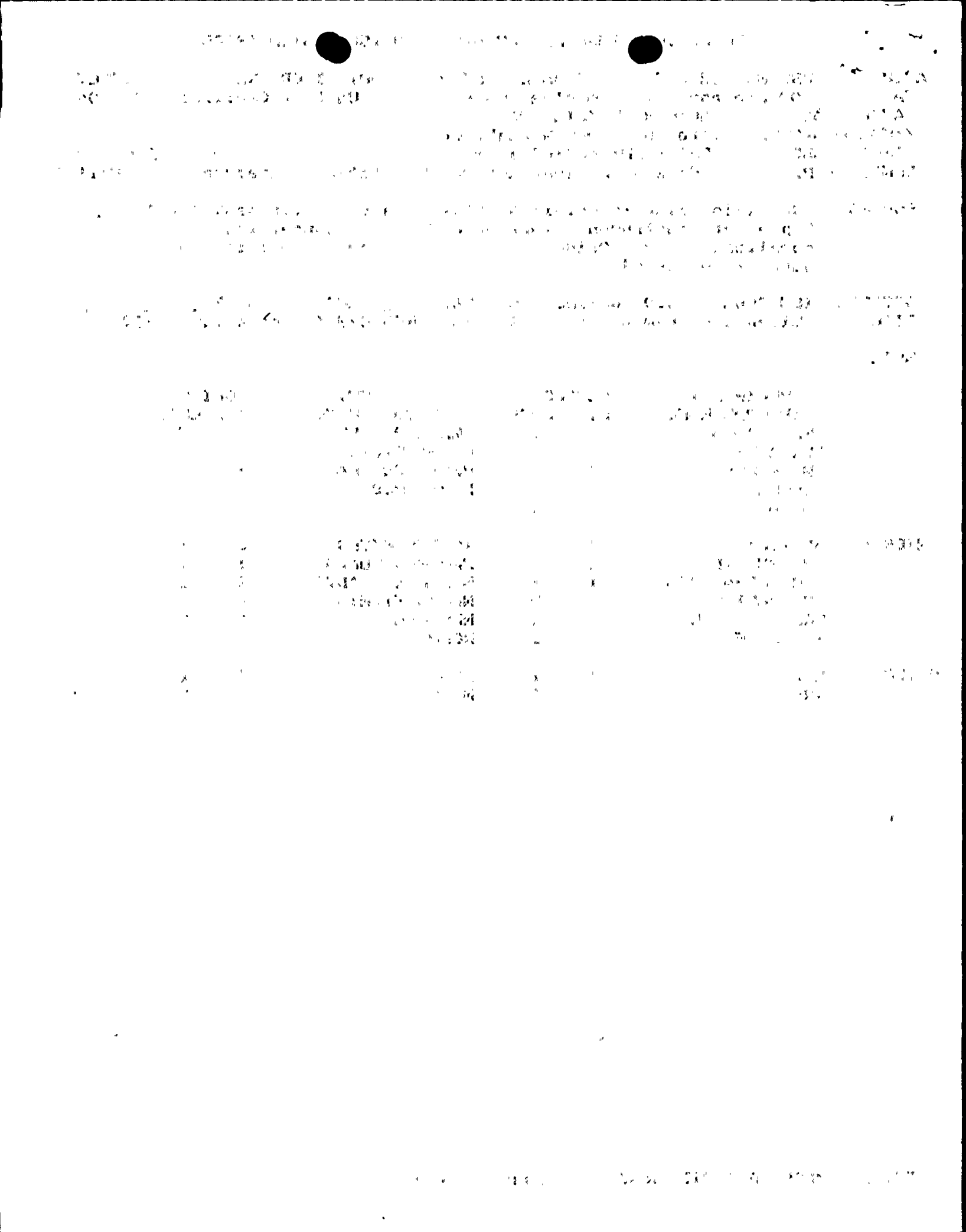

CP&L
Carolina Power & Light Company

FEB 06 1986

SERIAL: NLS-86-055

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT
UNIT NO. 1 - DOCKET NO. 50-400
IDENTIFICATION OF BACKFIT CONCERNING ACCUMULATOR
TANK PRESSURE AND LEVEL INSTRUMENTATION

Dear Mr. Denton:

Carolina Power & Light Company (CP&L) hereby identifies a plant specific backfit concerning accumulator tank level and pressure instrumentation at the Shearon Harris Nuclear Power Plant (SHNPP). By letter dated January 21, 1986, the NRC transmitted a Safety Evaluation Report (SER) documenting the Staff's review of the SHNPP compliance to Regulatory Guide (RG) 1.97, Revision 2. The SER required that CP&L designate either level or pressure as the key variable to determine accumulator discharge and provide instrumentation for that variable that meets the requirements of 10 CFR 50.49. The qualified accumulator tank level or pressure instrumentation must be installed and operational at the first scheduled outage of sufficient duration, but no later than start up following the first refueling outage. CP&L considers the above design change to be a plant specific backfit as discussed in 10 CFR 50.109.

As discussed in CP&L letter dated June 3, 1985, the design and procedures at SHNPP do not utilize either accumulator tank level or pressure instrumentation in a post-accident scenario, as such, they are not environmentally qualified for a harsh environment. These variables are monitored as required by the Technical Specifications (TS) during normal plant operation to maintain the accumulator in an "as-ready" condition. A safety grade isolation valve indication is provided and, since the system is passive, power to the valve is locked out at the circuit breaker. Therefore, no immediate operator action is required or possible until power is restored at the circuit breaker. CP&L agrees that the instrumentation is part of a safety-related system, but it is important to remember that this is a passive system and is not needed post-accident. The accumulator is provided for cold leg injection for a major loss of coolant accident. The pre-accident TS limits on accumulator volume and pressure ensure the assumptions used for accumulator injection in the safety analysis are met. The instrumentation is no longer required following accumulator injection.

The injection lines are isolated during post-accident recovery by procedure on RCS pressure. Thus, RCS pressure is the key variable and this instrumentation is qualified for post-accident conditions and is Class 1E. At best, accumulator level and pressure would be considered back-up variables (Category 3 variable), which the RG states should be high-quality commercial grade. These variables are not relied upon post-accident; therefore, CP&L requested an exemption to the Category 2 requirements for post-accident environmental qualification of the accumulator tank level and pressure instrumentation. Additionally, RG 1.97 required that accumulator level be monitored

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between 10 and 90 percent of volume. The SHNPP monitored volume corresponds to between 71.2 and 64.1 percent of volume. Appropriate values have been addressed in the SHNPP TS. Therefore, for the same reasons cited above, the monitored span for SHNPP is adequate.

CP&L has additionally noted that the provisions of RG 1.97 Category 3 instrumentation for accumulator tank level and pressure has been determined as an acceptable RG variance by the NRC in a SER for the Callaway Plant, Unit 1, issued April 10, 1985 (excerpt attached as Attachment A). The SHNPP design and rational for monitoring accumulator tank level and pressure are very similar to that of Callaway, Unit 1.

CP&L requests that the NRC review the staff position concerning accumulator tank level or pressure instrumentation at SHNPP as a plant specific backfit in accordance with 10 CFR 50.109. If you have any questions or require additional information, please contact me.

Yours very truly,

S. R. Zimmerman
Manager
Nuclear Licensing Section

JHE/ljs (3368NLU)

Attachment

cc: Mr. B. C. Buckley (NRC)
Mr. G. F. Maxwell (NRC-SHNPP)
Dr. J. Nelson Grace (NRC-RII)
Mr. Travis Payne (KUDZU)
Mr. Daniel F. Read (CHANGE/ELP)
Wake County Public Library
Mr. J. H. Sniezek, Director
NRC Regional Operations and
Generic Requirements Staff
Mr. Wells Eddleman
Mr. John D. Runkle
Dr. Richard D. Wilson
Mr. G. O. Bright (ASLB)
Dr. J. H. Carpenter (ASLB)
Mr. J. L. Kelley (ASLB)
Mr. H. A. Cole

- Excerpted from a 4/10/85 letter from the NRC to Union Electric, forwarding the safety evaluation of Callaway's Reg. Guide 1.97 conformance.

3.3.5 Accumulator Tank Level and Pressure

Regulatory Guide 1.97 recommends Category 2 instrumentation for this variable with a range from 10 to 90 percent volume (level) and 0 to 750 psig (pressure). The instrumentation supplied by the applicant has ranges of 6122 to 6594 gallons and 0 to 700 psig respectively.

The applicant has provided information indicating that these variables are not required to provide "information which is relevant." Their FSAR shows that the accumulators passively discharge for all reactor coolant system breaks except for a three inch break (the analysis ended at ~2500 s). The operator can isolate the accumulators should this action be needed. The applicant also indicates that the operator can determine whether or not nitrogen has been discharged from the accumulators into the reactor coolant system.

The accumulator pressure and level measurement channels are not required to remain functional to protect the integrity of the reactor coolant pressure (RCS) boundary, to shutdown the reactor or maintain it in a safe shutdown condition or to prevent or mitigate the consequences of accidents which could result in potential offsite exposures. Systems or components that are required to remain functional for any of the above should be Category 1. The accumulator pressure and level instrumentation is used during plant operation to allow the operator to monitor normal conditions. Once an accident has occurred, the operator does not need to monitor accumulator level or pressure. Discharge of the accumulators can be determined from other RCS parameters. Based on this, we conclude that the Category 3 instrumentation supplied for this variable is acceptable, and that the range of the level instrumentation is acceptable.

The accumulator pressure is maintained manually between 602 and 648 psig. This is within the range supplied. Thus, the range is an acceptable deviation because it adequately covers the expected range of accumulator pressure.