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AUTH.NAME AUTHOR AFFILIATION
UTLEY,E.E. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
EISENHUT,D.G. Division of Operating Reactors

SUBJECT: Responds to NRC 800223 request for info re LWR primary coolant sys pressure isolation valves,Periodic leak tests & continuous monitoring have consistently demonstrated acceptable valve performance.Interface tables encl.

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March 14, 1980

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Mr. Darrell G. Eisenhut, Acting Director
Division of Operating Reactors
Office of Nuclear Reactor Regulation
United States Regulatory Commission
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
LWR PRIMARY COOLANT SYSTEM PRESSURE ISOLATION VALVES

Dear Mr. Eisenhut:

The following is Carolina Power & Light Company's response to your letter of February 23, 1980 regarding the above subject as it relates to H. B. Robinson Unit No. 2.

1. Describe the valve configuration at your plant and indicate if an Event V isolation valve configuration exists within the Class I boundary of the high pressure piping connecting PCS piping to low pressure system piping; e.g., (1) two check valves in series, or (2) two check valves in series with a MOV;

CP&L Response

The high pressure to low pressure system piping interfaces at H. B. Robinson Unit 2 have been reviewed and three Event V type interfaces (two check valves in series or two check valves in series with a motor operated valve) have been identified. These system interfaces are listed in Table I and the interface configurations are shown in Figures 1, 2, and 3. It should be noted that the Event V interfaces share a common set of valves, 875A, B, and C, the first isolation valve from the reactor coolant system in the cold leg injection lines.

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2. If either of the above Event V configurations exists at your facility, indicate whether continuous surveillance or periodic tests are being accomplished on such valves to ensure integrity. Also indicate whether valves have been known, or found, to lack integrity; and

CP&L Response

The current surveillance requirements provide for periodic leak testing of at least one check valve in each interface to ensure integrity and functionality as a pressure and/or flow isolation barrier. The periodic test requirements for leak testing of each valve or combination of valves are presented in Table II.

In addition to periodic testing, the leakage through the accumulator isolation check valves is monitored continuously through RTGB level and pressure readouts for each accumulator.

Results of the leak tests and continuous monitoring have consistently demonstrated the acceptable performance of all subject valves throughout the life of the plant. No maintenance has been required, as yet, on any of these valves.

3. If either of the above Event V configurations exists at your facility, indicate whether plant procedures should be revised or if plant modifications should be made to increase reliability.

CP&L Response

The significance of the failure of high pressure piping to low pressure piping system isolation check valves to perform their pressure isolation function has been reviewed previously for safety related systems at H. B. Robinson Unit 2 (ref. letter from E. E. Utley to A. Schwencer dated November 9, 1978). This review resulted in the conclusion that the installed pressure relief capacity in the low pressure piping is adequate to prevent overpressurization providing the isolation check valves (one to two in series) function as flow barriers. Therefore, there is no potential for an intersystem loss of coolant accident due to low pressure piping as a result of the failure of isolating check valves to function as primary coolant pressure barriers. Since each interface consists of two check valves in series as a minimum, no loss of flow barrier (significant flow) function can be postulated for the interface within the single failure criterion.

The danger of a loss of primary coolant outside the containment vessel as a result of relief valve discharge has been evaluated for each interface. The results of this evaluation are presented below.

High Pressure Cold Leg Injection:

The low pressure piping is isolated by three check valves in series. One valve can be assumed to fail completely and one of the two remaining valves can be assumed to fail to act as a pressure isolation barrier. However, the third valve cannot be assumed to fail in either manner. Therefore no leakage of primary coolant to the low pressure piping can occur and no pressure relief to backflow can occur.

Low Pressure Injection/Residual Heat Removal:

The low pressure piping is isolated by two check valves in series with a motor operated valve. With the motor operated valve open, backleakage can be postulated. However, the pressure relief valve is located inside containment and its discharge is piped to the pressurizer relief tank.

Low Pressure Injection/Accumulators:

The low pressure piping and the accumulator tanks are isolated by two check valves in series. Backflow can be postulated; however, the accumulator relief valves dump to the containment building atmosphere and this system as described is located in the containment building. In addition, the high level and high pressure RTGB alarms on each accumulator make overpressurization of an accumulator due to leakage highly unlikely.

In conclusion, the Event V interface system designs in conjunction with current surveillance requirements are considered entirely adequate for the continued safe operation of H. B. Robinson Unit 2. Therefore, no operating license, plant procedure, or system configuration modifications are considered warranted, and no further action is planned.

If you have any questions, please contact my staff.

Yours very truly,

E. E. Utley
Executive Vice President
Power Supply and Customer Services

EVP/JJS/jc (851-019)

Sworn to and subscribed before me this 14th day of March 1980

Franklin Murray
Notary Public

FRANKLIN MURRAY NOTARY PUBLIC WAKE COUNTY, N.C.

My commission expires: October 4, 1981

cc: Mr. J. D. Neighbors (NRC)

Table I

Event V System Interfaces

Interface	High Press. Line	Low Press. Line	Pressure Isolation Valves	Valve Class	Valve Type
High Pressure Cold Leg Injection	2-SI-2501 R-65	2-SI-1501R-20	875 C	I	Check
			873 D	I	Check
			873 A	II	Check
	2-SI-2501 R-64	2-SI-1501R-24	895 B	I	Check
			873 E	I	Check
			873 B	II	Check
	2-SI-2501-R63	2-SI-15014-18	875 A	I	Check
			873 F	I	Check
			893 C	II	Check
Low Pressure Injection/ Residual Heat Removal	10-SI-2501R-40	10-AC-601 R-8	875 C, 876 C	I	Check, Check
			875 A, 876 A	I	Check, Check
			744 A	II	Motor Operated Gate
			875 B	I	Check
	10-SI-2501R-38	10-AC-601 R-8	876 B	I	Check
			744 B	II	Motor Operated Gate
Low Pressure Injection/ Accumulators	10-SI-2501R-54	10-SI-601R-55	875 C	I	Check
			875 F	I	Check
			875 B	I	Check
	10-SI-2501R-48	10-SI-601R-51	875 E	I	Check
			875 A	I	Check
	10-SI-2501R-47	10-SI-601R-50	875 D	I	Check

Table II

Leak Test Requirements

Valve Test	Interface	H. B. Robinson Plant Periodic Test	Interval
Determine leakage through 875 A Determine leakage through 875 B Determine leakage through 875 C	Low Pressure Injection/ Residual Heat Removal, Low Pressure Injection/ Accumulators and High Pressure Cold Leg Injection	2.4	Refueling
Determine total leakage through 875 A, B, C, 873 A, B, C, D, E, F	High Pressure Cold Leg Injection	2.4	Refueling
Determine leakage through 875 A, 873 F and C Determine leakage through 875 B, 873 E and B Determine leakage through 875 C, 873	Low Pressure Injection/ Accumulators	2.3	Refueling and Startup

FIGURE #1

HIGH PRESSURE COLD LEG INJECTION

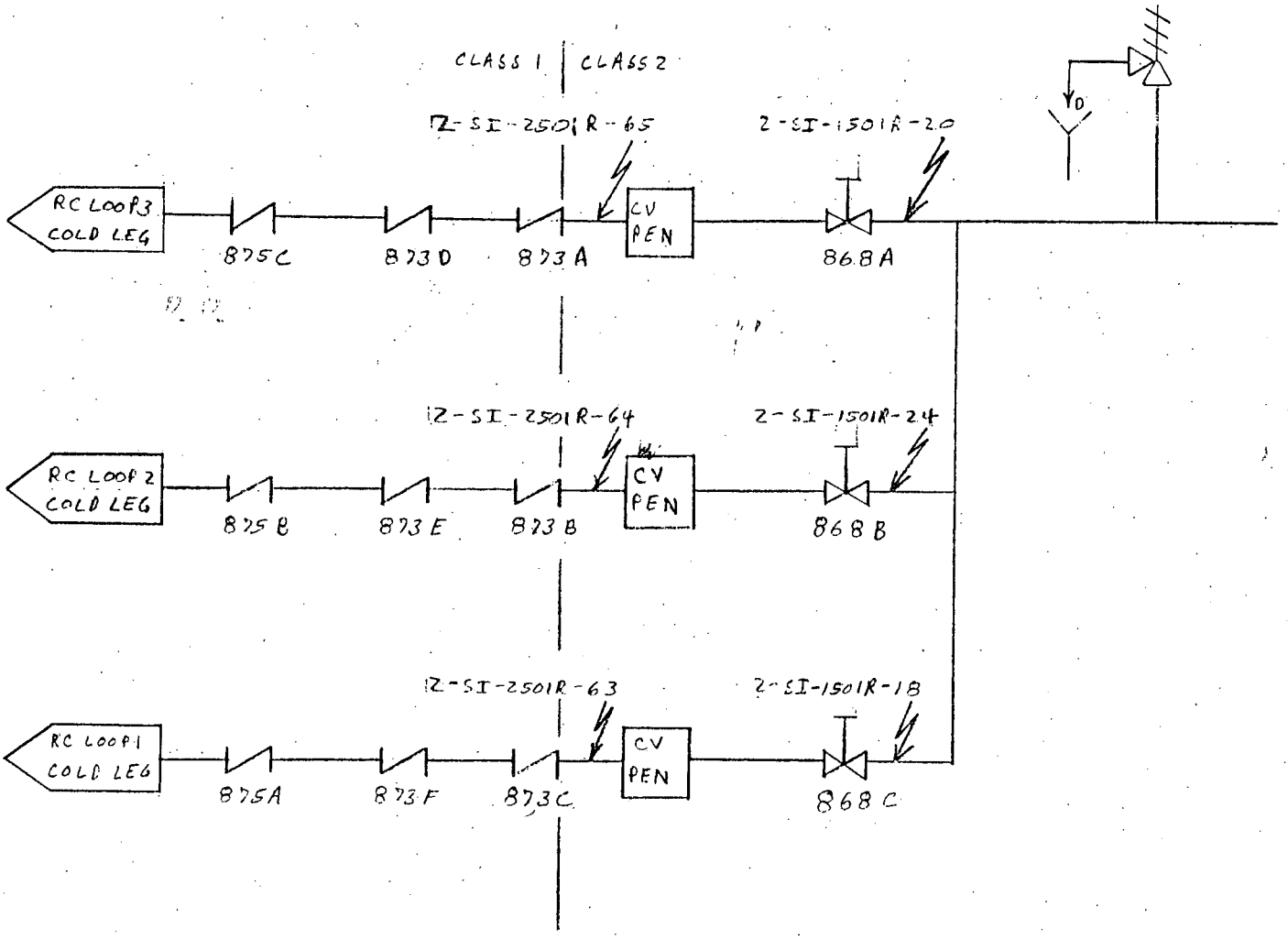

FIGURE # 2

LOW PRESSURE INJECTION/RESIDUAL HEAT REMOVAL

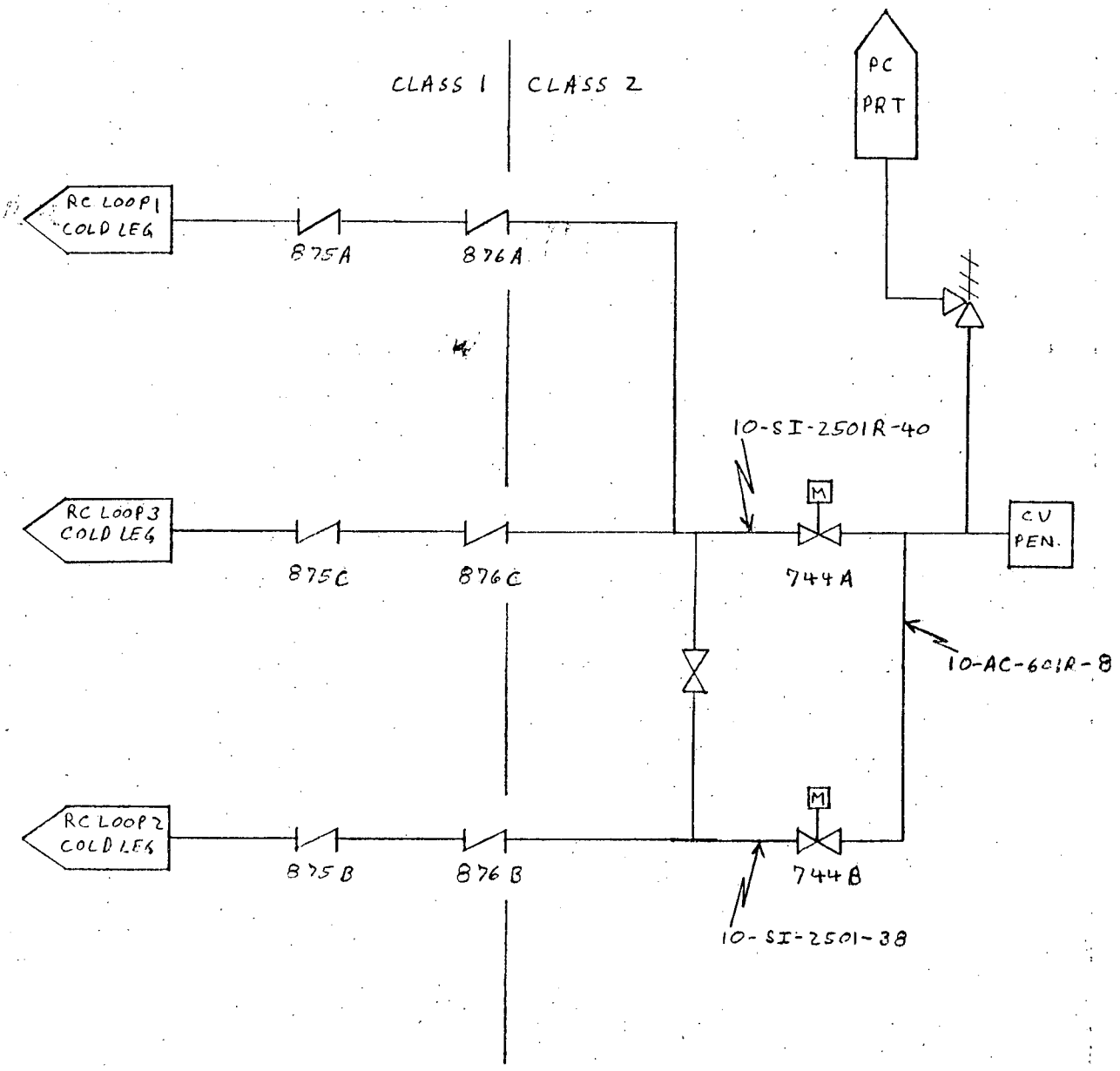

FIGURE #3

LOW PRESSURE INJECTION/ACCUMULATORS