Duquesne Light

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June 26, 1979

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Attention: A. Schwencer, Chief
Operating Reactors, Branch No. 1
Division of Operating Reactors
Washington, DC 20555

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334
Request for Amendment to Operating License
Technical Specification Change Request No. 38

Gentlemen:

Enclosed are three (3) signed originals and thirty-seven (37) copies of a proposed change to the Beaver Valley, Unit No. 1 Appendix A Technical Specifications to change the Safety Injection System initiation logic such that a two out three low pressurizer pressure signal would result in a safety injection.

Safety Evaluation

Three existing pressurizer pressure channels are used for safety injection and two channels are used for control system functions. Control and protection interaction requirements set forth in IEEE-279 are satisfied by the fact that control transmitters are independent from protection transmitters.

All current ECCS analyses are valid and appropriate with safety injection as function of pressurizer pressure signals only. Presently, safety injection is initiated on coincident pressurizer pressure and level signals with the level bistable being maintained in the trip position, except during periodic testing.

The effect of changing to a pressure only signal will result in either an earlier safety injection or no change in the time of safety injection initiation for all break locations. For small leaks in the pressurizer, the pressure only signal will assure SI actuation; therefore, current small break analysis assumptions, concerning safety injection initiation time, are appropriate.

Additionally, the effect of safety injection initiation time on peak clad temperatures is negligible when initiation times being considered correspond to RCS pressures above 1400 psia. The switch to a pressure only safety injection signal results in a negligible impact on large break analyses. The two out of three coincidence is designed to minimize spurious safety injection systems initiation caused by instrument channel malfunctions.

We have determined that this Technical Specification change should be categorized as a Class II, pro forma change due to the fact that the elimination of the level signal from the SI logic was instituted to comply with IE Bulletin 79-06A.

A check in the amount of $1200.00 is enclosed in accordance with 10CFR 170.22.

Very truly yours,

C. N. Dunn
Vice President, Operations

Attachment

(CORPORATE SEAL)

Attest:

H. W. Staas
Secretary

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this 26TH day of JUNE, 1979, before me, DONALD W. SHANNON, a Notary Public in and for said Commonwealth and County, personally appeared C. N. Dunn, who being duly sworn, deposed, and said that (1) he is Vice President of Duquesne Light, (2) he is duly authorized to execute and file the foregoing Submittal on behalf of said Company, and (3) the statements set forth in the Submittal are true and correct to the best of his knowledge, information and belief.

DONALD W. SHANNON, NOTARY PUBLIC
PITTSBURGH, ALLEGHENY COUNTY
MY COMMISSION EXPIRES JUNE 7, 1983
Member, Pennsylvania Association of Notaries

TABLE 3.3-3

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. SAFETY INJECTION AND FEEDWATER ISOLATION					
a. Manual Initiation	2	1	2	1, 2, 3, 4	18
b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
c. Containment Pressure-High	3	2	2	1, 2, 3	14
d. Pressurizer Pressure - Low	3	2	2	1, 2, 3#	14
e. Differential Pressure Between Steam Lines - High				1, 2, 3##	
Three Loops Operating	3/steam line	2/steam line twice and 1/3 steam lines	2/steam line		14
Two Loops Operating	3/operating steam line	2###/steam line twice in either operating steam line	2/operating steam line		15

b. Above P-11 or P-12, demonstrate that the Minimum Channels OPERABLE requirement is met within 1 hour; operation may continue with the inoperable channel bypassed and one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.

ACTION 17 - With less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed.

ACTION 18 - With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

ENGINEERED SAFETY FEATURES INTERLOCKS

DESIGNATION	CONDITION AND SETPOINT	FUNCTION
P-11	With 2 of 3 pressurizer pressure channels > 2010 psig.	P-11 prevents or defeats the manual block of safety injection actuation on low pressurizer pressure
P-12	With 2 of 3 T_{avg} channels > 545°F.	P-12 prevents or defeats the manual block of safety injection actuation on high steam line flow and low steam line pressure.
	With 2 of 3 T_{avg} channels < 541°F.	Allows manual block of safety injection actuation on high steam line flow and low steam line pressure. Causes steam line isolation on high steam flow. Affects steam dump blocks.

TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1. SAFETY INJECTION, TURBINE TRIP AND FEEDWATER ISOLATION		
a. Manual Initiation	Not Applicable	Not Applicable
b. Automatic Actuation Logic	Not Applicable	Not Applicable
c. Containment Pressure--High	$\leq$ 1.5 psig	$\leq$ 2.0 psig
d. Pressurizer Pressure--Low	$\geq$ 1845 psig	$\geq$ 1835 psig
e. Differential Pressure Between Steam Lines--High	$\leq$ 100 psi	$\leq$ 112 psi
f. Steam Flow in Two Steam Lines--High Coincident with T_{avg}--Low-Low or Steam Line Pressure--Low	$\leq$ A function defined as follows: A Δp corresponding to 40% of full steam flow between 0% and 20% load and then a Δp increasing linearly to a Δp corresponding to 110% of full steam flow at full load $T_{avg} \geq$ 543°F $\geq$ 500 psig steam line pressure	$\leq$ A function defined as follows: A Δp corresponding to 44% of full steam flow between 0% and 20% load and then a Δp increasing linearly to a Δp corresponding to 111.5% of full steam flow at full load $T_{avg} \geq$ 541°F $\geq$ 480 psig steam line pressure

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
3. Pressurizer Pressure-Low	
a. Safety Injection (ECCS)	≤ 27.0*/13.0#
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	≤ 75.0(1)
d. Containment Isolation-Phase "A"	≤ 22.0#
e. Auxiliary Feedwater Pumps	Not Applicable
f. R_x Plant River Water System	≤ 77.0#/110.0##
4. Differential Pressure Between Steam Lines-High	
a. Safety Injection (ECCS)	≤ 13.0#/23.0##
b. Reactor Trip (from SI)	≤ 3.0
c. Feedwater Isolation	≤ 75.0(1)
d. Containment Isolation-Phase "A"	≤ 22.0#/33.0##
e. Auxiliary Feedwater Pumps	Not Applicable
f. R_x Plant River Water System	≤ 77.0#/110.0##
5. Steam Flow in Two Steam Lines - High Coincident with T_{avg}--Low-Low	
a. Safety Injection (ECCS)	≤ 15.0#/25.0##
b. Reactor Trip (from SI)	≤ 5.0
c. Feedwater Isolation	≤ 77.0(1)
d. Containment Isolation-Phase "A"	≤ 22.0#/33.0##
e. Auxiliary Feedwater Pumps	Not Applicable
f. R_x Plant River Water System	≤ 77.0#/110.0##
g. Steam Line Isolation	≤ 10.0

TABLE 4.3-2

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. SAFETY INJECTION AND FEEDWATER ISOLATION				
a. Manual Initiation	N.A.	N.A.	M(1)	1, 2, 3, 4
b. Automatic Actuation Logic	N.A.	N.A.	M(2)	1, 2, 3, 4
c. Containment Pressure-High	S	R	M(3)	1, 2, 3
d. Pressurizer Pressure--Low	S	R	M	1, 2, 3
e. Differential Pressure Between Steam Lines--High	S	R	M	1, 2, 3
f. Steam Flow in Two Steam Lines--High Coincident with T_{avg}--Low-Low or Steam Line Pressure--Low	S	R	M	1, 2, 3