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ARTHUR E. LUNDVALL, JR.
VICE PRESIDENT
SUPPLY

April 29, 1982

Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

ATTENTION: Mr. R. A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 1, Docket No. 50-317
Amendment to Operating License DPR-53
Supplement 1 to Sixth Cycle License Application

REFERENCE (A): A. E. Lundvall to R. A. Clark letter, dated February 17, 1982, Amendment to Operating License DPR-53 Sixth Cycle License Application

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1/1

ADD:
J. Vogelwede
G. Schwenk
D. Powers
A. Gill
L. Hopp
J. Mitchell

Gentlemen:

In partial response to NRC requirements we are replacing existing pressure transmitters in the Unit 1 containment with environmentally qualified Barton pressure transmitters during the Spring 1982 refueling outage. The uncertainties associated with those transmitters under all accident conditions have been under evaluation for some time and are now in the latter stages of confirmation. In late 1981, during the design of the Cycle 6 reload core we made some projections of what those uncertainties might be. The projections were considered in the Reload Safety Analysis for Cycle 6. However, the projections were too imprecise to be factored into the reanalysis of each Design Basis Event and/or into the determination of LSSSs and LCOs for Cycle 6.

Technical Specification Changes and Justification

We can now state the uncertainties more precisely. The Design Basis Events have been systematically reviewed for the effect that the uncertainties of the Barton transmitters scheduled for operability in Cycle 6 will have on the Safety Analyses. The Main Steam Line Break and the Steam Generator Tube Rupture events are adversely affected. The effect can be best and most quickly accommodated by revising several RPS and ESFAS equipment setpoints. The attachment to this letter describes proposed changes to the Technical Specifications required to ensure the continued validity of the Safety Analyses.

Safety Analysis and Review

The proposed changes to the Technical Specifications do not constitute an unreviewed safety question since the shift in RPS and ESFAS setpoints are in the conservative direction by an amount sufficient to at least offset the additional transmitter uncertainties associated with the most limiting Design Basis Events already analyzed in Reference (A).

The Plant Operations and Safety Review Committee (POSRC) and the Offsite Safety and Review Committee (OSSRC) have reviewed the proposed changes to the Technical Specifications and have concluded that they do not constitute an unreviewed safety question nor do they present an undue risk to the health and safety of the public.

Very truly yours,

BALTIMORE GAS AND ELECTRIC COMPANY

A. E. Lundvall, Jr.
Vice President - Supply

AEL/WJL/djw
Attachment

STATE OF MARYLAND, CITY OF BALTIMORE, TO WIT:

Arthur E. Lundvall, Jr., being duly sworn states that he is Vice President of the Baltimore Gas and Electric Company, a corporation of the State of Maryland; that he executed the foregoing Amendment for the purposes therein set forth; that the statements made in said Amendment are true and correct to the best of his knowledge, information, and belief; and that he was authorized to execute the Amendment on behalf of said Corporation.

WITNESS My Hand and Notarial Seal this 29th day of April 1982

Cheryl A. Hopkins
Notary Public

My Commission Expires: 7/1/82

Copies To: J. A. Biddison, Esquire (w/o Encl)
G. F. Trowbridge, Esquire (w/o Encl)
D. H. Jaffe - NRC
P. W. Kruse - CE

ATTACHMENT

The following Technical Specification changes are keyed to Tables 9-1 and 9-2 of the enclosure to A. E. Lundvall, Jr. to R. A. Clark letter, dated February 17, 1982, "Amendment to Operating License DPR-53 Sixth Cycle License Application."

TABLE 9-1

Change	Tech Spec #	Action
	Add the following Tech Spec changes:	
25	Table 2.2.1, Item 6 Page 2-9	Change Steam Generator - Low Trip Setpoint and Allowable Value from 570 to 635 psia
26	Table 2.2.1, Note (2) Page 2-10	Change Steam Generator - Low Trip Bypass from 685 to 710 psia
27	B.2.2.1, Page B2-5	Change Steam Generator Pressure - Low Trip Setpoint from 570 to 635 psia. Change the pressure instrument loop uncertainty factor from ±22 psi to ±87 psi based on Main Steam Line Break Event
28	B.2.2.1, Page B2-6	Change the floor pressure for the TM/LP trip from 1750 to 1875 psia
29	Table 3.3-1, Note (b) Page 3/4 3-4	Same action as for Change 26
30	Table 3.3-3, Note (a) Page 3/4 3-15	Change SIAS Pressurizer Pressure - Low Bypass from 1700 to 1800 psia
31	Table 3.3-3, Note (c) Page 3/4 3-15	Same action as for Change 26
32	Table 3.3-4, Item 1.c Page 3/4 3-17	Change SIAS Pressurizer Pressure - Low Trip Setpoint and Allowable Value from 1578 to 1725 psia
33	Table 3.3-4, Item 4.b Page 3/4 3-17	Change Main Steam Line Isolation (SGIS) Trip Setpoint and Allowable Value from 570 to 635 psia

TABLE 9-2

Change	Tech Spec #	Explanation
25	Table 2.2.1, Item 6 Page 2-9	The Steam Generator Pressure - Low Trip Setpoint and its associated instrument loop uncertainties have been changed to reflect the uncertainty associated with Barton pressure transmitters during the Main Steam Line Break Event
26	Table 2.2.1, Note (2) Page 2-10	The Steam Generator - Low Trip Bypass has been changed to reflect the change in the Trip Setpoint
27	B.2.2.1, Page B2-5	Same explanation as for Change 25
28	B.2.2.1, Page B2-6	The floor pressure for the TM/LP Trip Setpoint has been changed to reflect the uncertainty associated with the Barton pressure transmitters during a LOCA
29	Table 3.3-1, Note (b) Page 3/4 3-4	Same explanation as for Change 26
30	Table 3.3-3, Note (a) Page 3/4 3-15	The SIAS Pressurizer Pressure - Low Bypass has been changed to reflect the change in the actuation setpoint
31	Table 3.3-3, Note (c) Page 3/4 3-15	Same explanation as for Change 26
32	Table 3.3-4, Item 1.c Page 3/4 3-17	The SIAS Pressurizer Pressure - Low Trip Setpoint has been changed to reflect the uncertainty associated with the Barton transmitters during a LOCA
33	Table 3.3-4, Item 4.6 Page 3/4 3-17	The SGIS Setpoint has been changed to reflect the uncertainty associated with Barton pressure transmitters during the Main Steam Line Break Event

TABLE 2.2-1 (Cont'd)

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
4. Pressurizer Pressure - High	≤ 2400 psia	≤ 2400 psia
5. Containment Pressure - High	≤ 4 psig	≤ 4 psig
6. Steam Generator Pressure - Low (2)	≥ ~~570~~ 635 psia	≥ ~~570~~ 635 psia
7. Steam Generator Water Level - Low	≥ 10 inches below top of feed ring.	≥ 10 inches below top of feed ring.
8. Axial flux offset (3)	Trip setpoint adjusted to not exceed the limit lines of Figure 2.2-1.	Trip setpoint adjusted to not exceed the limit lines of Figure 2.2-1.
9. Thermal Margin/Low Pressure (1)		
a. Four Reactor Coolant Pumps Operating	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-2 and 2.2-3.	Trip setpoint adjusted to not exceed the limit lines of Figures 2.2-2 and 2.2-3.
b. Steam Generator Pressure Difference - High (1)	≤ 135 psid	≤ 135 psid
10. Loss of Turbine -- Hydraulic Fluid Pressure - Low (3)	≥ 1100 psig	≥ 1100 psig
11. Rate of Change of Power - High (4)	≤ 2.6 decades per minute	≤ 2.6 decades per minute

TABLE NOTATION

(1) Trip may be bypassed below 10^{-4}% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is ≥ 10^{-4}% of RATED THERMAL POWER.

TABLE 2.2-1 (Cont'd)

TABLE NOTATIONS (Cont'd)

(2) Trip may be manually bypassed below ~~685~~ 710 psia; bypass shall be automatically removed at or above ~~685~~ 710 psia.

(3) Trip may be bypassed below 15% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is $\geq$ 15% of RATED THERMAL POWER.

(4) Trip may be bypassed below 10^{-4}% and above 12% of RATED THERMAL POWER.

operation of the reactor at reduced power if one or two reactor coolant pumps are taken out of service. The low-flow trip setpoints and Allowable Values for the various reactor coolant pump combinations have been derived in consideration of instrument errors and response times of equipment involved to maintain the DNBR above 1.195 under normal operation and expected transients. For reactor operation with only two or three reactor coolant pumps operating, the Reactor Coolant Flow-Low trip setpoints, the Power Level-High trip setpoints, and the Thermal Margin/Low Pressure trip setpoints are automatically changed when the pump condition selector switch is manually set to the desired two- or three-pump position. Changing these trip setpoints during two and three pump operation prevents the minimum value of DNBR from going below 1.195 during normal operational transients and anticipated transients when only two or three reactor coolant pumps are operating.

Pressurizer Pressure-High

The Pressurizer Pressure-High trip, backed up by the pressurizer code safety valves and main steam line safety valves, provides reactor coolant system protection against overpressurization in the event of loss of load without reactor trip. This trip's setpoint is 100 psi below the nominal lift setting (2500 psia) of the pressurizer code safety valves and its concurrent operation with the power-operated relief valves avoids the undesirable operation of the pressurizer code safety valves.

Containment Pressure-High

The Containment Pressure-High trip provides assurance that a reactor trip is initiated concurrently with a safety injection. The setpoint for this trip is identical to the safety injection setpoint.

Steam Generator Pressure-Low

The Steam Generator Pressure-Low trip provides protection against an excessive rate of heat extraction from the steam generators and subsequent cooldown of the reactor coolant. The setting of ~~570~~ psia is sufficiently below the full-load operating point of 850 psia so as not to interfere with normal operation, but still high enough to provide the required protection in the event of excessively high steam flow. This setting was used with an uncertainty factor of ± 22 psi ~~in the accident analyses.~~ which was based on the Main Steam Line Break Event.

Steam Generator Water Level

The Steam Generator Water Level-Low trip provides core protection by preventing operation with the steam generator water level below the minimum volume required for adequate heat removal capacity and assures that the pressure of the reactor coolant system will not exceed its Safety Limit. The specified setpoint provides allowance that there will be sufficient water inventory in the steam generators at the time of trip to provide a margin of more than 13 minutes before auxiliary feedwater is required.

Axial Flux Offset

The axial flux offset trip is provided to ensure that excessive axial peaking will not cause fuel damage. The axial flux offset is determined from the axially split excore detectors. The trip setpoints ensure that neither a DNBR of less than 1.195 nor a peak linear heat rate which corresponds to the temperature for fuel centerline melting will exist as a consequence of axial power maldistributions. These trip setpoints were derived from an analysis of many axial power shapes with allowances for instrumentation inaccuracies and the uncertainty associated with the excore to incore axial flux offset relationship.

Thermal Margin/Low Pressure

The Thermal Margin/Low Pressure trip is provided to prevent operation when the DNBR is less than 1.195.

The trip is initiated whenever the reactor coolant system pressure signal drops below either 1750 psia or a computed value as described below, whichever is higher. The computed value is a function of the higher of ΔT power or neutron power, reactor inlet temperature, and the number of reactor coolant pumps operating. The minimum value of reactor coolant flow rate, the maximum AZIMUTHAL POWER TILT and the maximum CEA deviation permitted for continuous operation are assumed in the generation of this trip function. In addition, CEA group sequencing in accordance with Specifications 3.1.3.5 and 3.1.3.6 is assumed. Finally, the maximum insertion of CEA banks which can occur during any anticipated operational occurrence prior to a Power Level-High trip is assumed.

TABLE 3.3-1 (Continued)

TABLE NOTATION

*With the protective system trip breakers in the closed position and the CEA drive system capable of CEA withdrawal.

#The provisions of Specification 3.0.4 are not applicable.

(a) Trip may be bypassed below 10^{-4} of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is $\geq 10^{-4}$ of RATED THERMAL POWER.

(b) Trip may be manually bypassed below ~~685~~ 710 psia; bypass shall be automatically removed at or above ~~685~~ 710 psia.

(c) Trip may be bypassed below 15% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is $\geq$ 15% of RATED THERMAL POWER.

(d) Trip may be bypassed below 10^{-4}% and above 12% of RATED THERMAL POWER.

(e) Trip may be bypassed during testing pursuant to Special Test Exception 3.10.3.

(f) There shall be at least two decades of overlap between the Wide Range Logarithmic Neutron Flux Monitoring Channels and the Power Range Neutron Flux Monitoring Channels.

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours and/or open the protective system trip breakers.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in either the bypassed or tripped condition within 1 hour. For the purposes of testing and maintenance, the inoperable channel may be bypassed for up to 48 hours from time of initial loss of OPERABILITY; however, the inoperable channel shall then be either restored to OPERABLE status or placed in the tripped condition.

TABLE 3.3-3 (Continued)

TABLE NOTATION

(a) Trip function may be bypassed in this MODE when pressurizer pressure is < 1700 psia; bypass shall be automatically removed when pressurizer pressure is ≥ 1700 psia.

(c) Trip function may be bypassed in this MODE below 685 psia; bypass shall be automatically removed at or above 685 psia.

* The provisions of Specification 3.0.4 are not applicable.

ACTION STATEMENTS

ACTION 6 - 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 in COLD SHUTDOWN within the following 30 hours.

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in either the bypassed or tripped condition within 1 hour. For the purposes of testing and maintenance, the inoperable channel may be bypassed for up to 48 hours from time of initial loss of OPERABILITY; however, the inoperable channel shall then be either restored to OPERABLE status or placed in the tripped condition.

b. Within one hour, all functional units receiving an input from the inoperable channel are also placed in the same condition (either bypassed or tripped, as applicable) as that required by a. above for the inoperable channel.

c. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 48 hours while performing tests and maintenance on that channel provided the other inoperable channel is placed in the tripped condition.

TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1. SAFETY INJECTION (SIAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure - High	≤ 4.75 psig	≤ 4.75 psig
c. Pressurizer Pressure - Low	≥ ~~1578~~ 1725 psia	≥ ~~1578~~ 1725 psia
2. CONTAINMENT SPRAY (CSAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure -- High	≤ 4.75 psig	≤ 4.75 psig
3. CONTAINMENT ISOLATION (CIS) #		
a. Manual CIS (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure - High	≤ 4.75 psig	≤ 4.75 psig
4. MAIN STEAM LINE ISOLATION		
a. Manual (MSIV Hand Switches and Feed Head Isolation Hand Switches)	Not Applicable	Not Applicable
b. Steam Generator Pressure - Low	≥ ~~570~~ 635 psia	≥ ~~570~~ 635 psia

Containment isolation of non-essential penetrations is also initiated by SIAS (functional units 1.a and 1.c).