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September 30, 1994
C321-94-2156

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Facility Operating License No. DPR-16
Response to Request for Additional Information
(TAC No. M89782)
Technical Specification Change Request No. 221

This letter confirms our discussion via teleconference on September 27, 1994 regarding Technical Specification Change Request (TSCR) No. 221, submitted to NRC on June 24, 1994 (C321-94-2098).

Enclosed please find our resonse to your fax dated September 21, 1994 which requested additional information on the subject TSCR 221.

If you should have any questions or require further information, please contact Mr. Ronald Furia, Manager OC Nuclear Fuel Projects at 201-316-7244.

Sincerely yours,

Sander Levin
for John J. Barton
Vice President and Director
Oyster Creek

JJB/TS/jc
cc: (All w/enclosure)
Administrator, Region 1
Senior NRC Resident Inspector
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ENCLOSURE

Technical Specification Change Request (TSCR) No. 221
Request for Additional Information, TAC M89782

1. **QUESTION**: *What is the limiting transient for setting the operating limit MCPR?*

RESPONSE: The Turbine Trip Without Bypass Transient (TTWOBP) tranisent sets the operating MCPR limit. This has been true since cycle 10 when 1D kinetics was first used for this transient.

2. **QUESTION**: *What is the transient that gives the greatest delta MCPR?*

RESPONSE: The Rod Withdrawal Error (RWE) transient can have a higher calculated delta CPR than the TTWOBP, but the TTWOBP is subject to an additional MCPR penalty (for transient computer code uncertainties). The delta CPR for the TTWOBP in the FSAR UPDATE is 0.28 for P8X8R fuel. This does not include the MCPR penalty used to set the operating limit MCPR (OLMCPR) which is calculated by the equation:

OLMCPR = 1.042*(1.07 + delta CPR) = 1.41

Note: the above delta CPR and penalty (1.042) is based on the GE approved methods using the ODYN computer code. The currently approved methods for Oyster Creek use the RETRAN computer code and the MCPR penalty is 1.049.

3. **QUESTION**: *What is the operating limit MCPR for OCNGS?*

RESPONSE: The OC cycle 14 operating limit MCPR is 1.51 based on the TTWOBP transient. Reference Oyster Creek Cycle 14 Core Operating Limits Report (TR-066 Rev 5)

4. **QUESTION**: *Page 15.4-5 of the FSAR UPDATE describes the Flow Controller Malfunction which is referenced in the submittal. However, MCHFR limits are discussed. Is this the limiting MCHFR transient? What is the delta MCPR for this event? Why does the FSAR use both MCHFR and MCPR in the discussion of the transients?*

RESPONSE: From page 15.0-1 of FSAR UPDATE, last paragraph:

Another point worth noting is the use of the Minimum Critical Heat Flux Ratio (MCHFR) in measuring the potential for fuel failure during postulated transients.

RESPONSE
(Cont'd)

Maintaining a MCHFR greater than 1.0 is a sufficient but not necessary condition to ensure that no fuel damage occurs. The Mi: um Critical Power Ratio (MCPR) is the parameter present used to ensure that an adequate thermal margin is maintained in the core, and thus has been incorporated into the Technical Specifications. For those transients which have not been recently reevaluated, only the MCHFR values were calculated and as such reported. This should not be considered as a deficiency but rather as representative of a change in the approach to safety evaluations.

See question 7 for the delta MCPR for this event.

5. **QUESTION**: *Page 15.4-5 of the FSAR UPDATE discussed the results of the Start-up of an Inactive Loop at an incorrect Temperature. It is stated that the MCPR for this transient is 1.41. What is the delta MCPR?*

RESPONSE: The delta CPR for this transient is 0.09 (XN-75-51 Table 1.1)

6. **QUESTION**: *Page 15.4-7 of the FSAR UPDATE discusses the Inadvertent Loading and Operation of a fuel assembly in an Improper Position. It is stated that a MCPR of 1.21 is reached for the P8X8R fuel. What is the delta MCPR? The Rotated Bundle (P8X8R) results show an ICPR of 1.21 before rotating and a MCPR of 1.09 after rotating which yields a delta CPR of 0.14 including delta CPR penalty. Please explain the reason for the apparent difference.*

The MCPR value reached for the P8X8R fuel bundle is 1.09 and not 1.21. The delta MCPR is 0.14. The 1.21 value is the ICPR and the last line of section 15.4.7.4 should read as 1.09 and not 1.21.

7. **QUESTION**: *Was 117% of rated flow used in the Flow Controller Malfunction (Increase in Core Flow) analysis to assure no safety limits are violated?*

RESPONSE: The recirculation Flow Controller Malfunction was reanalyzed for a modification to install a digital recirculation control system at Oyster Creek. It was necessary to reanalyze the event since the master flow controller would no longer limit the rate of increase to less than that of an individual scoop positioners.

RESPONSE
(Cont'd)

The transient was analyzed using the currently approved transient model RETRAN.

The transient analyzed is initiated from 52 percent recirculation flow and 63.5 percent power. Recirculation flow was allowed to increase to 117% of rated flow.

The rate of increase of recirculation flow was varied from 1.0 percent per second to 10 percent per second. In all cases the transient was terminated on a high flux scram. Neither this nor any other FSAR chapter 15 transient takes credit for the high recirculation flow scram. The highest delta CPR for the transient was 0.33. If no credit is taken for the scram and heat flux is allowed to equilibrate at maximum flow the delta CPR is 0.39. The initial CPR (ICPR) used in this transient is 1.67. The K_f value at 52 percent flow for 117% maximum flow K_f curve is 1.16 and the reduced flow OLMCPR (k_f*OLMCPR) would be 1.75 based on the current OLMCPR limit of 1.51. The delta CPR corresponding to an ICPR of 1.75 is 0.41. Then the required operating limit for this transient at reduced flow would be

OLMCPR = 1.049*(1.07 + 0.41) = 1.56

This is well below the 1.75 reduced flow OLMCPR for this transient and insures that no safety limit will be violated.

The FSAR UPDATED will be revised to use this analysis for the Flow Controller Malfunction.

Reference GPUN calculation C-1302-5411-226-252.