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February 24, 2000
1940-00-20052

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

Gentlemen,

Subject: Oyster Creek Nuclear Generating Station, (OCNGS)
Docket No. 50-219
Technical Specification Change Request (TSCR) No. 267
Revised Bases Pages

TSCR 267 was submitted to the NRC on April 15, 1999. The changes consisted of a series of small changes to definitions and Specifications in Sections 1, 2 and 3 of the Oyster Creek Technical Specifications. In addition, changes were made to Bases statements in Sections 2, 3, and 4.

In a conference call initiated by the NRC on February 2, 2000, the clarity of two proposed changes to the Bases of Specification 2.3 was discussed. The staff suggested that the statements could be improved with some additional information. Although Bases statements are not subject to review and approval by the staff, GPU Nuclear determined that the changes were prudent. The attached pages have been revised in accordance with the February 2, 2000 conference call.

Sincerely,

A handwritten signature in black ink, appearing to read "Sander Levin", written over a horizontal line.

Sander Levin
Acting Director, Oyster Creek

cc: Region I Administrator
Oyster Creek Project Manager
Oyster Creek Senior Resident Inspector

ADD1

2.3 LIMITING SAFETY SYSTEM SETTINGS

Bases:

Safety limits have been established in Specifications 2.1 and 2.2 to protect the integrity of the fuel cladding and reactor coolant system barriers, respectively. Automatic protective devices have been provided in the plant design for corrective actions to prevent the safety limits from being exceeded in normal operation or operational transients caused by reasonably expected single operator error or equipment malfunction. This Specification establishes the trip settings for these automatic protection devices.

The Average Power Range Monitor, APRM⁽¹⁾, trip setting has been established to assure never reaching the fuel cladding integrity safety limit. The APRM system responds to changes in neutron flux. However, near the rated thermal power, the APRM is calibrated using a plant heat balance, so that the neutron flux that is sensed is read out as percent of the rated thermal power. For slow maneuvers, such as those where core thermal power, surface heat flux, and the power transferred to the water follow the neutron flux, the APRM will read reactor thermal power. For fast transients, the neutron flux will lead the power transferred from the cladding to the water due to the effect of the fuel time constant. Therefore, when the neutron flux increases to the scram setting, the percent increase in heat flux and power transferred to the water will be less than the percent increase in neutron flux.

The APRM trip setting will be varied automatically with recirculation flow, with the trip setting at the rated flow of 61.0×10^6 lb/hr of greater being 115.7% of rated neutron flux. Based on a complete evaluation of the reactor dynamic performance during normal operation as well as expected maneuvers and the various mechanical failures, it was concluded that sufficient protection is provided by the simple fixed scram setting (2,3). However, in response to expressed beliefs (4) that variation of APRM flux scram with recirculation flow is a prudent measure to ensure safe plant operation, the scram setting will be varied with recirculation flow.

An increase in the APRM scram trip setting would decrease the margin present before the fuel cladding integrity safety limit is reached. The APRM scram trip setting was determined by an analysis of margins required to provide a reasonable range for maneuvering during operation. Reducing this operating margin would increase the frequency of spurious scrams, which could have an adverse effect on reactor safety because of the resulting thermal stresses and the unnecessary challenge to the operators. Thus, the APRM scram trip setting was selected because it provides adequate margin for the fuel cladding integrity safety limit and yet allows operating margin that reduces the possibility of unnecessary scrams.

The scram trip setting must be adjusted to ensure that the LHGR transient peak is not increased for any combination of maximum fraction of limiting power density (MFLPD) and reactor core thermal power. The scram setting is adjusted in accordance with the formula in Specification 2.3.A, when the MFLPD is greater than the fraction of the rated power (FRP). The adjustment may be accomplished by increasing the APRM gain and thus reducing the flow referenced APRM High Flux Scram Curve by the reciprocal of the APRM gain change.

The low level water level trip setting of 11'5" above the top of the active fuel has been established to assure that the reactor is not operated at a water level below that for which the fuel cladding integrity safety limit is applicable. With the scram set at this point, the generation of steam, and thus the loss of inventory is stopped. For example, for a loss of feedwater flow a reactor scram at the value indicated and isolation valve closure at the low-low water level set point results in more than 4 feet of water remaining above the core after isolation (6). The TAF definition of 353.3 inches from vessel zero is based on a fuel length of 144 inches and it is applicable to the current fuel length of 145.24 inches. The difference in fuel length does not result in changes to any analyses or set points.

During periods when the reactor is shut down, decay heat is present and adequate water level must be maintained to provide core cooling. Thus, the low-low level trip point of 7'2" above the core is provided to actuate the core spray system (when the core spray system is required as identified in Section 3.4) to provide cooling water should the level drop to this point.*

The turbine stop valve(s) scram is provided to anticipate the pressure, neutron flux, and heat flux increase caused by the rapid closure of the turbine stop valve(s) and failure of the turbine bypass system.

The generator load rejection scram is provided to anticipate the rapid increase in pressure and neutron flux resulting from fast closure of the turbine control valves to a load rejection and failure of the turbine bypass system. This scram is initiated by the loss of turbine acceleration relay oil pressure. The timing for this scram is almost identical to the turbine trip.

The undervoltage protection system includes a 2 out of 3 coincident logic relay designed to shift emergency buses to on-site power should normal power be degraded to an unacceptable level. There is a separate relay system designed to shift emergency buses C and D to on-site power should normal power be lost. The trip points and time delay settings have been selected to assure an adequate power source to emergency safeguards systems in the event of a total loss of normal power or degraded conditions which would adversely affect the functioning of engineered safety features connected to the plant emergency power distribution system.

The APRM downscale signal insures that there is adequate Neutron Monitoring System protection if the reactor mode switch is placed in the run position prior to APRMs coming on scale. With the reactor mode switch in run, an APRM downscale signal coincident with an associate IRM Upscale (High-High) or Inoperative signal generates a trip signal. This function is not specifically credited in the accident analyses but it is retained for overall redundancy and diversity of the RPS.

References

- (1) FDSAR, Volume 1, Section VII-4.2.4.2
- (2) FDSAR, Amendment 28, Item III.A-12