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April 9, 1997
PY-CEI/NRR-2155L

United States Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Perry Nuclear Power Plant
Docket No. 50-440

License Amendment Request Pursuant to 10CFR50.90: Proposed Revision of Technical Specification Surveillance Requirement (SR) 3.9.1.1 and SR 3.9.2.2 Extending SR Frequency on Refueling Equipment and One-Rod-Out Interlocks

Ladies and Gentlemen:

Pursuant to 10CFR50.90, Nuclear Regulatory Commission (NRC) review and approval of a license amendment for the Perry Nuclear Power Plant (PNPP) Unit 1 is requested. Enclosed is a request for amendment of the Facility Operating License NPF-58 Appendix A Technical Specifications (TS). The proposed amendment would extend the existing surveillance interval for performing the Channel Functional Tests (CFTs) for the refueling equipment interlocks contained in SR 3.9.1.1, and for the one-rod-out interlock contained in SR 3.9.2.2.

Attachment 1 provides the Summary, Description of the Proposed Technical Specification Change, Safety Analysis, Commitments Within this Letter, and Environmental Consideration. Attachment 2 provides the Significant Hazards Consideration. Attachment 3 provides the annotated TS pages reflecting the proposed change. Attachment 4 provides marked-up Bases, for information, since they are not a formal part of the TS.

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PY-CEI/NRR-2155L

April 9, 1997

Page 2 of 2

If you have questions or require additional information, please contact
Mr. Henry L. Hegrat, Manager - Regulatory Affairs, at (216) 280-5606.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Richard W. Smith".

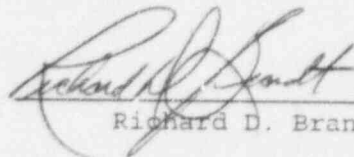
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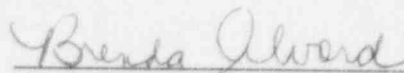
Attachments

cc: NRC Project Manager
NRC Resident Inspector
NRC Region III
State of Ohio

I, Richard D. Brandt, being duly sworn state that (1) I am General Manager, Perry Nuclear Power Plant Department of the Cleveland Electric Illuminating Company, (2) I am duly authorized to execute and file this certification on behalf of The Cleveland Electric Illuminating Company and Toledo Edison Company, and as the duly authorized agent for Duquesne Light Company, Ohio Edison Company, and Pennsylvania Power Company, and (3) the statements set forth herein are true and correct to the best of my knowledge, information and belief.


Richard D. Brandt

Sworn to and subscribed before me, the 9th day of April,
1997.


My commission expires August 5, 2001.

SUMMARY

The proposed change will extend the Technical Specification Surveillance Requirement (SR) Frequency for Channel Functional Tests (CFTs) for refueling equipment interlocks (SR 3.9.1.1) and the one-rod-out interlock (SR 3.9.2.2). The changes will permit, under most normal circumstances, a complete offloading, shuffling, or onloading of fuel, without the need to halt refueling activities solely for the performance of these surveillance tests. Performance of these refueling activities typically lasts approximately 8 to 10 days. The present frequency of the surveillances increases the duration of time necessary to complete the fuel movement by requiring the cessation of fuel movement while the surveillances are being completed. In addition, performance of the surveillances during fuel movement also causes a disruption in the continuity of fuel movement operations. Thus, the proposed change will reduce the risk associated with halting and recommencing fuel movements by eliminating the discontinuity.

DESCRIPTION OF THE PROPOSED TECHNICAL SPECIFICATION CHANGE

SR 3.9.1.1 and SR 3.9.2.2 will be revised to extend the Frequency for the tests from 7 days to 14 days. The Bases will be revised under the Perry Nuclear Power Plant Bases Control Program to reflect the changes identified above. This proposed change has been developed for implementation prior to Refuel Outage 6 so that the benefits resulting from the change can be used during Refuel Outage 6.

SAFETY ANALYSIS

SR 3.9.1.1 requires that a CFT be performed on the refueling equipment interlocks every 7 days during in-vessel fuel movement using equipment associated with the refueling equipment interlocks. This includes testing the all-rods-in interlock, the refuel platform position interlock, and the refuel platform main hoist, fuel loaded interlock. To meet this SR, the test must be performed within the 7 day period prior to entering the applicability conditions (i.e., during fuel movement with equipment associated with the interlocks) and then every 7 days thereafter, as long as the Limiting Condition for Operation (LCO) is still applicable. The 25 percent extension permitted by SR 3.0.2 can be applied to this SR Frequency, allowing a total of 8.75 days between surveillances.

SR 3.9.2.2 requires that a CFT be performed on the one-rod-out interlock every 7 days when LCO 3.9.2 is applicable (i.e., in Mode 5, with the reactor mode switch in the refuel position and any control rod withdrawn). A note in the SR states that it is not required to be performed until 1 hour after any control rod is withdrawn. Therefore, when LCO 3.9.2 is applicable, performance of the surveillance test is required within 1 hour after any control rod is withdrawn and then every 7 days thereafter. Note again,

that the extension permitted by SR 3.0.2 can be applied to this SR Frequency, allowing a total of 8.75 days between surveillances.

As stated in the Technical Specification Bases for SR 3.9.1.1, the 7 day frequency is based on engineering judgment and is considered adequate in view of other indications of refueling equipment interlocks and their associated input status that are available to unit operations personnel.

Refueling equipment interlocks restrict the operation of the refueling equipment or the withdrawal of control rods to reinforce unit procedures in preventing the reactor from achieving criticality during refueling. The refueling equipment interlock circuitry senses the conditions of the refueling equipment and the control rods. Depending on the sensed conditions, interlocks are actuated to prevent the operation of the refueling equipment or the withdrawal of control rods. Two channels of instrumentation are provided. The input to one or both channels is provided by the position of the refueling platform, the loading of the refueling platform main hoist, and the full insertion of all control rods. With the reactor mode switch in the shutdown or refueling position, the indicated conditions are combined in logic circuits to determine if all restrictions on refueling equipment operations and control rod insertion are satisfied. A control rod not at its full-in position interrupts power to the refueling equipment and prevents operating the equipment over the reactor core when loaded with a fuel assembly. Conversely, the refueling equipment located over the core and loaded with fuel inserts a control rod withdrawal block to prevent withdrawal of a control rod.

The refueling platform has two mechanical switches that open before the platform and the fuel grapple are physically located over the reactor vessel. The main hoist has two switches that open when the hoist is loaded with fuel. The hoist switches open at a load lighter than the weight of a single fuel assembly in water.

The refueling interlocks use these indications to prevent operation of the refueling equipment with fuel loaded over the core whenever any control rod is withdrawn, or to prevent control rod withdrawal whenever fuel loaded refueling equipment is over the core. These instruments have indications either on the refueling bridge operating status console or in the control room, or both. Therefore, if a problem developed with one of the instrument channels between surveillance tests, refueling operators or control room operators would be provided with an indication that the channel is not performing its intended function. Plant instructions contain steps for assuring all control rods are fully inserted prior to moving fuel in the reactor vessel. In addition, SR 3.9.3.1 requires that all control rods be verified fully inserted every 12 hours when loading fuel assemblies into the core, and SR 3.9.4.1 requires that there be a verification that the required control rod position indication channel has no "full-in" indication for each control rod that is not "full-in." This surveillance is required each time a control rod is withdrawn

from the "full-in" position. These SRs assure that there are no withdrawn control rods during fuel loading, and if a control rod is withdrawn, its "full-in" indication is properly functioning, thereby ensuring that the inputs into the refuel equipment interlocks are functioning. Therefore, the description of the test frequency provided in the Technical Specification Bases for SR 3.9.1.1 is still valid with the extension of the test frequency to 14 days.

The Technical Specification Bases for SR 3.9.2.2 state that the 7 day Frequency is considered adequate because of demonstrated circuit reliability, procedural controls on control rod withdrawals, and indications available in the control room to alert the operator of control rods not fully inserted. The refuel position one-rod-out interlock restricts the withdrawal of control rods to reinforce unit procedures that prevent the reactor from becoming critical during refueling operations. During refueling operations, no more than one control rod is permitted to be withdrawn.

The refuel position one-rod-out interlock consists of redundant channels which prevent the selection of a second control rod for movement when any other control rod is not fully inserted. It uses the all-rods-in signal (from the control rod full-in position indicators) and a rod selection signal (from the Rod Control and Information System). Status of control rod positions and withdrawal blocks are indicated in the control room.

Plant instructions contain steps for assuring that the one-rod-out interlock is operable prior to withdrawing a control rod while in Mode 5. In addition, existing SR 3.9.2.1 requires that the mode switch be verified locked in the refuel position every 12 hours while in Mode 5 with any control rod withdrawn, and SR 3.9.4.1 requires verification that the required control rod position indication channel has no "full-in" indication for each control rod that is not "full-in." This SR is required each time a control rod is withdrawn from the "full-in" position. These SRs assure functionality of the inputs into the one-rod-out interlock, and therefore assure that the one-rod-out interlock is functioning. Therefore, the description of the SR Frequency provided in the Bases is still applicable with the extension of the SR Frequency to 14 days.

A review of surveillance tests from the last two refuel outages was performed to determine if extending the SR Frequency from 7 days to 14 days would increase the probability of the SRs failing when performed. The review indicated that extending the test interval to 14 days will not result in the CFTs failing to meet their acceptance criteria. This review covered over 30 test performances which indicated that the setpoints did not need adjustment when performed. Therefore, the extension will not result in a reduction in the safe operation of the channels involved, or in plant operation.

A review of historical corrective maintenance activities indicated the following:

1. For the all-rods-in interlock and the one-rod-out interlock no corrective maintenance was performed due to inoperable interlocks. The logic of the Rod Control and Information System is such that a failure of these instruments would cause a block signal to be generated, thus preventing the withdrawal of a second rod (one-rod-out interlock) or the movement of a loaded refuel platform over the vessel (all-rods-in interlock). Thus, any failure in the future during refueling operations would be self-identifying.
2. For the refuel platform main hoist, fuel loaded interlock, the hoist load cell was replaced with a new type in 1993, and for two refueling outages, no corrective maintenance has been necessary. Since a new type load cell was installed in 1993, corrective maintenance prior to this date was not reviewed.
3. For the refuel platform position switches, corrective maintenance was performed in September 1990, on the limit switches after intermittent incorrect indications were received. These problems were self-identifying in that lights/alarm indications were received that indicated a limit switch problem. Since that time, no other corrective maintenance has been performed.

The review of the corrective maintenance verified that the instruments and logic associated with these interlocks have not required excessive corrective maintenance, and the problems resulting in corrective maintenance have not been identified by performing the surveillance test, but were identified because of the indications available. Thus nothing in the corrective maintenance history would indicate that extending the surveillance frequency for the CFTs would allow an inoperability to go undetected until the next performance of the surveillance.

Finally, the 7 day frequency of the surveillances requires that fuel movements be halted to perform the surveillances and then recommenced following the completion of the surveillance tests. Additional risk from operator error results from the cessation and restarting of fuel movement to perform the surveillances. This additional risk is eliminated by extending the surveillance interval such that fuel movement can be completed without stopping to perform these surveillances. This reduction in risk has not been quantified, but is a consideration for requesting this surveillance frequency extension.

COMMITMENTS WITHIN THIS LETTER

There are no regulatory commitments made in this letter. Any actions discussed in this document represent intended or planned actions, are described for the NRC's information, and are not regulatory commitments. Please notify the Manager - Regulatory Affairs at the PNPP of any questions regarding this document or any associated regulatory commitments.

ENVIRONMENTAL CONSIDERATION

The proposed Technical Specification change request was evaluated against the criteria of 10CFR51.22 for environmental considerations. The proposed change does not significantly increase individual or cumulative occupational radiation exposures, does not significantly increase the amounts of effluents that may be released off-site and, as discussed in Attachment 2, does not involve a significant hazards consideration. Based on the foregoing, it has been concluded that the proposed Technical Specification change meets the criteria given in 10CFR51.22(c)(9) for categorical exclusion from the requirement for an Environmental Impact Statement.

The standards used to arrive at a determination that a request for amendment involves no significant hazards considerations are included in the Commission's Regulations, 10CFR50.92, which states that the operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any previously evaluated; or (3) involve a significant reduction in a margin of safety.

The proposed amendment has been reviewed with respect to these three factors and it has been determined that the proposed change does not involve a significant hazard because:

1. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change extends the Technical Specification Surveillance Requirement (SR) Frequency for the Channel Functional Tests (CFTs) for the refueling equipment interlocks and the one-rod-out interlock. The refueling equipment interlocks and the one-rod-out interlock are explicitly assumed in the analysis of the control rod removal error during refueling. Criticality, and therefore, subsequent prompt reactivity excursions are prevented during the insertion of fuel, provided all control rods are fully inserted during the fuel insertion. The refueling equipment interlocks accomplish this by preventing loading fuel into the core with any control rod withdrawn, or by preventing withdrawal of a control rod from the core during fuel loading. The one-rod-out interlock and adequate shutdown margin prevent criticality by preventing withdrawal of more than one control rod. With one control rod withdrawn, the core will remain subcritical, thereby preventing any prompt critical excursion. The proposed change does not change the function of any of these interlocks, only the frequency at which the interlocks undergo channel functional testing. A review of past test performances has demonstrated that extending the Frequency from 7 days to 14 days will not result in any increase in test failures. Therefore, the proposed change will not change the ability of these interlocks to perform when required. Based on this, there can be no significant increase in the radiological consequences of any previously evaluated accident since all interlocks will continue to perform as presently analyzed. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed change would not create the possibility of a new or different kind of accident from any previously evaluated.

The proposed change extends the SR Frequency for performing CFTs for refueling equipment and one-rod-out interlocks. This change does not result in a modification to the plant or to the manner in which the plant is operated. The testing will still demonstrate the operability of the interlocks. Thus, the interlocks will still function in the same manner. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. The proposed change will not involve a significant reduction in the margin of safety.

The proposed change extends the SR Frequency for performing CFTs on the refueling equipment and one-rod-out interlocks from 7 days to 14 days. Reviews of past test results indicate that extending the test interval to 14 days will not result in an increase in the number of CFT failures for these interlocks. This implies that extending the SR Frequency to 14 days will not result in an increase in the amount of time the instrument channels will be inoperable when required to be operable. Since the proposed change does not result in any reduction in the amount of time the instrument channels will be operable, the proposed change does not involve a significant reduction in the margin of safety.