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June 16, 1994

Docket No. 50-213
B14847

Re: 10CFR50.90

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

Haddam Neck Plant
Proposed Revision to Technical Specifications
Onsite Power Distribution

Introduction

Pursuant to 10CFR50.90, Connecticut Yankee Atomic Power Company (CYAPCO) hereby proposes to amend its Operating License, DPR-61, by incorporating the attached proposed changes into the Technical Specifications of the Haddam Neck Plant. These proposed changes reflect design modifications made to the Haddam Neck Plant during the recent plant shutdown and also provide permanent replacement technical specifications for ones that applied for Cycle 18 only.

Background

Motor control center (MCC)-5 is the sole source of electrical power for some of the important emergency core cooling system motor-operated valves. As discussed in the Atomic Energy Commission's Safety Evaluation related to the Haddam Neck Plant's Full-Term Operating License,⁽¹⁾ this part of the electrical distribution system for the Haddam Neck Plant does not satisfy the single failure criterion. For that reason, MCC-5 is equipped with an automatic bus transfer (ABT) scheme, which is designed to align MCC-5 to either a preselected electrical train or the other train if the preselected train is not energized.

Prior to the Cycle 17 refueling outage, the ABT feature was not tested as part of the integrated partial loss of AC power (LOP) test. Rather, as a prerequisite to conducting the LOP test on a

(1) P. A. Morris letter to D. C. Switzer, dated July 1, 1971.

particular division, MCC-5 was aligned to the opposite division. While this operation did not, in an integrated fashion, prove transfer scheme operation, it did provide proof of both breaker's close/trip capability when so selected by operators stationed in the A switchgear room. At the request of the Haddam Neck Plant Nuclear Review Board, CYAPCO agreed to test MCC-5 each refueling outage in a manner that would verify the transfer scheme capability upon LOP. The first test was scheduled for and occurred on June 27, 1993, during the Cycle 17 refueling outage.

On that day, during the conduct of Surveillance 5.1-19, entitled, "Test of Train 'B' SIAS with a Partial Loss of AC," the ABT scheme associated with MCC-5 failed to operate. The failure occurred while conducting the B division LOP test.

Upon restoration of train B power via the diesel generator (EG2B) some seconds later, the designed automatic re-transfer of MCC-5 to train B did not occur, leaving MCC-5 de-energized. Operators in the A switchgear room took actions to promptly reenergize MCC-5 through the mechanical closure of the bus 5 supply breaker in 480 volt switchgear compartment 9C. The unit was in Mode 5 at the time of testing and there were no adverse unit operational responses to the loss of the bus.

This event was the subject of extensive review and evaluation by CYAPCO and an NRC Staff Augmented Inspection Team (AIT). CYAPCO's evaluation identified two components which had the highest probability of having caused the failure. Both of these components were replaced and the ABT had been successfully tested numerous times since the event. Because the exact cause of the failure had not been positively identified, a number of compensatory actions were proposed by CYAPCO. These actions included additional system and component testing, on-line inspections of suspected components, and a design review of the ABT scheme. The AIT reviewed these compensatory measures and determined they were appropriate. The compensatory actions taken and the commitments made were docketed in a submittal dated July 15, 1993.⁽²⁾ In that letter, CYAPCO committed to conduct on-line testing of the ABT scheme associated with MCC-5 during Cycle 18. Up until that time, on-line testing was not authorized by the Haddam Neck Plant technical specifications. Therefore, CYAPCO submitted a proposed license

(2) J. F. Opeka letter to the U.S. Nuclear Regulatory Commission, "Haddam Neck Plant, Commitments to Test Motor-Control-Center-5," dated July 15, 1993.

amendment on August 18, 1993.⁽³⁾ License Amendment No. 169, was subsequently issued by the NRC Staff on November 1, 1993.⁽⁴⁾

The July 15, 1993, letter to the NRC Staff also stipulated that if at any time during Cycle 18, the Haddam Neck Plant was taken to Mode 5, a functional test of the MCC-5 ABT would be conducted.

The recent service water system outage at the Haddam Neck Plant provided CYAPCO an opportunity to fulfill that commitment. During the testing, a failure of one of the circuit breakers supplying MCC-5 occurred. An investigation was initiated to determine the root cause of the event and identify necessary corrective action.

The root cause of the failure was determined to be a mechanical locking device ("C" clip) in the breaker trip handle mechanism which was found removed from its detent position. This failure mechanism is also believed to be responsible for the original failure during the Cycle 17 refueling outage.

In a letter addressed to Mr. T. T. Martin dated February 25, 1994,⁽⁵⁾ CYAPCO described proposed design modifications to improve the reliability of the ABT scheme. In the letter, CYAPCO informed the Staff that CYAPCO would implement the modification to the ABT scheme prior to start up from the service water system outage rather than wait for the next scheduled refueling outage.

The proposed license amendment contained herein describes those revisions appropriate based on the design modification to the ABT scheme. The redesign of the control schemes for 480V bus 5 breaker 9C and 480V bus 6 breaker 11C is such that it no longer requires the testing to be performed while operating in Modes 1, 2, 3, or 4. This proposed technical specification change will replace the current interim technical specification which was only intended to be applicable for Cycle 18 operation.

Description of the Proposed Changes

Specifically, CYAPCO proposes to incorporate a permanent surveillance requirement to be associated with Section 3.8.3.1.2

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- (3) J. F. Opeka letter to the U.S. Nuclear Regulatory Commission, "Haddam Neck Plant, Proposed Revision to Technical Specifications, Onsite Power Distribution," dated August 18, 1993.
- (4) A. B. Wang letter to J. F. Opeka, "Issuance of Amendment," dated November 1, 1993.
- (5) J. F. Opeka letter to T. T. Martin, "Haddam Neck Plant, Status of Motor Control Center-5," dated February 25, 1994.

for the Haddam Neck Plant technical specifications. Currently, a note allows the ABT scheme to be made inoperable for testing on-line during Cycle 18. The proposed surveillance requirement will require the Haddam Neck Plant to verify the ABT scheme operation at least once per refueling.

The MCC-5 ABT scheme is comprised of components (Agastat timing relays, load center breakers and auxiliary components) that historically are tested (calibrated) on a refueling outage basis. There are no indications to date that this test interval should be shortened. It is therefore concluded that a refueling outage frequency to perform an integrated test of the MCC-5 ABT feature is appropriate.

Safety Assessment

During the recent service water system outage, a root cause investigation of the MCC-5 failure was completed and a design modification was implemented which simplifies the ABT scheme and minimizes circuit breaker iterations and therefore improves the reliability of the ABT scheme. The root cause investigation concluded that the reason for failure of the MCC-5 ABT scheme was a mechanical locking device, rather than an electrical control device (i.e. 52X relay). Nevertheless, CYAPCO did replace the 52X relays with upgraded relays that preclude plunger sticking. As a result, there is no need to continue with on-line testing of this scheme. Additionally, there is an inherent safety benefit of not requiring the disabling of control power to allow testing of the scheme with the plant in Modes 1, 2, 3, or 4. The proposed technical specification requirement of complete functional testing on a refueling interval, coupled with the improved control scheme design, will enhance plant safety.

The redesign increases MCC-5 reliability to supply power primarily due to decreased dependence on ABT operation for LOP events. The previous design required the selected circuit breaker powering MCC-5 to open in the event of a LOP and then re-close if the preferred power supply became available first. Additionally, the previous ABT transfer scheme could result in MCC-5 becoming energized from the non-preferred power supply, if it became available first. Then, if the preferred supply became available, the ABT would fast transfer back to the preferred power supply. This resulted in MCC-5 reliability being principally threatened by potential circuit breaker re-closure and/or other ABT failures.

With the new design, the concept of a preferred power supply is eliminated. The ABT initially remains closed on its normal power supply for LOP events. If the normal power supply becomes available first, the normal supply breaker remains closed and energizes MCC-5. If the alternate power supply becomes available

first, a transfer to the alternate power supply occurs and remains aligned as the source of power. A transfer back to the normal supply occurs only if this alternate power supply subsequently fails and the other power supply is available. Thus, the dominant contributor to MCC-5 unavailability with the new ABT transfer scheme is the failure of the diesel generators, as expected.

This increase in MCC-5 reliability has been accomplished by the simplification of the ABT control logic (reduction in number of components and the potential number of required transfers) and the continued implementation of full integrated testing of the ABT during refueling.

This change results in an order of magnitude increase in MCC-5 reliability over the previous transfer scheme for LOP events. This change will also result in a measurable decrease in the Haddam Neck Plant core melt frequency. As a result, the proposed design change was determined to be safe and not an unreviewed safety question and therefore was implemented in accordance with 10CFR50.59, without prior NRC Staff review and approval. The associated changes to the Technical Specifications proposed herein are appropriate but were not required to implement the design change.

Significant Hazards Consideration

In accordance with 10CFR50.92, CYAPCO has reviewed the attached proposed changes and has concluded that they do not involve a significant hazards consideration (SHC). The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed changes do not involve a SHC because the changes would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes to delete a note from the limiting condition for operation for the MCC-5 ABT scheme and to add the surveillance requirement has no impact on the probability or consequences of an accident previously evaluated. By removing the requirement to test the scheme on-line, the probability of failure to mitigate an accident while the Haddam Neck Plant is operational is incrementally decreased.

2. Create the possibility of a new or different kind of accident from any previously analyzed.

The proposed changes remove the requirements to disable the subject ABT feature for testing, leaving the scheme undisturbed throughout normal plant operation, and therefore

does not create the possibility of a new accident or different kind of accident from any previously analyzed.

3. Involve a significant reduction in a margin of safety.

The proposed changes require that the MCC-5 ABT feature be tested during a plant shutdown rather than during normal operation. This will place the ABT scheme in a test environment that has no significant reduction in a margin of safety. The plant configuration that is required to perform this test (refueling) would clearly place the Haddam Neck Plant in a state that would be able to accept all possible ABT scheme test outcomes, normal and abnormal. Therefore, these proposed changes do not result in any reduction in the margin of safety.

Moreover, the Commission has provided guidance concerning the application of the standards in 10CFR50.92 by providing certain examples (March 6, 1986, 51FR7751) of amendments that are considered not likely to involve a significant hazards consideration. The proposed changes to the technical specifications are not enveloped by a specific example, but do not constitute an SHC since the design modification recently implemented has increased the reliability of the ABT scheme. Since the design modification constitutes a substantial improvement over the previous design, and the root cause of the failure was conclusively shown to be a mechanical hardware issue, there is no need to continue to test the scheme on-line. The proposed surveillance requirement to test once per refueling will be sufficient to ensure proper functioning of the ABT scheme and this testing frequency specifies that the testing will occur during the safest condition - shutdown.

Environmental Consideration

CYAPCO has reviewed the proposed licensed amendment against the criteria of 10CFR51.22 for environmental considerations. The proposed changes do not increase the types or amounts of effluents that may be released offsite, nor do they involve any significant increase to individual or cumulative occupational radiation exposures. Based on the foregoing, CYAPCO concluded that the proposed changes meet the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an environmental impact statement.

The Haddam Neck Plant Nuclear Review Board has reviewed and approved these proposed changes and concurs with the above determination.

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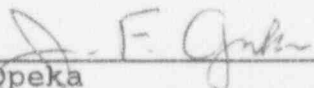
In accordance with 10CFR50.91(b), we are providing the State of Connecticut with a copy of this proposed amendment to ensure their awareness of this request.

Regarding our proposed schedule for issuance, this amendment is required prior to startup from the upcoming Cycle 18 refueling outage. Therefore, we request issuance no later than January 31, 1995, with the amendment effective as of the date of issuance, to be implemented within 30 days of issuance.

Should the Staff require any additional information to process this request, contact Mr. E. P. Perkins, Jr. at (203) 665-3110.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY



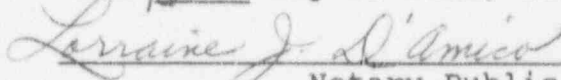
J. F. Opeka
Executive Vice President

cc: T. T. Martin, Region I Administrator
A. B. Wang, NRC Project Manager, Haddam Neck Plant
W. J. Raymond, Senior Resident Inspector, Haddam Neck Plant

Mr. Kevin T. A. McCarthy, Director
Monitoring and Radiation Division
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79 Elm Street
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Subscribed and sworn to before me

this 16th day of June, 1994



Notary Public

Date Commission Expires: 3/31/98

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Attachment 1
Haddam Neck Plant
Proposed Revision to Technical Specifications
Onsite Power Distribution
Markup Pages

June 1994