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JGC-524-95  
December 14, 1995

Docket No. 50-461

10CFR50.90

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

Subject: Clinton Power Station Proposed Amendment of  
Facility Operating License No. NPF-62 (LS-95-007)

Dear Sir:

Pursuant to 10CFR50.90, Illinois Power (IP) hereby applies for amendment of Facility Operating License No. NPF-62, Appendix A - Technical Specifications, for Clinton Power Station (CPS). This request consists of proposed changes to Technical Specification (TS) 3.3.1.1, "Reactor Protection System (RPS) Instrumentation," and TS 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation," to eliminate periodic response time testing of selected analog trip modules (ATMs). This request is supported by analyses prepared by the Boiling Water Reactor Owners' Group (BWROG) (NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994) which demonstrate that other periodic tests required by TS, such as channel calibrations, channel functional tests and logic system functional tests, are adequate to ensure ATM response times remain within acceptable limits. By letter dated December 28, 1994, the NRC staff provided their acceptance of NEDO-32291, subject to certain conditions, for reference in license amendment applications.

A description of the proposed change and the associated justification (including a Basis For No Significant Hazards Consideration) are provided in Attachment 2. A marked-up copy of the affected pages from the current TS is provided in Attachment 3. A marked-up copy of the affected pages from the current TS Bases is provided in Attachment 4. Further, an affidavit supporting the facts set forth in this letter and its attachments is provided in Attachment 1. Following NRC approval of this request, IP will revise the CPS TS Bases, in accordance with the TS Bases Control Program of TS 5.5.11, to incorporate the changes identified in Attachment 4.

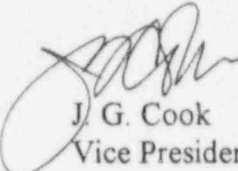
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IP has reviewed the proposed change against the criteria of 10CFR51.22 for categorical exclusion from environmental impact considerations. The proposed change does not involve a significant hazards consideration, or significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, IP concludes that the proposed change meets the criteria given in 10CFR51.22(c)(9) for a categorical exclusion from the requirement for an Environmental Impact Statement.

Sincerely yours,



J. G. Cook  
Vice President

DAS/csm

Attachments

cc: NRC Clinton Licensing Project Manager  
NRC Resident Office, V-690  
Regional Administrator, Region III, USNRC  
Illinois Department of Nuclear Safety

J. G. Cook, being first duly sworn, deposes and says: That he is Vice President of Illinois Power; that the application for amendment of Facility Operating License NPF-62 has been prepared under his supervision and direction; that he knows the contents thereof; and that to the best of his knowledge and belief said letter and the facts contained therein are true and correct.

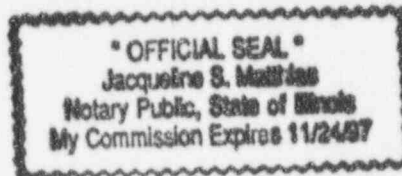
Date: This 14 day of December 1995.

Signed: \_\_\_\_\_

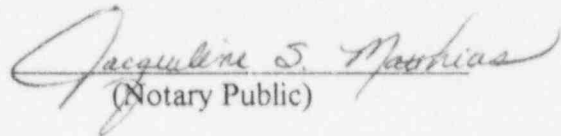


J. G. Cook

STATE OF ILLINOIS        } SS.  
                                  }  
DeWitt COUNTY        }



Subscribed and sworn to before me this 14<sup>th</sup> day of December 1995.



(Notary Public)

## Background

By letter dated January 27, 1995, Illinois Power (IP) proposed changes to the Clinton Power Station (CPS) Technical Specifications (TS) to eliminate periodic response time testing of selected instruments associated with the Reactor Protection System (TS 3.3.1, "Reactor Protection System (RPS) Instrumentation"), Emergency Core Cooling System actuation instrumentation (TS 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation"), and primary containment and drywell isolation actuation instrumentation (TS 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation"). IP proposed to exempt only the channel sensors from response time testing for the affected RPS and isolation instrumentation. For the affected ECCS actuation instrumentation, the entire instrument channel was proposed to be exempted from response time testing. IP's request was approved by the NRC as documented in Amendment No. 98 to the CPS operating license, dated March 9, 1995.

The changes proposed in IP's January 27, 1995 letter were based on analyses performed by the Boiling Water Reactor Owners' Group (BWROG) which were documented in NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994. NEDO-32291 identifies that other periodic tests required by TS, such as channel calibrations, channel checks, channel functional tests, and logic system functional tests, in conjunction with actions taken in response to NRC Bulletin 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount," and Supplement 1, are adequate to ensure that instrument response times remain within acceptable limits. As a result, separate response time tests need not be performed on a periodic basis.

The NRC provided their acceptance of NEDO-32291, subject to several conditions, in their letter dated December 28, 1994. Because IP's application was the first to be reviewed by the NRC and was requested to support the fifth refueling outage at CPS which was scheduled to begin March 15, 1995, the scope of the TS changes proposed in IP's January 27, 1995 request was limited to those described in NEDO-32291 and generically accepted by the NRC staff. As stated in the January 27, 1995 request, IP intended to continue to evaluate further applications of the analyses presented in NEDO-32291.

IP has completed the above-noted evaluation and is now proposing additional plant-specific relaxations in the requirements for response time testing. Specifically, IP proposes that selected Analog Trip Modules (ATMs) in the RPS and primary containment and drywell isolation instrumentation also be exempt from response time testing. Justification for these proposed changes is provided below.

### Description of Proposed Changes

In accordance with 10CFR50.90, the following changes to the CPS TS are proposed:

1. Note 2 for Surveillance Requirement (SR) 3.3.1.1.17 is being revised to state, "For Functions 3, 4, and 5 in Table 3.3.1.1-1, the channel sensors and analog trip modules are excluded."
2. Note 1 for SR 3.3.6.1.7 is being revised to state, "Channel sensors and analog trip modules are excluded."

The proposed TS changes are reflected on a marked-up copy of the affected pages from the CPS TS in Attachment 3. In addition, changes to the CPS TS Bases, consistent with the proposed TS changes, are provided in Attachment 4.

### Justification

By Amendment No. 98 dated March 9, 1995, the CPS TS were revised, in part, to eliminate the requirement to perform periodic response time testing of the sensors for: (1) RPS Reactor Vessel Steam Dome Pressure - High; (2) RPS Reactor Vessel Water Level - Low, Level 3; and (3) RPS Reactor Vessel Water Level - High, Level 8 Functions (TS Table 3.3.1.1-1, "Reactor Protection System Instrumentation," Functions 3, 4, and 5, respectively); (4) Main Steam Line Isolation Reactor Vessel Water Level - Low Low Low, Level 1; (5) Main Steam Line Pressure - Low; and (6) Main Steam Line Flow - High Functions (TS Table 3.3.6.1-1, "Primary Containment and Drywell Isolation Instrumentation," Functions 1.a, 1.b, and 1.c, respectively). That amendment also eliminated the requirement to perform periodic response time testing of components in ECCS actuation instrumentation loops.

The justification for the above changes was based on analyses performed by the BWROG which were documented in NEDO-32291 dated January 1994. That report documents the results of failure modes and effects analyses for components in the instrument loops which could potentially impact the instrument loop response time. In addition, industry operating experience was reviewed to identify documented failures that affected instrument response time and how they were detected. The failure modes identified were then evaluated to determine if the effect on response time would be detected by other testing required by the TS. The results of this analysis demonstrated that other TS testing requirements (i.e., channel calibrations, channel checks, channel functional tests, and logic system functional tests) and actions taken in response to NRC Bulletin 90-01, Supplement 1 are sufficient to identify failure modes or degradations in instrument response times and assure operation of the analyzed instrument loops within acceptable limits. NEDO-32291 states that there were no failure modes identified that can be detected by response time testing that cannot also be detected by other TS-required tests.

With respect to RPS and main steam line isolation valve (MSIV) closure signals, NEDO-32291 only addressed elimination of periodic response time testing of the pressure transmitter sensors. Because the required instrument loop response time is short, NEDO-32291 concluded that periodic response time testing of the actuation logic should continue to be performed. For plants designed with "relay" logic, response time testing of the actuation logic is performed utilizing the trip units to initiate the logic actuation. As a result, the measured response time includes the response time of the associated trip unit. Because of this testing methodology, there was no reason to further evaluate elimination of separate response time testing of trip units associated with RPS and MSIV isolation logic.

The RPS and MSIV closure logic for CPS is a two-out-of-four, "solid-state" logic design. As described in CPS Updated Safety Analysis Report (USAR) Section 7.2.1.1.4.8, the solid-state logic is automatically tested by a self-test system. As described in Section 7.2.3.3 of Supplement No. 2 to the CPS Safety Evaluation Report (SSER 2), the NRC found the self-test system at CPS acceptable for use in performing surveillance testing required by the CPS TS, including response time testing of the coincident solid-state logic. However, the self-test system is not capable of performing response time testing of the ATMs. Thus, a separate response time test is performed to periodically measure the response time of the ATMs. Currently, in order to determine the overall system response time, this measured ATM response time is added to the response time determined during initial installation of the transmitter (per the changes approved in Amendment No. 98) and to the standard time assumed for the logic tested by the self-test system (11 milliseconds). This overall system response time is then compared to the applicable limit of the safety analyses. IP is proposing to delete the requirement to perform a separate periodic response time test for the ATMs on the basis that other TS-required tests are adequate to ensure ATM response times remain within acceptable limits.

In response to IP's previous request to eliminate periodic response time tests of the transmitters associated with the ATMs within the scope of this request, the calibration procedures applicable to these transmitters were revised to require the transmitters to be pressurized in a step change manner. The response of the transmitter to this step input change is verified to be prompt via the output of the associated ATM. As a result, the current transmitter calibration procedures are sufficient to ensure ATM response times remain within acceptable limits.

Although the changes proposed in this request are not specifically addressed in NEDO-32291, the technical justification provided in that report is applicable to this request. The components within the scope of this request are within the scope of NEDO-32291 and the NRC's safety evaluation of NEDO-32291. Thus, NEDO-32291 documents the results of failure modes and effects analyses, as well as industry operating experience, for these

ATMs. As discussed below, the calibration procedures for the transmitters associated with these ATMs are sufficient to ensure that ATM response times remain within acceptable limits.

#### Additional Information

As stated above, the NRC's acceptance of NEDO-32291 was subject to several conditions. Licensees requesting TS changes based on NEDO-32291 were required to address each of those conditions. IP's January 27, 1995 request addressed each of the conditions with respect to the instruments within the scope of the changes approved in Amendment No. 98. These conditions are addressed below for the instrumentation within the scope of this request.

In the January 27, 1995 letter, IP confirmed that the analyses contained in NEDO-32291 are applicable to CPS. The components evaluated in NEDO-32291 are documented in Appendix G (Table G-2) of NEDO-32291 and Table 1 of the NRC staff's safety evaluation of NEDO-32291. The components within the scope of this request are General Electric (GE) trip units model 147D8505 (the same as the trip units in the ECCS actuation instrumentation loops whose periodic response time testing requirements were eliminated in Amendment No. 98 to the CPS operating license). IP has confirmed with GE that these trip units are within the classification of GE trip units identified in Table 1 of the NRC staff's safety evaluation of NEDO-32291.

In the January 27, 1995 letter, IP confirmed that CPS is in conformance with the recommendations of Electric Power Research Institute (EPRI) NP-7243, "Investigation of Response Time Testing Requirements," cited in the NRC staff's safety evaluation of NEDO-32291. Those recommendations are related solely to transmitters. This request only affects requirements associated with ATMs and does not affect any requirements associated with transmitters. Thus, there is no change to IP's position on conformance with the applicable recommendations of EPRI NP-7243.

As stated in IP's January 27, 1995 letter, applicable calibration procedures have been revised to require transmitters to be pressurized in a step change manner with a technician in direct communication (normally through the use of sound powered telephone headsets) to verify that the response of the transmitter to the step input change is prompt, and in all cases less than five seconds. Since this verification is made by monitoring the output of the ATM in the control room, these procedural steps also verify proper response of the ATMs.

IP's January 27, 1995 letter also described training that has been conducted for operators and technicians to make them aware of the consequences of instrument response time degradation. As stated above, applicable plant procedures have been revised to assure

that technicians monitor for response time degradation during the performance of calibrations and that the calibrations are performed in a manner that allows simultaneous monitoring of both the input and output response of units under test.

This request does not affect any requirements related to Rosemount pressure transmitters. However, as stated in the January 27, 1995 letter, IP is in conformance with the Requested Actions of NRC Bulletin 90-01, Supplement 1.

The only components affected by this request are GE trip units model 147D8505. As identified in IP's January 27, 1995 letter, IP has reviewed the vendor's maintenance and testing recommendations for these devices and confirmed that they do not contain recommendations for periodic response time testing.

Based on the above, IP has concluded that elimination of periodic response time testing of the ATMs associated with the RPS Reactor Vessel Steam Dome Pressure - High; RPS Reactor Vessel Water Level - Low, Level 3; RPS Reactor Vessel Water Level - High, Level 8; Main Steam Line Isolation Reactor Vessel Water Level - Low Low Low, Level 1; Main Steam Line Pressure - Low; and Main Steam Line Flow - High Functions is consistent with the justification provided in NEDO-32291 and the NRC's review of that document.

#### Basis for No Significant Hazards Considerations Determination

In accordance with 10CFR50.92, a proposed change to the operating license (Technical Specifications) involves no significant hazards consideration if operation of the facility in accordance with the proposed change would not: (1) involve a significant increase in the probability or consequences of any accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. The proposed changes are evaluated against each of these criteria below.

- (1) The purpose of the proposed Technical Specification (TS) change is to eliminate response time testing requirements for selected analog trip modules (ATMs) in the Reactor Protection System (RPS) and the main steam isolation valve (MSIV) isolation actuation instrumentation. The Boiling Water Reactor Owners' Group (BWROG) has completed an evaluation which demonstrates that response time testing is redundant to the other TS-required testing. These other tests, in conjunction with actions taken in response to NRC Bulletin 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount," and Supplement 1, are sufficient to identify failure modes or degradations in instrument response time and ensure operation of the associated systems within acceptable limits. There are no known failure modes that can be detected by response time testing that cannot also be



detected by the other TS-required testing. This evaluation was documented in NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994. Illinois Power (IP) has confirmed the applicability of this evaluation to Clinton Power Station (CPS). In addition, IP has completed the actions identified in the NRC staff's safety evaluation of NEDO-32291.

Because of the continued application of other existing TS-required tests such as channel calibrations, channel checks, channel functional tests, and logic system functional tests, the response time of these systems will be maintained within the acceptance limits assumed in plant safety analyses and required for successful mitigation of an initiating event. The proposed changes do not affect the capability of the associated systems to perform their intended function within their required response time, nor do the proposed changes themselves affect the operation of any equipment. As a result, IP has concluded that the proposed changes do not involve a significant increase in the probability or the consequences of an accident previously evaluated.

- (2) The proposed changes only apply to the testing requirements for ATMs in the systems identified above and do not result in any physical change to these or other components or their operation. As a result, no new failure modes are introduced. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.
- (3) The current TS-required response times are based on the maximum values assumed in the plant safety analyses. These analyses conservatively establish the margin of safety. As described above, the proposed changes do not affect the capability of the associated systems to perform their intended function within the allowed response time used as the basis for the plant safety analyses. The potential failure modes for the components within the scope of this request were evaluated for impact on instrument response time. This evaluation confirmed that the remaining TS-required testing is sufficient to identify failure modes or degradations in instrument response times and to ensure that operation of the instrumentation within the scope of this request is within acceptable limits. As a result, it has been concluded that plant and system response to an initiating event will remain in compliance with the assumptions of the safety analysis.

Further, although not explicitly evaluated, the proposed changes will provide an improvement to plant safety and operation by reducing the time safety systems are unavailable, reducing the potential for safety system actuations, reducing plant shutdown risk, limiting radiation exposure to plant personnel, and eliminating the

diversion of key personnel resources to conduct unnecessary testing. Therefore, IP has concluded that this request will result in an overall increase in the margin of safety.

Based on the foregoing, IP concludes that this request does not involve a significant hazards consideration.