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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-94-004)

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 3.3.4.1, "End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation." This proposed change would delete Surveillance Requirement (SR) 3.3.4.1.6 which requires the RPT breaker interruption time to be determined at least once per 60 months.

Cost estimates have shown that processing the proposed license amendment will result in a savings of approximately \$112,000 for IP. Consequently, IP is asking that the proposed amendment be processed as a Cost Beneficial Licensing Action (CBLA) as provided in NRC Administrative Letter 95-02.

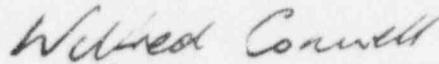
A description of the proposed change and the associated justification (including a Basis For No Significant Hazards Consideration) are provided in Attachment 2. A marked-up copy of the affected page from the current Technical Specifications (TS) is provided in Attachment 3. In addition, a marked-up copy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

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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 requirements for an Environmental Impact Statement.

Sincerely yours,



Wilfred Connell
Vice President

AJP/csm

Attachments

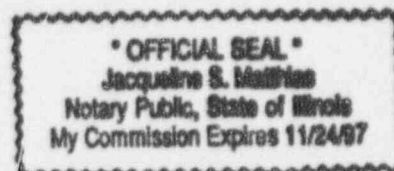
cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety

Wilfred Connell, 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 22nd day of February 1996.

Signed: Wilfred Connell
Wilfred Connell

STATE OF ILLINOIS }
 }
DeWitt COUNTY }



Subscribed and sworn to before me this 22nd day of February 1996.

Jacqueline S. Matthias
(Notary Public)

Background

As described in Section 7.6.1.8 of the Clinton Power Station (CPS) Updated Safety Analysis Report (USAR), the end of cycle-recirculation pump trip (EOC-RPT) instrumentation initiates a reactor recirculation pump trip (RPT) in the event of a turbine trip or generator load rejection transient. This reduces the peak reactor pressure and power and provides additional margin to core thermal Minimum Critical Power Ratio (MCPR) Safety Limits (SLs) for these events. The need for additional negative reactivity in excess of that normally inserted on a scram by the control rods is created by end of cycle reactivity conditions. Neutron flux shapes at end of cycle conditions are such that the control rods may not be able to ensure that thermal limits are maintained during the first few feet of control rod travel following a turbine trip or generator load rejection event. The physical phenomenon involved is that the void reactivity feedback due to the pressurization transient can add positive reactivity at a faster rate than the control rods can add negative reactivity.

The EOC-RPT system utilizes sensors that detect initiation of closure of the main turbine stop valves (TSVs) and fast closure of the main turbine control valves (TCVs). Limit switches are used for the former, and pressure switches (that sense a drop in motive oil pressure) are used for the latter. The system also contains logic circuits, load drivers, and fast acting circuit breakers that interrupt the fast-speed 6900 volt power supply to each of the recirculation pump motors. When the sensor channel setpoint(s) are exceeded, the switches close to provide a signal to the EOC-RPT trip logic. When the EOC-RPT breakers trip open, the recirculation pumps downshift to slow speed.

The EOC-RPT system logic is two-out-of-four for each Function; thus, either two TSV Closure or two TCV Fast Closure trip signals are required to actuate the EOC-RPT logic. Actuation of the EOC-RPT logic trips both recirculation pumps from fast speed operation. There are two EOC-RPT breakers in series per recirculation pump. Both EOC-RPT breakers for each recirculation pump trip upon actuation of the EOC-RPT system.

Per Surveillance Requirement (SR) 3.3.4.1.5 of the CPS Technical Specifications (TS), EOC-RPT SYSTEM RESPONSE TIME tests are required to be conducted on an 18-month STAGGERED TEST BASIS. Note 2 attached to this SR requires the STAGGERED TEST BASIS Frequency to be determined on a per Function basis. This is accomplished by testing all channels of one Function every 18 months on an alternating basis such that both Functions are tested every 36 months. Response times cannot be determined with the reactor at power because the reactor recirculation pumps must be tripped.

EOC-RPT SYSTEM RESPONSE TIME is defined as the time interval from initial movement of the associated TSV or TCV to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker. The RPT breaker interruption time is a component of the overall EOC-RPT RESPONSE TIME and is currently required to be determined at least once per 60 months (for each pair of pump breakers) in accordance with SR 3.3.4.1.6 of the CPS TS. The RPT breaker interruption time is currently defined in the Bases for SR 3.3.4.1.6 as breaker response time plus arc suppression time. Breaker response time is defined as the time from application of voltage to the trip coil until the main contacts separate. Arc suppression time is defined as the time from main contact separation until the complete suppression of the electrical arc across the open contacts. Due to the design of the breaker opening device and the fact that the breaker is not frequently cycled, the time required to open the contacts after energization of the trip coil and the arc suppression time are short and do not significantly change.

To comply with the current Technical Specifications, IP periodically performs a breaker interruption time measurement test. The high running currents associated with the RR pumps necessitate the use of current transducers (one for each breaker), the signals from which are processed to interface with the plant transient and analysis recording system. The test therefore necessitates the use of permanent and temporarily installed equipment. Further, because the test data are collected with the breaker under load, every attempt is made to collect the data during shutdown, while the plant is still at power but when the reactor recirculation pumps are expected to be shifted to slow speed. Test performance thus requires extensive planning and preparation in order to complete the test within the allotted test "window." If the test cannot be performed at that time, test conditions must then be established sometime during the outage, thus potentially affecting outage duration and/or requiring the use of outage resources. In addition, the current transducers introduce time delays and therefore, testing of the transducers is also required to specifically determine and account for their time lags introduced during the course of the testing. Further, the very short time periods associated with the breaker arc suppression time and the delay introduced by the current transducers present a challenge to the equipment used to record the test response time and to being able to precisely determine the actual breaker arc suppression time.

Discussions with the breaker manufacturer have confirmed that measurement of the arc suppression time is unnecessary and that actual arc suppression times are not subject to change for properly maintained breakers. The robust design of the breakers provides assurance of continued satisfactory performance. Further, any degradation of the breaker that could cause significant degradation of the arc suppression time is prevented or detected by performance of recommended preventive maintenance and/or other required testing. The challenges involved in the collection of the data, as well as the restraints imposed on the plant to establish conditions for preparation and conduct of the test have

prompted IP to consider whether actual measurement of interruption time provides any additional assurance of safety when the interruption time is already assured of being within limits by performance of preventive maintenance and other testing currently being performed at CPS.

Description of Proposed Change

In accordance with 10CFR50.90, IP proposes the following changes to CPS TS 3.3.4.1, "End of Cycle - Recirculation Pump Trip (EOC-RPT) Instrumentation":

1. Delete SR 3.3.4.1.6, to no longer periodically require the RPT breaker interruption time to be determined.
2. Delete SR 3.3.4.1.5 Note 1 that refers to SR 3.3.4.1.6. (Note 1 has a typographical error in that it incorrectly refers to SR 3.3.4.1.7, but in fact, the note applies to SR 3.3.4.1.6. This typographical error is not being corrected because deletion of the note makes correction superfluous.) Note 2 (attached to SR 3.3.4.1.5) will remain as an unnumbered note.

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

Justification for Proposed Change

As noted above, the EOC-RPT breaker interruption time is an input to the determination of the EOC-RPT SYSTEM RESPONSE TIME. Presently, IP determines breaker interruption time utilizing data collected during performance of the response time test. Based on vendor recommendations, IP has determined that an assumed breaker interruption time may be used in lieu of determining the breaker interruption time. IP proposes to use an assumed breaker interruption time of 95 milliseconds as an alternative to determining breaker interruption time utilizing field collected data. The assumed value of 95 milliseconds is based on the following: 1) A maximum time value of 95 milliseconds has been substantiated by IP during past surveillance testing at CPS, 2) The vendor specified breaker interruption time is 50 milliseconds, which is much less than the proposed assumed value, and 3) Testing of the circuit breaker during equipment qualification testing confirmed an actual breaker interruption time of 24 to 34 milliseconds. The assumed breaker interruption time will be validated through testing that verifies the contact gap separation and the contact gap resistance. CPS procedures currently require satisfactory performance of a high potential test of the RPT breakers and verification of the contact gap at least once per 36 months. These measures provide

assurance of satisfactory electrical performance of the breakers. With respect to confirming adequate mechanical performance of the breakers, the breakers are exercised to satisfy SR 3.3.4.1.3 which requires a logic system functional test of the EOC-RPT system to be performed at least once per 18 months, including actuation of the breakers. Current maintenance practices and compliance with SR 3.3.4.1.3 are thus sufficient to ensure RPT breaker interruption times are within acceptable limits.

Further bases for the acceptability of using an assumed breaker interruption time are provided as follows:

- ° The manufacturer's recommended maintenance cycle for the breakers is based on an expected 2,000 cycles of the circuit breaker. The EOC-RPT breakers are subjected to less than 1% of this amount of cycling during the current 36 month maintenance cycle. In fact, the EOC-RPT breakers are not expected to be subjected to 2,000 cycles during the life of the plant. Because the utilization of the EOC-RPT breakers at CPS is much less than the utilization for which the breakers are designed, the possibility of degraded performance is minimal.
- ° The design of the breaker is such that there is seldom failure of the breaker to open within the vendor specified time limits that does not also result in a failure of the breaker to operate. Problems with the mechanism of the breaker would most likely cause mechanical failures, not a degradation of performance that would cause the breaker to open in a time greater than the vendor specified time limit. So while degradation of the breaker mechanism that would impact the mechanical opening time of the breaker may be possible, the breaker mechanism would be expected to fail to operate rather than fail in a manner that would be difficult for operators and maintenance personnel to recognize.
- ° Proper setting of the contact gaps ensures the air gap separation will be sufficient to extinguish the arc and halt current flow. This test does not involve disassembly of the breaker and thus will not cause degraded performance of the breaker. Verification of proper contact gap settings ensures that there will be sufficient air gap during opening of the breaker. The air gap is one of the most significant parameters in extinguishing the arc.
- ° The performance of a high potential test verifies that the breaker insulation is adequate to eliminate the possibility of stray paths that would allow current flow after the breaker has opened. Therefore the only path for current is through the breaker contacts. This provides assurance that the current flow through the breaker will be halted when the breaker is called upon to open for an EOC-RPT trip.

This proposed change has been discussed with the breaker manufacturer (Westinghouse), and the intended treatment of response time testing is consistent with the manufacturer's recommendations for testing and maintenance of the breakers. The vendor has stated that breaker interruption time testing is not recommended because breaker interruption time does not change. The vendor further states that maintenance and testing that includes high potential testing and measuring of the contact gap for each breaker (as presently being performed at CPS) will give assurance that the breaker interruption time will continue to be within assumed limits. It should be noted that the testing and maintenance being performed on the EOC-RPT breakers is presently and will continue to be controlled under 10CFR50.59.

Assuming a time for the EOC-RPT breaker interruption time rather than performing unnecessary testing to measure the EOC-RPT breaker interruption time has a number of safety, performance and economic advantages. One important consideration is that by not performing the unnecessary testing there is a reduction in unnecessary cycling and stress to the EOC-RPT breaker and associated equipment. By reducing testing the possibility of damage to the equipment during such testing is reduced. Also, as noted previously, the EOC-RPT breaker interruption time test imposes many constraints or demands on plant schedule, plant equipment, test equipment and highly skilled personnel from maintenance, operations and engineering. Deletion of the EOC-RPT breaker interruption time test would therefore increase the availability of the breaker, associated equipment and the reactor recirculation system, and would release test equipment and personnel for other tasks during critical work periods, without resulting in a reduction in plant safety.

Based on the above, IP proposes to delete Surveillance Requirement 3.3.4.1.6, thus no longer requiring the RPT breaker interruption time to be periodically determined. Other existing maintenance and testing provides adequate assurance that the EOC-RPT breaker interruption time is within acceptable limits. This is supported by vendor testing and design requirements and by testing performed at CPS to date. On the basis that the surveillance proposed to be deleted is not needed to ensure proper operation of the breakers (as other tests and maintenance will provide such assurance), EOC-RPT operation will be unaffected by the proposed change.

Basis for No Significant Hazards Determination

In accordance with 10CFR50.92, a proposed change to the Operating License (Technical Specifications) involves no significant hazards considerations 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, or (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) EOC-RPT actuation in response to main generator load rejection and main turbine trip events has previously been evaluated in the Chapter 15 of CPS USAR. The proposed change does not affect the initiators of any of these events. In addition, the possibility of failure of the EOC-RPT breaker to mitigate these events has not been increased because there has been no change in design and no change to the plant. Deleting the requirement to periodically measure the breaker arc suppression time will not impact the EOC-RPT breakers' capability of performing their intended function because CPS will continue to perform inspections, testing and maintenance that supports breaker operation as intended and provides assurance that breaker interruption time will be within limits. Thus, the EOC-RPT breaker trip may be expected to operate as before to mitigate pressurization transient effects.

The EOC-RPT breaker trip is also assumed to occur in the analyses for the loss of feedwater heating, feedwater controller failure, pressure regulator failure, recirculation flow control failure, and recirculation pump seizure events. However, the EOC-RPT breaker trip is not an initiator or mitigating feature for these events. The proposed change cannot therefore impact the probability or consequences for these events. Nonetheless, the EOC-RPT breaker trip may be assumed to function as before for these scenarios.

For scenarios where the EOC-RPT breaker trip could initiate an event (i.e., inadvertent recirculation pump trip events), the probability of occurrence is not increased. The design and operation of the EOC-RPT system has not been changed, and therefore, the consequences resulting from the EOC-RPT breaker trip are unchanged.

Based on the above, neither the probability nor the consequences of any accident previously evaluated have been increased.

- (2) As noted above, the EOC-RPT breakers will continue to function as before. The proposed change involves no design change or physical change in the plant. Therefore, previous accident analyses are unchanged. Further, no new operations or testing is involved. On this basis, no new failure modes are introduced. Therefore, this proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

- (3) This proposed change does not involve a significant reduction in a margin of safety. The capability of the EOC-RPT breaker trip to provide additional insertion of negative reactivity for mitigating design-basis events remains unchanged. That is, the EOC-RPT will continue to be capable of reducing the peak reactor pressure and power resulting from turbine trip or generator load rejection transients, thus providing additional margin to core thermal MCPR Safety Limits.

The margin of safety is assured by the EOC-RPT breaker trip occurring within established limits such that the overall system performs its intended safety function within the time analyzed for the system safety response. No system time limit change is proposed. The robust design of the breakers, combined with continued performance of vendor-recommended testing and maintenance that ensures proper mechanical and electrical performance of the breakers, will continue to provide assurance that breaker interruption time is within the acceptable limit. Therefore, there is no significant reduction in the margin of safety.

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

Attached Marked-Up
Page of the Technical Specifications