



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 88 TO FACILITY OPERATING LICENSE NO. NPF-62

ILLINOIS POWER COMPANY, ET AL.

CLINTON POWER STATION, UNIT NO. 1

DOCKET NO. 50-461

1.0 INTRODUCTION

The Clinton Power Station DC Electrical Distribution System consists of six independent subsystems, each of which is powered by a 125-VDC battery and a 125-VDC battery charger. Four of the subsystems (Divisions I, II, III & IV) are Class 1E and provide safety-related functions. Divisions I and II are associated with the low pressure emergency core cooling systems whereas Divisions III and IV are both associated with the high pressure core spray (HPCS) system.

Technical surveillances require periodic battery capacity or service testing to demonstrate operability. Performance of these tests results in the DC subsystem being declared inoperable due to discharging of the battery. The duration of battery capacity tests are four hours. Surveillance Requirements 4.8.2.1.d, e, and f, which are conducted at 18 and 60 month intervals, specifically state that the surveillances are to be performed when the plant is shutdown. Technical Specifications further state that when either the Division I or II battery is inoperable, the battery be returned to service within two hours or the plant be shut down within the next 12 hours. However, when either the Division III or IV battery is inoperable, technical specifications require that the HPCS be declared inoperable. The Action Statement associated with an inoperable HPCS has a 14 day LCO provided the reactor core isolation cooling system remains operable.

The licensee has determined that the Division IV battery subsystem needs replacement. Battery replacement and subsequent post-modification testing to demonstrate operability is estimated by the licensee to take six days. While battery replacements are normally conducted with the plant shut down, the licensee's procurement of the replacement battery does not support this practice. The Clinton facility recently completed its fourth refueling outage and does not plan to shut down before the spring of 1995. The replacement battery delivery and installation are scheduled for mid-February of 1994.

The licensee's letter of November 4, 1993, requested modification to Technical Specifications 4.8.2.1.d, e, and f such that the words "during shutdown" would be deleted. These changes would provide operational flexibility to support maintenance on the DC subsystems, such as battery replacement. The licensee's letter acknowledged that battery replacement or performance of the associated

surveillances would not be permitted for Divisions I or II due to the two hour action statement. However, the licensee stated that all necessary actions to support battery replacement for the Division IV battery could be performed within the 14 day action statement. The licensee's letter further requested staff approval to support their planned Division IV outage scheduled for mid-February 1994.

2.0 EVALUATION

The staff's intent to limit selected surveillances to shutdown conditions is to minimize system unavailability while at power. Staff guidance on taking equipment out of service to perform preventive maintenance is found in NRC Inspection Manual, Part 9900, "Maintenance - Voluntary Entry Into Limiting Conditions for Operation Action Statements to Perform Preventive Maintenance." The guidance acknowledges that Technical Specifications permit entry into Limiting Conditions for Operation (LCO) action statements to perform surveillance testing. However, limitations on this practice are identified. Such limitations include (1) the time needed to perform the surveillance is only a small fraction of the allowed outage time specified in the action statement; (2) the benefit to safety derived from meeting surveillance requirements is considered to more than compensate for the risk to safety from operating the facility in an action statement for a small fraction of the allowed outage time; and (3) performance of preventive maintenance on-line rather than during shutdown should be warranted by operational necessity, not just for the convenience of shortening a refueling outage.

The licensee stated that the current limitation of performing these surveillances with the plant shutdown is overly conservative. The licensee's arguments to support this license amendment application include the following:

- (1) The Clinton Updated Safety Analysis Report, Section 8.3.2, DC Electrical Distribution System design allows for the single failure or loss of any redundant DC subsystem during simultaneous accident and loss of offsite power conditions without adversely affecting safe shutdown of the plant. Therefore, unavailability of the Division IV battery would not adversely impact the accident analysis.
- (2) In Generic Letter 91-04, "Guidance on Preparation of a License Amendment Request for Changes in Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," the staff concluded that the technical specifications need not restrict surveillances to only being performed during shutdown, provided the licensee gives proper regard for their effect on the safe operation of the plant.
- (3) The Division IV battery replacement can be safely performed under the current 14 day LCO. The licensee states that they would take all necessary precautions to minimize the potential for plant

transients during the time the battery is out of service. In addition, all required surveillances on the Division I and II batteries and chargers would be current.

The staff finds that the licensee's proposal conflicts with a number of staff positions. As stated above, the NRC Inspection Manual allows for the performance of surveillances at power provided that they only represent "a small fraction" of the allowed outage time. A battery replacement that would take 6 days out of a 14 day allowed outage time would appear to challenge this assumption. In addition, Regulatory Guide 1.93, "Availability of Electric Power Sources," indicates that preventive maintenance activities which incapacitate a required electric power source should be scheduled during cold shutdown. Finally, the staff's Improved Standard Technical Specifications for BWR/6 facilities (NUREG-1434) addresses battery capacity and service tests and recommends that they not be performed during operational modes 1, 2, and 3. For both these reasons and the generic implications, the staff does not approve of the licensee's proposal for a permanent change to the Technical Specifications.

While the staff does not agree to a permanent change as proposed by the licensee, consideration has been directed to the plant specific issues. The staff understands that station batteries require periodic replacement and that the overall plant reliability and safety at the Clinton Station will be improved with this replacement. The staff also agrees that the risks associated with a one-time battery replacement at power outweighs that of shutting down the facility and introducing another thermal transient on the primary piping system. Considering that the next scheduled plant shutdown will not be until the Spring of 1995 and the licensee's desire to replace an aging DC battery subsystem, the staff finds a one-time battery replacement at power acceptable. The staff has discussed this approach with the licensee and the licensee has accepted this modification to their proposal.

The staff may reconsider the licensee's proposal to incorporate these changes on a permanent basis. However, such consideration will need to be accompanied by a plant specific probabilistic risk assessment of performing such surveillances with the plant at power. The analysis will need to clearly demonstrate that the benefit to safety more than compensates for the risk from operating the facility in an LCO action statement. In addition, the licensee will need to address compensatory actions taken for the inoperable Reactor Protection System sensors associated with an inoperable battery subsystem.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (58 FR 64610). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: February 2, 1994