September 27, 1990

Docket No. 50-461

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Mr. Frank A. Spangenberg
Licensing and Safety
Clinton Power Station
P. O. Box 678
Mail Code V920
Clinton, Illinois 61727

Dear Mr. Spangenberg:

SUBJECT: ISSUANCE OF AMENDMENT NO. 49 TO FACILITY OPERATING LICENSE NO. NPF-62 (TAC NO. 77183)

The Commission has issued the enclosed Amendment No. 49 to Facility Operating License No. NPF-62 for the Clinton Power Station, Unit No. 1. This amendment is in response to your application dated July 11, 1990.

This amendment modifies Table 4.8.1.1.2-1 of the Technical Specifications (TS) related to the testing frequency of the Emergency Diesel Generators so as to allow returning to a regular monthly testing schedule from an increased test frequency when seven consecutive failure-free demands have been performed and the number of failures in the last 20 valid demands has been reduced to less than or equal to one regardless of which failure criteria in Table 4.8.1.1.2-1 have resulted in the increased testing frequency.

This amendment also revises the manner in which failure statistics must be kept as part of the reporting requirements for diesel generator failures.

A copy of the Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

Original signed by

John B. Hickman, Project Manager
Project Directorate III-3
Division of Reactor Projects - III, IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 49 to License No. NPF-62
2. Safety Evaluation

cc w/enclosures:
See next page

DOCUMENT NAME: 77183 AMD

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

ILLINOIS POWER COMPANY, ET AL.

DOCKET NO. 50-461

CLINTON POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 49
License No. NPF-62

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Illinois Power Company* (IP) and Soyland Power Cooperative, Inc. (the licensees) dated July 11, 1990, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-62 is hereby amended to read as follows:

*Illinois Power Company is authorized to act as agent for Soyland Power Cooperative, Inc. and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 49 , are hereby incorporated into this license. Illinois Power Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John N. Hannon, Director
Project Directorate III-3
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 27, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 49

FACILITY OPERATING LICENSE NO. NPF-62

DOCKET NO. 50-461

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

Remove	Insert
3/4 8-9	3/4 8-9
3/4 8-10	3/4 8-10

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 (Continued)

13. Verifying that the sequence times for loads automatically sequenced by individual timers are within 10% of their design interval for each load block for diesel generators 1A and 1B.

14. Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:

    a) Maintenance mode.
    b) Diesel generator lockout.

f. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting all three diesel generators simultaneously, during shutdown, and verifying that all three diesel generators accelerate to at least 900 ± 18 rpm in less than or equal to 12 seconds.

g. At least once per 10 years by:

1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite solution or equivalent, and

2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code in accordance with ASME Code Section 11 Article IWD-5000.

4.8.1.1.3 Reports - All diesel generator failures, valid or non-valid, shall be reported to the Commission pursuant to Specification 6.9.2, within 30 days. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures in the last 100 valid tests of any diesel generator is greater than or equal to 7, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.

TABLE 4.8.1.1.2-1

DIESEL GENERATOR TEST SCHEDULE

NUMBER OF FAILURES IN LAST 20 VALID TESTS*	NUMBER OF FAILURES IN LAST 100 VALID TESTS*	TEST FREQUENCY
≤ 1	≤ 4	At least once per 31 days
≥ 2	≥ 5	At least once per 7 days**

*Criteria for determining number of failures and number of valid tests shall be in accordance with Regulatory Position C.2.e of Regulatory Guide 1.108, but determined on a per diesel generator basis.

For the purposes of determining the required test frequency, the previous test failure count may be reduced to zero if a complete diesel overhaul to like-new condition is completed, provided that the overhaul, including appropriate post-maintenance operation and testing, is specifically approved by the manufacturer and if acceptable reliability has been demonstrated. The reliability criterion shall be the successful completion of 14 consecutive tests in a single series. Ten of these tests shall be in accordance with the routine Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5 and four tests in accordance with the 184-day testing requirement of Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.a.5. If this criterion is not satisfied during the first series of tests, any alternate criterion to be used to transvalue the failure count to zero requires NRC approval.

**This test frequency shall be maintained until seven consecutive failure free demands have been performed and the number of failures in the last 20 valid demands has been reduced to less than or equal to one.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 49 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

By letter dated July 11, 1990, the Illinois Power Company (IP), et al. (the licensee), requested three amendments to Facility Operating License No. NPF-62 for the Clinton Power Station, Unit 1. The third proposed amendment in that submittal would revise the footnote concerning test frequency for the diesel generators in Technical Specification (TS) Table 4.8.1.1.2-1 and would modify the reporting requirements of TS 4.8.1.1.3 to be on a per-diesel-generator basis rather than a per-nuclear-unit basis.

2.0 EVALUATION

TS Table 4.8.1.1.2-1, "Diesel Generator Test Schedule," is a table which defines test frequency of the individual diesel generators based on the number of valid failures in the last 20 and last 100 valid tests. A note to the table explains that for the case of 2 or more failures in the last 20 valid tests, the increased test frequency shall be maintained until 7 consecutive failure-free demands have been performed and the number of failures in the last 20 valid demands has been reduced to less than or equal to one. No such provision currently exists for exiting from the increased testing frequency requirements required when 5 or more failures occur in the last 100 valid tests. Thus, a diesel generator which experienced 5 or more failures in the last 100 valid tests could be required to maintain the increased testing frequency significantly longer than in the previous case after repairs had restored the diesel generator to its former reliability. The licensees' proposed change seeks to use the same criteria for demonstration of restored reliability regardless of the circumstances which resulted in the increased testing frequency requirement.

On July 2, 1984, the staff issued Generic Letter 84-15 (G.L. 84-15) to all licensees of operating reactors, applicants for an operating license, and holders of construction permits. The intent of G.L. 84-15 was to provide licensees with guidance on improving diesel generator reliability by reducing the number of cold fast starts for diesel generators, obtaining diesel generator reliability data, and attaining and maintaining a diesel generator reliability goal. Enclosure 1 to G.L. 84-15 described the basis for reducing cold fast starts and its resultant improvement in diesel

generator reliability and also discussed the correlation between excessive diesel generator testing (other than cold fast starts) and its resultant degradation of diesel engines. This was primarily aimed at some older plants whose TS required testing of diesel generators each time subsystems of the emergency core cooling system became inoperable.

Enclosure 3 to G.L. 84-15 described an acceptable example of a performance program for attaining and maintaining diesel generator reliability above the threshold level of concern. It included increased surveillance frequency where previous testing indicated failure counts in excess of a specified value until restored reliability was demonstrated. It also considered disqualification and subsequent requalification of the diesel generator in accordance with a prescriptive testing program, including 7 consecutive successful demands without a failure within 30 days, and 14 successful consecutive demands within 75 days of the diesel generator being restored to operable status. Certain more restrictive criteria applied should a failure occur during the above testing.

While increased testing frequency was and still is determined by the staff to be an acceptable method to demonstrate restored reliability of the diesel generator, the discussions in Enclosure 1 to G.L. 84-15 regarding reduction of unnecessary testing and changes to the Standard TS as described in Appendix A of G.L. 84-15, such as changing the previous 3-day test frequency to 7 days, clearly indicate that unneccessary diesel generator testing should be avoided if other methods of demonstrating and/or restoring diesel generator reliability exist.

The licensees' proposal seeks to avoid the possibility of a situation occurring which would require continued diesel generator testing even after demonstration that reliability has been restored. Such testing is deemed by the licensees to be excessive and not in keeping with the intent of G.L. 84-15.

The staff's April 25, 1985 Safety Evaluation (SE) related to issuance of Amendment No. 48 to the North Anna Unit 2 operating license discusses the reliability goals, the accelerated testing frequency and the incentives for engine overhaul and their relation to improvement in reliability. As stated in the SE, the original accelerated testing frequency for North Anna was based upon number of failures in the last 100 starts. The expansion of the accelerated test frequency table to include the number of failures in the last 20 starts was to provide early indication (of 2 or more failures in the last 20 starts) of a .90 or lower reliability.

To enter accelerated testing at this point would provide a better sensitivity to the possibility of abrupt diesel generator degradation and provide a timely response. Increasing the test frequency would provide a faster accumulation of test data upon which to judge the reliability of the diesel. This additional data could then be used to distinguish between failures which occur close together simply due to random chance and such failures that are indicative of an abrupt decline in the actual reliability. The weekly test

schedule would be continued until two conditions have been satisfied. First, seven consecutive successful tests have been accumulated. Second, the failures in the most recent 20 tests have been reduced to one. Seven successful tests indicate a reliability of at least 0.90/demand but at only the 50% confidence level. Continuing the accelerated testing until the number of failures is 1 out of 20 adds further assurance that the diesel generator has not degraded below the 0.90/demand level. This relaxation to the normal testing interval of once per 31 days upon satisfying the two conditions above was only applicable to the case where 2 or more failures occurred in the last 20 starts, not the case where 5 or more failures occurred in the last 100 starts.

The licensee has stated that the resolution of diesel generator reliability problems are taken very seriously and are vigorously pursued at Clinton. Although the existing TS allow for a reduction in testing when a diesel overhaul has been performed, a complete overhaul of a diesel generator may not significantly contribute to a reduction of the most statistically prevalent failures if they are not related to the internals of the engine. In the case of the recent slow starts of the Clinton diesel generator 1A, the root cause was determined to be related to the engine governors. Therefore, the licensee has proposed that monthly testing of the diesel should be allowed when, in lieu of a complete overhaul, acceptable reliability of the diesel generator has been demonstrated to have been restored by the successful performance of seven consecutive failure-free demands and the diesel generator has demonstrated a reliability of greater than 0.90 over its last 20 valid tests. Based on the previous discussion, the staff finds the licensees' proposed change to be acceptable.

The licensees' request to modify the reporting requirements of TS 4.8.1.1.3 from a per-nuclear-unit basis to a per-diesel-generator basis is in keeping with the guidance of G.L. 84-15 for determining failure rates on each diesel generator at a site. The test failures are determined on a per-diesel-generator basis to avoid excessive testing on otherwise reliable diesel generators because of failures on one generator at a site. The change in reporting criteria to a per-diesel-generator requirement would be consistent with the testing criteria and would avoid the need for a dual counting system, one for failures and one for reports. The staff considers this change acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or a change to a surveillance requirement. The 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 this amendment involves no significant hazards

criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 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; and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Prinicipal Contributor: J. Hickman

Dated: September 27, 1990