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ILLINOIS POWER

U-601912
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JSP-0767-91
December 23, 1991
10CFR50.12
10CFR50.90

Docket No. 50-461

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

Subject: Application for Exemption from 10CFR50 Appendix J and Amendment of Facility Operating License No. NPF-62 for Clinton Power Station

Dear Sir:

In accordance with 10CFR50.12 and 10CFR50.90, Illinois Power (IP) hereby applies for an exemption from 10CFR50 Appendix J regarding local leak rate testing of the Reactor Core Isolation Cooling (RCIC) vacuum breaker line associated with containment penetration 1MC-44 at Clinton Power Station (CPS). Per 10CFR50 Appendix J paragraph III.B.3 and Technical Specification 3.6.1.2, "Primary Containment Leakage," item b, the combined leakage rate of all penetrations and valves subject to Type B and C tests shall be less than 0.60 La. With respect to these requirements, IP requests an exemption to exclude the leakage rates associated with the valve packing and body-to-bonnet seal of test boundary valve 1E51-F374. These potential leakage paths are included with the integrated leak rate test (ILRT) boundary and will be leak tested with a soap solution during each ILRT.

IP has determined that this request meets the criteria given in 10CFR50.12(a)(ii) for special circumstances in that strict application of the requirements of 10CFR50 Appendix J for these particular potential leakage pathways is not necessary to achieve the underlying purpose of the rule. In addition, application of 10CFR50 Appendix J for the subject potential leakage pathways results in undue hardships as a temporary scaffold would be required to be erected and disassembled over the suppression pool each refueling outage

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in order to perform these local leak rate tests. This would result in unnecessary radiation exposure, generation of unnecessary radioactive waste, and increase the potential for introducing foreign objects into the suppression pool. These additional costs outweigh the benefits associated with performance of the required testing.

In support of this exemption request, additional details and justification (including a basis for No Significant Hazards Determination), and marked-up pages from the CPS Operating License and Technical Specifications are provided in Attachment 2. In addition, an affidavit supporting the facts set forth in this letter and its attachments is provided as Attachment 1.

IP has reviewed this request against the criteria of 10CFR51.22 for categorical exclusion from environmental impact considerations. This request does not involve a significant hazards consideration, or significantly increase the amounts or change the types of effluents that may be released offsite, nor would it significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, IP concludes that this request meets the criteria given in 10CFR51.22(c)(9) for a categorical exclusion from the requirement for an Environmental Impact Statement.

Please note that approval of this request is required for startup from the third refueling outage which is currently scheduled to begin March 1, 1992. Therefore, your prompt attention to this application is requested.

Sincerely yours,

J. S. Perry
Vice President

DAS/alh

Attachments

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

Attachment 1
to U-601912

STATE OF ILLINOIS
COUNTY OF DEWITT

J. Stephen Perry, being first duly sworn, deposes and says: That he is Vice President of Illinois Power Company; 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 application and the facts contained therein are true and correct.

DATE: This 23 day of December 1991.

Signed: J. Stephen Perry

Subscribed and sworn to before me this 23rd day of December 1991.

"OFFICIAL SEAL"
Linda S. French
Notary Public, State of Illinois
My Commission Expires 9/1/92

Linda S. French
Notary Public

Background

In accordance with 10CFR50 Appendix J paragraph III.B.3 and Clinton Power Station (CPS) Technical Specification 3.6.1.2, "Primary Containment Leakage," item b, the combined leakage rate of all containment penetrations and valves subject to Type B and C tests shall be less than 0.60 La when pressurized to Pa [9.0 pounds per square inch gauge (psig)]. Accordingly, the leakage rates of the Reactor Core Isolation Cooling (RCIC) system vacuum breaker line containment penetration 1MC-44 are required to be included in this summation.

During the second refueling outage at CPS, Illinois Power (IP) determined that local leak rate testing of fourteen containment penetrations had been deficient. These testing deficiencies were identified in CPS Licensee Event Report (LER) 90-018. This LER identified that the location of mechanical joints and/or depths of line termination in the suppression pool could have resulted in several of the containment isolation valves associated with these penetrations being exposed to the containment atmosphere following a postulated accident. These valves had previously been assumed to be sealed with water from the suppression pool. As a result, eight of these fourteen penetrations should have been tested with air or nitrogen, rather than with water. With the exception of one penetration (1MC-41), modifications were implemented during the second refueling outage to ensure that the associated isolation valves remain sealed with water from the suppression pool. A modification is currently scheduled to be implemented during the third refueling outage to ensure that 1MC-41 remains water-sealed.

Testing of the six remaining penetrations was determined to be deficient in that mechanical joint potential air leakage pathways existed which were not included within the associated local leak rate test (LLRT) boundary. Test procedures are being or have been revised to include the subject mechanical joints in the LLRT test boundary for five of these penetrations. Including the subject mechanical joints in the LLRT test boundary for the remaining penetration (1MC-44) would require undue efforts and result in excessive costs to perform these tests as required relative to the marginal safety benefit to be gained from performing such tests. As a result, IP is requesting an exemption from 10CFR50 Appendix J for this penetration as discussed below.

Description of Proposed Changes

In accordance with 10CFR50.90, the following changes to Operating License No. NPF-62 for CPS are being proposed:

(1) Paragraph D is being revised to acknowledge the proposed exemption to the requirements of paragraph III.B.3 of Appendix J to 10CFR50 for exempting leakage from the valve packing and the body-to-bonnet seal of valve 1E51-F374 associated with containment penetration 1MC-44 from inclusion in the combined leakage rate for penetrations and valves subject to Type B and C tests. In addition, this revision acknowledges that the special circumstances associated with this proposed exemption will be addressed in the safety evaluation accompanying the associated amendment to the Operating License.

(2) Surveillance Requirement 4.6.1.2.d associated with Technical Specification 3/4.6.1.2, "Primary Containment Leakage", is being revised by adding proposed footnote "***" to acknowledge that the combined leakage rate of penetrations and valves subject to Type B and C tests does not include those potential leakage pathways identified in the proposed exemption to Appendix J of 10CFR50 for containment penetration 1MC-44.

These proposed changes are identified on the marked-up copies from the CPS Operating License and Technical Specifications included as pages 8 through 12 of this attachment.

Justification for Proposed Changes

The isolation provisions for the RCIC vacuum breaker line containment penetration (1MC-44) and the RCIC turbine exhaust line containment penetration (1MC-41) are depicted on Figure 1 (page 7 of this attachment). Isolation of these penetrations is provided by motor operated valves 1E51-F077, 1E51-F078, and 1E51-F068; test connection/vent/drain valves 1E51-F375, 1E51-F376, 1E51-F082, 1E51-F080, 1E51-F083, and 1E51-F041; check valve 1E51-F040; and a welded blind coupling (which was installed during the second refueling outage in response to the testing deficiencies identified in LER 90-018). Containment isolation valve 1E51-F078 is tested in the forward direction using valve 1E51-F374 as a test boundary valve. Valve 1E51-F374 is normally open and is closed only to facilitate the performance of LLRTs. As a result, valve 1E51-F374 does not provide a containment isolation function. However, its integrity is required in order to maintain the leak tightness integrity of the containment penetration.

Valve 1E51-F374 is a gate valve. Because this valve is normally in the open position, the valve's packing and body-

to-bonnet seal are normally exposed to the containment atmosphere. These potential leakage pathways are therefore, required to be included in the LLRT boundary per 10CFR50 Appendix J. However, because of the gate valve design, it cannot be confirmed that the valve's packing and body-to-bonnet seal are exposed to the test pressure when the valve is in the closed position (i.e., during the performance of LLRTs). As a result, the requirements of 10CFR50 Appendix J would require this valve to be in the open (i.e., post-accident) position during LLRTs.

As identified in LER 90-018, several alternatives were evaluated to correct this testing deficiency. One alternative consisted of identifying alternate testing configurations. Another alternative consisted of modifying the valve to allow the body-to-bonnet seal and valve packing to be pressurized during LLRTs. Modification of the valve was determined to be inappropriate as such a modification would degrade the valve's sealing capability (valve-to-seat). Further, performance of such a modification would result in radiation exposure during implementation. (The valve is located in the Residual Heat Removal heat exchanger room.)

Alternate testing configurations that were evaluated consisted of installing a plug inside containment in the end of this line and/or connecting the LLRT rig to the pipe end. As this line terminates over and approximately 10 feet above the suppression pool, a temporary scaffold would have to be erected to gain access to the pipe end. It is estimated that erecting and disassembling a temporary scaffold in this area would take approximately 80 man-hours and result in approximately 100 mrem radiation exposure each refueling outage. (It should be noted that this estimate is based on current plant conditions with no known leaking fuel and no significant safety/relief valve leakage. As a result, background radiation levels for performing these activities would likely increase over plant life.) In addition, erecting a temporary scaffold would create additional radioactive waste and would increase the potential for foreign objects to be introduced into the suppression pool.

IP has evaluated each of these alternatives and determined that the additional radiation exposure and resource expenses far outweigh the benefits to be gained by including the valve packing and body-to-bonnet seal of valve 1E51-F374 in the LLRT boundary. This valve is located in a nominal three-inch line and is exercised each refueling outage solely for the performance of the LLRT for this containment penetration. This line normally contains air at containment pressure and temperature. As a result, the valve packing and body-to-bonnet seal are not subjected to degradation due to large thermal or hydraulic transients. Further, any air leakage through these pathways would be filtered by the standby gas treatment system prior to release to the

environment. For these reasons, IP believes that leakage through these potential leakage pathways would not be significant, and therefore, inclusion of these pathways in the LLRT boundary is not necessary. In addition, these potential leakage pathways are included in the Integrated Leak Rate Test (ILRT) boundary, and thus, any leakage through these pathways will be included in the total leakage rate measured during an ILRT. To provide added assurance that these pathways do not constitute a significant leakage source and to provide additional indication when repairs are necessary, the body-to-bonnet seal and valve packing of valve 1E51-F374 will be leak tested with a soap solution during each ILRT.

Basis For No Significant Hazards Consideration

According to 10CFR50.92, a proposed change to the Operating License 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 the 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. This request is evaluated against each of these criteria below.

(1) This request does not involve a change in the plant design. Failure of or leakage through a containment barrier cannot create an accident and therefore this request does not increase the probability of any accident previously evaluated. Failure of or leakage through a containment barrier can, however, increase the consequences of those accidents previously evaluated. This request involves a reduction in the local leak rate testing requirements for one containment penetration. The line associated with this penetration is nominally three inches in diameter. In addition, this line normally only contains air at approximately containment pressure and temperature, and thus is not subjected to degradation due to severe thermal or hydraulic transients. As a result, IP has concluded that the noted potential leakage pathways would not degrade significantly between the performance of ILRTs. Therefore, the potential leakage associated with these pathways would not significantly contribute to exceeding the leakage limit or significantly impact system operation. The performance of local leak testing with a soap solution during each ILRT will provide added assurance that these potential leakage pathways do not contribute significantly to the leakage measured during the ILRT and provide additional indication of the need for repairs. In addition, leakage through any of these potential leakage pathways would be processed by the standby gas treatment system

prior to release to the environment. Therefore, this request does not involve a significant increase in the probability or the consequences of any accident previously evaluated.

(2) This request does not involve a change to the plant design. In addition, leakage through a containment barrier cannot create an accident. As a result, this request cannot create the possibility of a new or different kind of accident from any accident previously evaluated.

(3) The only margin of safety that could potentially be impacted by this request is the margin concerning the offsite dose consequences of postulated accidents (which is directly related to the containment leak rate). As discussed under item (1) above, this request does not result in a significant increase in the consequences of any accident previously evaluated. The performance of local leak testing of the subject potential leakage pathways with a soap solution during each ILRT will provide added assurance that these potential leakage pathways do not contribute significantly to the leakage measured during the ILRT and provide additional indication of the need for repairs. As a result, this request does not result in a significant reduction in the margin of safety.

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

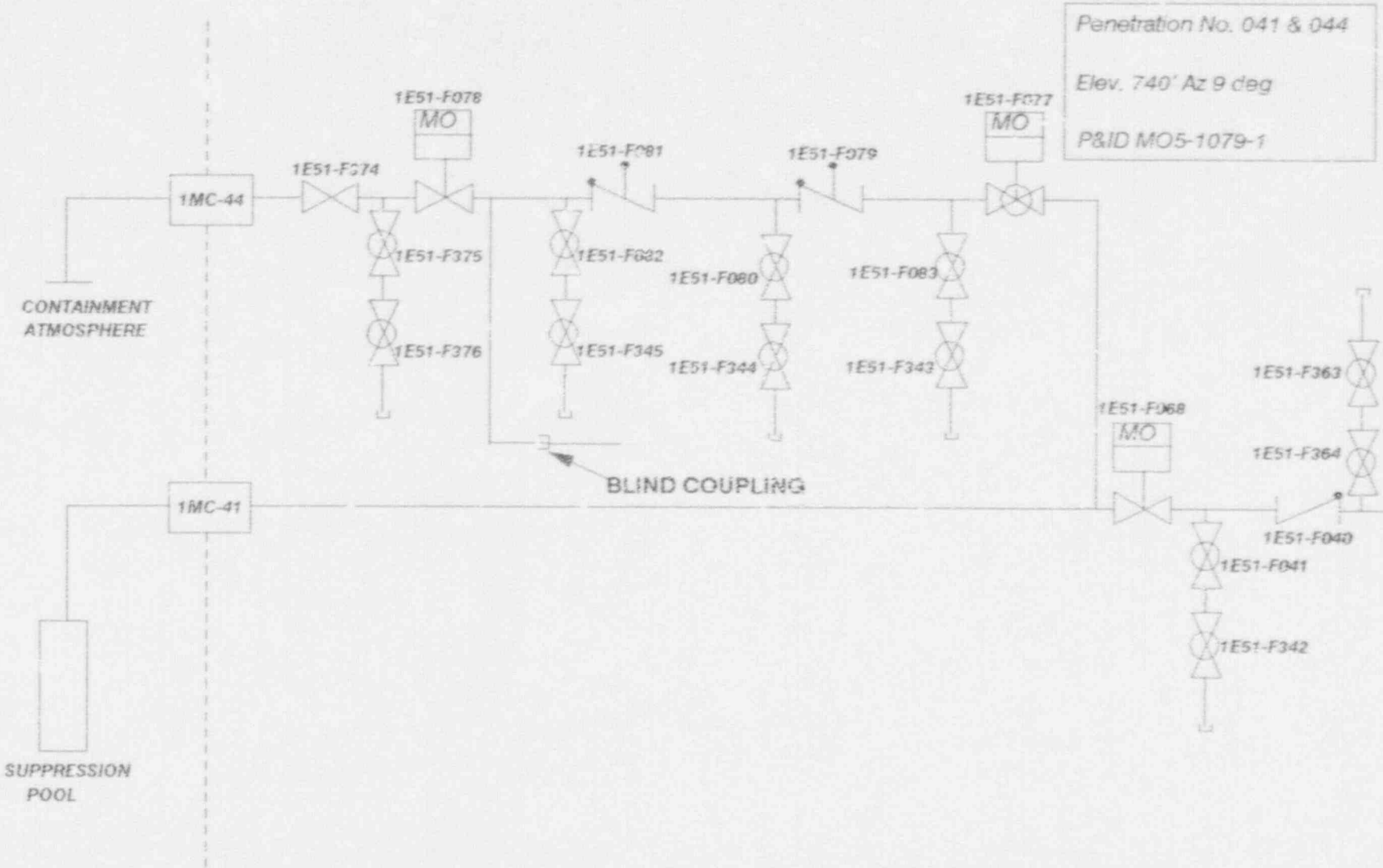
Additional Information

In accordance with 10CFR50.12(a), the NRC may grant exemptions from the requirements of the regulations when special circumstances are present. 10CFR50.12(a)(2) defines special circumstances under which the NRC may grant exemptions from the regulations.

In accordance with 10CFR50.12(a)(2)(ii), special circumstances exist when application of the regulation in that particular circumstance would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule. According to 10CFR50 Appendix J, the purposes of the leak test requirements of 10CFR50 Appendix J are "to assure that (a) leakage through primary reactor containment and systems and components penetrating primary containment shall not exceed allowable leakage rate values as specified in the technical specifications or associated bases and (b) periodic surveillance of reactor containment penetrations and isolation valves is performed so that proper maintenance and repairs are made during the service life of the containment, and systems and components penetrating primary containment."

The first purpose of 10CFR50 Appendix J is served primarily by the performance of ILRTs. Leakage through the subject potential leakage paths would be included in the containment leakage measured during ILRTs. The second purpose of 10CFR50 Appendix J is served primarily by the performance of LLRTs. Since IP will perform leak testing of the subject leakage pathways with a soap solution during each ILRT, the need for repair of these potential leakage pathways will be identified adequately.

As described previously, compliance with 10CFR50 Appendix J would require including the body-to-bonnet seal and packing of test boundary valve 1E51-F374 within its respective LLRT boundary. As a result, performance of the leakage testing required to achieve strict compliance with 10CFR50 Appendix J in this case would result in additional radiation exposure, generation of additional radioactive waste, and increased potential for introducing foreign objects into the suppression pool. Because the potential for significant leakage through the subject pathways is low, these costs far outweigh the benefits associated with this additional testing. As a result, special circumstances exist in accordance with 10CFR50.12(a)(2)(ii) in that application of the regulations in this case is not necessary to achieve the underlying purpose of the rule and results in undue hardship.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1E51-F375
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CONTAINMENT ATMOSPHERE
1E51-F376
1E51-F345
1E51-F344
1E51-F343
1E51-F363
1E51-F068
MO
1E51-F364
BLIND COUPLING
1MC-41
1E51-F040
1E51-F041
1E51-F342
SUPPRESSION POOL

Figure 1

(8) Post-Fuel Loading Initial Test Program (Section 14, SER, SSER 5 and SSER 6)

Any changes to the initial test program described in Section 14 of the FSAR made in accordance with the provisions of 10 CFR 50.59 shall be reported in accordance with 50.59(b) within one month of such change.

(9) Emergency Response Capabilities (Generic Letter 82-33, Supplement 1 to NUREG-0737, Section 7.5.3.1, SSER 5 and SSER 8, and Section 18, SER, SSER 5 and Safety Evaluation Dated April 17, 1987)

a. IP in accordance with the commitment contained in a letter dated December 11, 1986, shall install and have operational separate power sources for each of the fuel zone level channels as provided for in Regulatory Guide 1.97 prior to startup following the first refueling outage.

b. IP shall submit a detailed control room design final supplemental summary report within 90 days of issuance of the full power license that completes all the remaining items identified in Section 18.3 of the Safety Evaluation dated April 17, 1987.

D. The facility requires exemptions from certain requirements of 10 CFR Part 50 and 10 CFR Part 70. These include: (a) an exemption from the requirements of 10 CFR 70.24 for the criticality alarm monitors around the fuel storage area; (b) an exemption from the requirements of Appendix A to 10 CFR Part 50, General Design Criterion 61 to permit a schedular deferral of completion of preoperational testing of a portion of the Fuel Handling System until prior to offloading fuel from the reactor vessel (Section 14, SSER 8); (c) an exemption from the requirement of paragraph III.D.2(b)(ii) of Appendix J, substituting the seal leakage test at Pa of paragraph III.D.2(b)(iii) for the entire airlock test at Pa of paragraph III D.2(b)(ii) of Appendix J when no maintenance has been performed in the airlock that could affect its sealing capability (Section 6.2.6 of SSER 6); ~~and~~ (d) an exemption from the requirement of paragraph III.C.3 of Appendix J, exempting the measured leakage rates from the main steam isolation valves from inclusion in the combined leak rate for the local leak rate tests (Section 6.2.6 of SSER 6); and (e) an exemption from the requirements of paragraph III.B.3 of Appendix J, exempting leakage from the valve packing and the body-to-bonnet seal of valve 1E51-F574 associated with containment penetration 1MC-44 from inclusion in the combined leakage rate for penetrations and valves subject to Type B and C tests. The special circumstances regarding each exemption, except for Items (a) above, are identified in the referenced section of the safety evaluation report and the supplements thereto.

The special circumstances regarding the exemption identified in Item (e) above are identified in the Safety evaluation accompanying Amendment No. ___ to this license.

An exemption was previously granted pursuant to 10 CFR 70.24. The exemption was granted with NRC materials license No. SNM-1886, issued November 27, 1985, and relieved IP from the requirement of having a criticality alarm system. IP is hereby exempted from the criticality alarm system provision of 10 CFR 70.24 so far as this section applies to the storage of fuel assemblies held under this license.

These exemptions are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security. The exemptions in items (b), (c) and (d) above are granted pursuant to 10 CFR 50.12. With these exemptions, the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission.

E. IP shall fully implement and maintain in effect all provisions of the physical security, guard training and qualifications, and safeguards contingency plans previously approved by the Commission and all amendments and revisions to such plans made pursuant to the authority under 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain safeguards information protected under 10 CFR 73.21, are entitled: "Clinton Power Station Physical Security Plan," with revisions submitted through January 17, 1986, "Clinton Power Station Guard Qualification and Training Plan," with revisions submitted through September 19, 1985; and "Clinton Power Station Safeguards Contingency Plan," with revisions submitted through September 20, 1985.

F. IP shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report as amended, for the Clinton Power Station, Unit No. 1, and as approved in the Safety Evaluation Report (NUREG-0853) dated February 1982 and Supplement Nos. 1 thru 8 thereto subject to the following provision:

> IP may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

G. Except as otherwise provided in the Technical Specifications or Environmental Protection Plan, IP shall report any violations of the requirements contained in Section 2.C of this license in the following manner: initial notification shall be made within 24 hours to the NRC Operations Center via the Emergency Notification System with written followup within thirty days in accordance with the procedures described in 10 CFR 50.73 (b), (c), and (e).