

# ILLINOIS POWER

CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727-0678, TELEPHONE (217) 935-8881

U-601726

L47-90(08-31)-LP

8E.100a

JSP-0719-90

August 31, 1990

10CFR50.90

Docket No. 50-461

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


Subject: Clinton Power Station  
Proposed Amendment of Facility  
Operating License No. NPF-62

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 3/4.6.5, "Drywell Post-LOCA Vacuum Relief Valves." A description of the proposed changes and associated justification, including a Basis For No Significant Hazards Consideration, and marked-up copies of pages from the current Technical Specifications and Bases, are provided in Attachment 2. In addition, an affidavit supporting the facts set forth in this letter and its attachments is provided in Attachment 1.

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

Sincerely yours,

  
J. S. Perry  
Vice President

A001  
11

DAS/alh

Attachments

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



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.

DATED: This 31 day of August 1990

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

*J. Stephen Perry*  
J. Stephen Perry

Subscribed and sworn to before me this 31 day of August 1990.

*Sharon E. Harris*

Notary Public

"OFFICIAL SEAL"  
Sharon E. Harris  
Notary Public, State of Illinois  
My Commission Expires 3/9/91

Attachment 2  
to U-601726

Attachment 2

The following package comprises Attachment 2.

LS-89-020



#### Description of Proposed Changes

In accordance with 10CFR50.90, the following changes to Clinton Power Station (CPS) Technical Specification 3/4.6.5, "Drywell Post-LOCA Vacuum Relief Valves," are being proposed:

1. Action "a" is being revised to allow one or both closed drywell post-Loss of Coolant Accident (LOCA) vacuum relief valve(s) in a single penetration to be inoperable for opening for up to 72 hours.
2. Action "b" is being revised to allow one or more drywell post-LOCA vacuum relief valve(s) to be open for a limited period of time. This proposed change will require that at least one drywell post-LOCA vacuum relief valve in each penetration (rather than all valves) be closed within one hour.
3. Action "c" is being revised to allow the position indicator of one or more drywell post-LOCA vacuum relief valve(s) to be inoperable provided at least one vacuum relief valve in each affected penetration (rather than the valve with inoperable position indication) is verified to be in the closed position at least once per 24 hours. Additionally, an exception to the provisions of Technical Specification 3.0.4 is being added to this Action Statement to allow plant mode changes with inoperable position indicator(s).
4. A footnote (footnote "\*\*\*") is being added to the above Action Statements to allow drywell post-LOCA vacuum relief valves to be opened on an intermittent basis under administrative control to perform required surveillance testing or repairs when the valve(s) is required to be maintained closed by the Action Statements.

These proposed changes (including proposed changes to the associated Bases) are indicated on the attached marked-up pages from the CPS Technical Specifications. (See pages 7, 9, and 10 of this submittal package.)

#### Justification for Proposed Changes

The CPS design incorporates eight drywell post-LOCA vacuum relief valves. These valves are arranged such that two valves are in series in each of four separate drywell penetrations. Thus, both valves in a single penetration must open in order for the drywell atmosphere to communicate with the containment atmosphere. The position of each vacuum relief valve is indicated in the main control room. These indicating lights are controlled by limit switches on the valves and indicate closed, intermediate, and open valve position. The indicating lights are powered from non-divisional power. Additionally, each valve is provided with an actuator which is used only during surveillance testing to verify the capability of the valve to fully open. These actuators are not required to function in order for the valve to perform its safety functions.

As described in CPS Updated Safety Analysis Report (USAR) Section 6.2, the drywell post-LOCA vacuum relief valves perform two basic safety functions:

- (1) The valves (i.e., the penetrations associated with these valves) must remain closed during the blowdown phase of a postulated Loss of Coolant Accident (LOCA) in order to maintain drywell integrity. Drywell integrity is required in order to minimize the amount of steam that bypasses the suppression pool and directly enters the containment atmosphere. If this steam bypass is greater than the design limit, overpressurization of the containment could result following a LOCA.
- (2) The valves must open following initiation of the drywell-containment atmosphere mixing system compressors (which are manually actuated approximately one hour after a postulated LOCA) in order to ensure that the drywell and containment hydrogen concentration does not exceed the flammability limit.

It should be noted that (even though the valves are identified as "drywell post-LOCA vacuum relief valves") no credit is taken for operation of the drywell post-LOCA vacuum relief valves for limiting the negative pressure of the drywell following a LOCA. Analyses presented in USAR Section 6.2.1.1.4.1 demonstrate that the drywell negative differential pressure design limit of 17 pounds per square inch differential (psid) is not exceeded during a design basis accident assuming that the drywell post-LOCA vacuum relief valves do not open.

Additionally, opening of the drywell post-LOCA vacuum relief valves is described in the containment negative pressure evaluation presented in USAR Section 6.2.1.1.4.2. (This analysis discusses a break in the Reactor Water Cleanup (RWCU) System piping inside the containment followed by an inadvertent initiation of the containment spray system.) The opening of the drywell post-LOCA vacuum relief valves, however, is a conservative assumption to support this bounding, conservative analysis and is not required to mitigate the effects of this event.

Each of the proposed changes and their impact on the above safety functions is discussed below.

#### Proposed Changes to Action "a"

Technical Specification 3.6.5 Action "a" addresses the condition in which a drywell post-LOCA vacuum relief valve is inoperable for opening but known to be closed. This Action Statement currently limits this type of inoperability to one drywell post-LOCA vacuum relief valve for 72 hours. Therefore, under the current format, if more than one vacuum relief valve is inoperable for opening, entry into Technical Specification 3.0.3 would be required and a plant shutdown would have to be immediately initiated. The proposed change to Action "a" would allow one or both valves in a single penetration to be inoperable for opening since, with respect to the penetration, it effectively makes no difference whether one or both valves are incapable of opening. (The penetration is inoperable either way with respect to supporting flow through the penetration.) This proposed change will therefore preclude unnecessary entry into Technical Specification 3.0.3 while the safety basis for these valves is being maintained.



This Action Statement is only applicable to drywell post-LOCA vacuum relief valves which are closed but not capable of opening at the required differential pressure. In this configuration, drywell integrity is maintained since the inoperable valve(s) is known to be closed. Additionally, the safety bases for opening are still maintained since only one penetration would be affected. However, the redundancy provided in the system design has been reduced with one vacuum relief penetration unavailable (to support flow through the penetrations). Therefore, this Action Statement will require that the opening function of the inoperable penetration be restored within 72 hours. This restoration time is consistent with the current Action requirements when one penetration is not capable of opening because of an inoperable valve and is justified based upon the low probability of an additional failure occurring coincident with an event requiring drywell vacuum relief valve operation during this time period.

#### Proposed Changes to Action "b"

Technical Specification 3.6.5 Action "b" addresses the condition in which a drywell post-LOCA vacuum relief valve is open. This Action Statement currently limits this condition to one drywell post-LOCA vacuum relief valve and requires the valve to be closed within one hour. If more than one vacuum relief valve is open, entry into Technical Specification 3.0.3 would be required and a plant shutdown would have to be immediately initiated. The proposed change to Action "b" would allow more than one vacuum relief valve to be open but would require that at least one vacuum relief valve in each penetration be closed within one hour. This proposed change would thus preclude unnecessary entry into Technical Specification 3.0.3 and yet supports the intent to maintain the plant configuration consistent with the definition of DRYWELL INTEGRITY.

Per Technical Specification 3.6.2.1, drywell integrity must be maintained while in Operational Conditions 1, 2, and 3. In the event drywell integrity is not maintained, the Action Statement for Technical Specification 3.6.2.1 requires drywell integrity to be restored within one hour. Ensuring that at least one drywell vacuum relief valve in each penetration is closed within one hour serves to restore drywell integrity within the time required by Technical Specification 3.6.2.1. It should also be noted that Technical Specification 3.6.2.2 requires that the drywell bypass leakage be limited to 10% of the acceptable design  $A/\sqrt{k}$  value of 1.18 ft<sup>2</sup>. The additional  $A/\sqrt{k}$  area of one open penetration is approximately 0.22 ft<sup>2</sup> (approximately 18.4% of the design value). Therefore, assuming that drywell bypass leakage is initially at the 10% limit of Technical Specification 3.6.2.2, the design  $A/\sqrt{k}$  limit of 1.18 ft<sup>2</sup> would not be exceeded, even with all four penetrations fully open. As a result, the capability of the drywell to perform its safety function would be preserved. The remaining functions of the drywell post-LOCA vacuum relief valves would also be unaffected since these valves would remain capable of opening.

Proposed Changes to Action "c"

Technical Specification 3.6.5 Action "c" addresses the condition in which a drywell post-LOCA vacuum relief valve position indicator is inoperable. This Action Statement currently limits this condition to one drywell post-LOCA vacuum relief valve and requires the valve to be verified to be closed at least once per 24 hours by visual inspection. Under the current format, if more than one vacuum relief valve position indicator is inoperable, entry into Technical Specification 3.0.3 would be required and a plant shutdown would have to be immediately initiated. The proposed change to Action "c" would allow the position indication for any number of vacuum relief valves to be inoperable as long as at least one valve in each affected penetration is verified to be closed at least once per 24 hours. This would preclude unnecessary entry into Specification 3.0.3 and thus potentially prevent an unnecessary plant shutdown. The requirement to verify that at least one valve in each affected penetration is closed would continue to provide confidence that each affected penetration is closed for supporting drywell integrity.

In addition, it is recognized that inoperability of the position indication alone does not affect the capability of the drywell post-LOCA vacuum relief valve(s) to perform its required function. [Regarding operability of the valve(s) with respect to its capability to open, successful performance of Surveillance Requirement 4.6.5.b.2 verifies operability. Inoperability for opening is addressed by Action "a".] With respect to the valve-full-open position indication, the drywell vacuum relief valves are passive; there is no operator action involved in the operation of these valves. Moreover, other means exist to verify that the valves have opened to perform their opening functions (combustible gas control system operation and pressure relief). There are instrument indications available for other applicable parameters such as drywell and containment pressure, drywell and containment hydrogen levels, etc. Therefore, the proposed revision to Action "c" is justified as it is also consistent with the current Action "c" specified for inoperable position indication for only one valve.

This proposed change would also add an exception to the provisions of Technical Specification 3.0.4 to allow plant mode changes when a drywell post-LOCA vacuum relief valve position indicator(s) is inoperable. As discussed above, inoperability of drywell post-LOCA vacuum relief valve position indication alone does not cause the affected valve to become incapable of performing its intended functions. Verification that the penetration is closed at least once per 24 hours supports drywell integrity. Therefore, it is overly restrictive to prohibit plant startup and mode changes when only the vacuum relief valve's position indication is inoperable.



#### Proposed Addition of Footnote "\*\*\*"

Technical Specification 3.6.5 currently requires all eight drywell post-LOCA vacuum relief valves to be operable and closed. As previously discussed, the CPS design incorporates two valves in series in four separate drywell penetrations. In the event that any of these valves or position indicators become inoperable, the proposed Action Statements require that the affected penetration be verified to be isolated by at least one drywell post-LOCA vacuum relief valve in the closed position. In the event that the affected valve(s) is the inboard valve, the outboard valve may be required to be opened to allow visual observation of inboard valve disk position or operation. A footnote has therefore been proposed (footnote "\*\*\*") to allow opening a valve(s)\*, which may be required to be closed per the Action Statements, on an intermittent basis under administrative control to perform required surveillance testing or repairs. These administrative controls include limiting the use of this footnote only to perform required surveillances and necessary repairs, and minimizing the length of time a penetration is open. Additionally, functional testing of the drywell-containment atmosphere mixing compressors on a quarterly basis in accordance with Technical Specification Surveillance Requirement 4.6.7.2.a causes these valves to open. The proposed footnote will thus provide the required flexibility needed to maintain compliance with Technical Specification 3.6.5 while performing surveillance testing required by Technical Specification 4.6.7.2.a.

#### Basis For No Significant Hazards Consideration

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) With the proposed changes, the Technical Specifications will still ensure that the drywell post-LOCA vacuum relief valves can perform their required safety functions. Specifically, the revised Action "a" would still ensure that the minimum number of valves/penetrations remain available to perform the opening functions of these valves/penetrations; revised Actions "b" and "c" and the proposed footnote "\*\*\*" would still ensure that each drywell vacuum relief penetration is sufficiently closed to maintain the drywell bypass leakage within the limits of the plant design and the current Action Statements for DRYWELL INTEGRITY. As a result, plant operation would continue to be maintained within the bounds of the current safety analyses. Therefore, these proposed changes do not result in a significant increase in the probability or the consequences of any accident previously evaluated.

\* As stated above, the additional  $A/\sqrt{K}$  area of one open penetration is approximately  $0.22 \text{ ft}^2$ . As a result, even with all four penetrations fully open, the design  $A/\sqrt{K}$  limit of  $1.18 \text{ ft}^2$  would not be exceeded.

- (2) The proposed changes do not involve any change to the plant design. Therefore, no new failure modes are involved, and plant operation continues to be limited to the bounds of the current safety analyses. As a result, these proposed changes cannot create the possibility of a new or different kind of accident from any accident previously evaluated.
- (3) The incorporation of the proposed changes into the Technical Specifications will not adversely impact the capability of the drywell post-LOCA vacuum relief valves to perform their required safety functions. Additionally, plant operation will continue to be limited to the bounds of the current safety analyses. Therefore, these proposed changes do not involve a significant reduction in a margin of safety.

Based upon the foregoing, IP concludes that these proposed changes involve no significant hazards considerations.

#### Proposed Bases Changes

The current Bases for Technical Specification 3/4.6.5 do not reflect that USAR Section 6.2.1.1.4.1 does not take credit for operation of the drywell post-LOCA vacuum relief valves in mitigating the negative pressure effects on the drywell following a design basis accident. The analyses presented in USAR Section 6.2.1.1.4.1 demonstrate that the drywell negative pressure design limit is not exceeded during this event when the drywell post-LOCA vacuum relief valves are assumed to remain closed.

Additionally, the current Bases for Technical Specification 3/4.6.5 do not acknowledge that opening of these valves is required to support operation of the drywell-containment atmosphere mixing system in maintaining hydrogen concentrations below the flammability limit as described in USAR Section 6.2.5.1.2.2.

Therefore, the Bases for Technical Specification 3/4.6.5 are being revised to correctly address the applicable safety functions. Further, additional information regarding the configuration of these valves has been added to the Bases.