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U-603422
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October 02, 2000

Docket No. 50-461

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

Subject: Clinton Power Station Inclined Fuel Transfer System
Blind Flange Removal and Storage of New Fuel In
Upper Containment Fuel Storage Pool During Power Operations

Dear Madam or Sir:

On October 3, 1996, the Nuclear Regulatory Commission (NRC) issued License Amendment 107 to the Clinton Power Station (CPS) Operating License No. NPF-62 approving removal of the Inclined Fuel Transfer System (IFTS) primary containment blind flange while primary containment integrity is required. The original basis for this amendment was to provide flexibility to operate the IFTS for the purpose of testing and exercising the system prior to a refueling outage. Per the amendment, no particular time limit on how long the flange could be removed was imposed. However, certain administrative controls are required to be met while the flange is removed, including stationing an individual at the IFTS controls who is responsible for closing the IFTS drain valves in the event of such a need. On this basis, opening of the IFTS flange during plant operation was not intended to be a long term configuration, as the configuration permitted by the amendment was determined to provide an acceptable barrier as a short-term provision of the Technical Specifications.

The purpose of this letter is to inform the NRC of two changes regarding the control of the IFTS blind flange and use of the IFTS with the blind flange removed. Specifically, AmerGen Energy Company, LLC (AmerGen) is hereby informing the NRC of (1) the establishment of a time limit on how long the IFTS primary containment blind flange can be removed during plant operation during each operating cycle, and (2) a recent decision to use the IFTS to transfer new fuel to the upper containment pool in preparation for the upcoming refueling outage. The first change is based on a risk evaluation specifically completed in support of the change, and the second change is based on an evaluation completed in accordance with 10 CFR 50.59. Attachment 1 to this letter provides the background, description and justification for these changes, including summaries of the associated risk and 10 CFR 50.59 evaluations.

A001

Sincerely yours,

Paul D. Hinnenkamp
CPS Plant Manager

JLP/blf

Attachment

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

BACKGROUND

In letters U-602587 dated June 28, 1996, and U-602628 dated September 17, 1996, Clinton Power Station (CPS) requested approval of a change to the CPS Technical Specifications that would permit removal of the Inclined Fuel Transfer System (IFTS) primary containment blind flange while primary containment integrity is required per Technical Specification (TS) 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)." On October 3, 1996, the Nuclear Regulatory Commission (NRC) issued License Amendment 107 to the CPS Operating License approving the requested change, thus providing the flexibility to operate the IFTS for the purpose of testing and exercising the system prior to a refueling outage.

TS 3.6.1.3 Surveillance Requirement (SR) 3.6.1.3.3 contains a requirement to "verify each primary containment isolation manual valve and blind flange that is located inside primary containment, drywell, or steam tunnel and is required to be closed during accident conditions is closed," prior to entering Mode 2 or 3 from Mode 4, if not performed within the previous 92 days. License Amendment 107 added a conditional note (Note 3) to SR 3.6.1.3.3 stating that this SR is "not required to be met for the Inclined Fuel Transfer System (IFTS) penetration when the associated primary containment blind flange is removed, provided that the fuel building fuel transfer pool water level is maintained $\geq$ el. 753 ft. and the IFTS transfer tube drain valve(s) remain(s) closed, except that the IFTS tube drain valve(s) may be opened under administrative controls."

The basis for the acceptability of the approved change is that the water seal formed by the fuel building fuel transfer pool (in which the IFTS transfer tube terminates), the integrity of the inclined fuel transfer tube itself, and the administrative controls required by the specification provide an acceptable containment barrier.

Establishment of Administrative Controls During Inclined Fuel Transfer System Blind Flange Removal

Administrative controls were established for the IFTS drain line valves because of the potential for the drain line to be a bypass path around the water seal created by the spent fuel pool (when the IFTS transfer tube is in the drained condition during IFTS operation). The administrative controls, as currently described in the Bases for TS SR 3.6.1.3.3, state that the individual at the IFTS control panel in the fuel building is in continuous communication with the main control room and is responsible for closing the automatic IFTS tube drain valve (1F42-F003) from the IFTS control panel in the event of such a need. Once this action is accomplished, the individual can then leave the IFTS control panel and locally close the associated manual valve (1F42-F301) using the operator mounted on the top of the valve. These actions allow the containment penetration to be isolated in a rapid manner when required.

The NRC accepted the above administrative controls on the basis that the time that the drain valve would be open is minimized. For the IFTS transfer tube in general, the NRC recognized that a satisfactory check of the entire IFTS may take several days, and stated that having the IFTS blind flange open for such testing and inspections during the last few weeks prior to a planned refueling outage is reasonable and acceptable.

In the TS Bases discussion for SR 3.6.1.3.3, however, there is no specified time limit on how long the IFTS blind flange can be removed during plant operation. A time limit was not specified in the request for CPS License Amendment 107 because the expected duration of blind flange removal is small compared to the overall length of the operating cycle. Further, with respect to the impact on containment isolation capability and the potential for a large early release, it was noted in the request that the fuel building spent fuel pool (at the lower end, outboard side of the IFTS) provides a water seal to prevent release in the event of a design basis accident involving fuel damage. (This results in no increase in the analyzed large early release frequency (LERF), as further addressed below.) Although there is also a potential release path via the IFTS drain valve, as noted previously (and in the original amendment request), closure of this valve is administratively controlled. It was therefore noted in the request that these controls and conditions provide an acceptable barrier under the intended short-term provision that was requested to be incorporated into the Technical Specifications.

Notwithstanding the fact that no time limit was proposed in the original amendment request on how long the IFTS flange may be open during plant operation, AmerGen has determined that a specific time limit should be imposed. Such a time limit, based on risk, has now been established, and AmerGen has concluded that the established time limit does not affect the conclusions made in the NRC's Safety Evaluation for License Amendment 107.

Specifically, a probabilistic risk analysis was performed at CPS to evaluate the increase in containment failure rate given IFTS being in service for 40 days during power operation. There is no calculated increase in the core damage frequency, because having IFTS in operation does not affect the reliability of equipment used for core cooling. With regard to containment impact, the estimated increase in containment failure rate is about 1E-7 per year. The Large Early Release Frequency contribution due to this condition is much less than this because the large majority of containment failure sequences would involve a scrubbed release through the suppression pool. The conclusions of the NRC safety evaluation allowing the opening of the IFTS flange during operation are therefore supported by the low risk associated with such a configuration.

The 40-day limit per operating cycle will be specified in the TS Bases for SR 3.6.1.3.3 and will be tracked in a CPS cumulative data tracking procedure. It should be noted that in addition to the administrative controls discussed above, AmerGen procedurally requires the CPS Steam Dryer Pool to Reactor Cavity Pool gate to be installed with the seal inflated and a backup air supply provided, prior to removing the IFTS blind flange when Primary Containment is required to be OPERABLE. This action is taken to ensure that an adequate containment upper pool dump volume is maintained to support suppression pool makeup volume requirements.

Storage of New Fuel in Upper Containment Fuel Storage Pool

Following IFTS testing and system exercising, under the administrative controls associated with the IFTS blind flange removal described above, AmerGen is planning to move new fuel to the upper containment fuel storage pool using the IFTS in preparation for refueling outage No. 7 (RF-7) scheduled to begin October 14, 2000. Further, AmerGen plans to use the IFTS for this purpose for future refueling outages as well. Use of the IFTS in this manner is a change in commitment since the NRC accepted License Amendment 107 on the basis that the IFTS flange may be opened during plant operation for testing purposes only. Consequently, the original license amendment request and the NRC safety evaluation for the amendment do not discuss the use of IFTS to move new fuel to the upper containment fuel storage pool during normal operations.

Because there is a desire to move new fuel to the upper containment fuel storage pool in advance of RF-7 (and in advance of future refueling outages), AmerGen evaluated this activity in a 10CFR50.59 safety evaluation approved by the CPS Facility Review Group on September 20, 2000. The safety evaluation determined that the transport of new fuel into the upper containment, the storage of new fuel in the upper containment, and the continued use of the IFTS for testing and exercising, during plant operation, does not increase the probability or consequences of an accident previously evaluated in the safety analysis report (SAR), increase the probability or consequences of a malfunction previously evaluated in the SAR, create the possibility of a new type of accident or equipment malfunction, nor decrease any margin of safety as defined in the basis for any technical specification. These conclusions were based on several considerations, including the following:

- the effects of the weight of the fuel bundles on the drywell/containment structure, fuel racks and other components in combination with LOCA generated hydrodynamic loads;
- the effect of the bundles on hydrogen generation during a LOCA;
- the impact on suppression pool make-up (considering administrative controls requiring installation of the gate between the reactor well pool and fuel storage pool);
- consideration of containment isolation/integrity during fuel movement between the fuel building and containment building should a LOCA occur;
- the effect on the probability and consequences of fuel handling accidents;
- the effect on miscellaneous activities performed in the vicinity of the fuel storage racks and transfer equipment (e.g., movement and storage of equipment);
- and consideration of the current license conditions regarding storage of new fuel.

Based on the above, storage of new fuel in the upper containment fuel storage racks has been determined to not constitute an unreviewed safety question.