Attachment C

Proposed changes to Appendix A, Technical Specifications
Facility Operating License NPF-11

NPF-11

5-5

5.6 FUEL STORAGE

CRITICALITY

5.6.1 The spent fuel storage racks are designed and shall be maintained with:

a. A k_{eff} equivalent to $\leq$ 0.95 when flooded with unborated water, including all calculational uncertainties and biases, as described in Section 9.1 of the FSAR.

b. A nominal 7 (6.26) inch center-to-center distance between fuel assemblies placed in the storage racks.

5.6.1.2 The k_{eff} for new fuel for the first core loading stored dry in the spent fuel storage racks shall not exceed 0.95 when flooded with water.

DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 819 feet.

CAPACITY

5.6.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1120 (3386) fuel assemblies.

5.7 COMPONENT CYCLIC OR TRANSIENT LIMIT

5.7.1 The components identified in Table 5.7.1-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7.1-1.

Attachment D

Evaluation of Significant Hazards Consideration

Commonwealth Edison has determined that the proposed Technical Specification Amendment involves No Significant Hazards Consideration based on the criteria established in 10CFR50.92. In support of this determination, a discussion of each of the criteria is presented below.

1) Would operation of the facility in accordance with the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

In the course of the analysis, CECo has considered the following potential accident scenarios:

1 A fuel assembly drop in the spent fuel pool.

2. Tool drops from the elevated worktable.

3. Loss of spent fuel pool cooling system flow.

4. A seismic event.

5. Rack (heavy load) drop during construction

It has been concluded that the proposed modification to the spent fuel pool does not increase the probability of accident scenarios 1-4 since the increase in storage capacity is not assumed to be an initiator of events involving the loss of spent fuel pool cooling, a dropped spent fuel assembly in the spent fuel pool, or a seismic event. A tool drop from the elevated worktable, although not a previously analyzed accident, is bounded by the consequences of the fuel drop accident.

CECo has also considered the probability of an accident resulting from a postulated rack (heavy load) drop during the construction process. LaSalle Technical Specification 3.9.7.b. restricts movement of loads heavier than the weight of a single spent fuel assembly from being carried over fuel stored in the spent fuel pool. All work in the spent fuel pool area will be controlled and performed in strict accordance with specific written procedures and administrative controls to prevent the movement of a rack directly over any fuel, all of which will be stored in the Unit 2 Spent Fuel Storage Pool. Therefore the probability of an accident resulting from the drop of a rack module on spent fuel is precluded.

The storage rack movements will be accomplished using the LaSalle Reactor Building crane, which has a rated capacity of 125 tons. The maximum weight of any existing or replacement storage rack and its associated handling tool is approximately 15 tons. Therefore, there is ample safety margin for movements of the storage racks by the Reactor Building crane. This applies to non-redundant load-bearing components. Redundant

special lifting devices, which have a rated capacity sufficient to maintain sufficient safety factors, will be utilized in themovements of the storage racks. Per NUREG-0612, Appendix B, the safety margin ensures that the probability of a drop is extremely low.

The Reactor Building crane, which does not comply with single failure proof criteria of NUREG-0612, nevertheless meets the intent of NUREG-0612 in so far as the ratio of the ultimate capacity of the crane (125% of 125 tons) to the maximum load being lifted (15 tons plus auxiliaries) is greater than 10.

Accordingly, the proposed Technical Specification and the associated modification does not involve an increase in the probability of an accident previously evaluated, or an accident of a different type.

CECo has evaluated the consequences of a fuel assembly drop in the spent fuel pool and determined that the criticality acceptance criterion, $k_{eff} \leq 0.95$, is not violated. In addition, CECo determined that the radiological consequences of a fuel assembly drop are bounded by the UFSAR analyses. Analyses demonstrate that the calculated doses are well within 10 CFR Part 100 guidelines. The results of an analysis show that a dropped fuel assembly on the racks will not distort the racks such that stored fuel assemblies would be impacted. Thus, the consequences of this type of accident are not significantly changed from the previously evaluated spent fuel assembly drops.

The spent fuel pool system is a passive system with the exception of the Fuel Pool Cooling and Clean-up system and HVAC equipment. The redundancies in the cooling system and the HVAC hardware are not reduced by the planned storage densification. The extent of active hardware in these systems is only marginally changed. Therefore, the probability of occurrence or malfunction of safety equipment leading to loss of spent fuel pool cooling flow is not increased.

The consequences of a loss of spent fuel pool cooling system flow have been evaluated and it was determined that sufficient time remains available to provide an alternate means for cooling in the event of a complete failure of the cooling system. Thus, the consequences of this type of accident are not increased from previously evaluated loss of cooling system flow accidents.

The consequences of a seismic event have been evaluated. The new racks are designed and will be fabricated to meet the requirements of applicable portions of the NRC Regulatory Guides and published standards. The new free-standing racks are designed so that the integrity of both the racks and the pool structure is maintained during and after a seismic event with no resultant damage to stored fuel. Thus, the consequences of a seismic event are not increased from previously evaluated events.

The probability and consequences of a spent fuel cask drop will not be affected by the replacement of the racks. LaSalle Technical Specification 3.9.7, restricts movement of spent fuel casks from traveling over any region of the spent fuel pool. During the reracking of the Unit 1 Spent Fuel Storage Pool, all spent fuel will be stored in the Unit 2 Spent Fuel Storage Pool.

The consequences of a rack (heavy load) drop during construction have been considered. There is no equipment which is essential to the safe shutdown of the reactor or employed to mitigate the consequences of an accident which is beneath, adjacent to or otherwise within the area of influence of any loads that will be handled during the expansion modification. An analysis was also performed to determine the effect on the integrity of the spent fuel pool structure following the free fall of the heaviest rack module. The analysis concluded that the maximum load due to the rack drop event is well below the cumulative impact load produced during the seismic event, and as such is bounded by the seismic analysis. Therefore, the consequences of a rack (heavy load) drop during construction are not increased from previously evaluated events.

In summary, it is concluded that the proposed amendment to replace the spent fuel racks in the Unit 1 spent fuel pool does not involve an increase in the probability or consequences of an accident previously evaluated.

2) Would operation of the facility in accordance with the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

CECo has evaluated the proposed modification in accordance with the guidance of the NRC Position Paper, "OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications," appropriate NRC Regulatory Guides, appropriate NRC Standard Review Plans, and appropriate Industry codes and standards. In addition, CECo has reviewed several previous NRC Safety Evaluation Reports for rerack applications similar to this proposed modification.

No unproven technology will be utilized either in the construction process or in the analytical techniques necessary to justify the planned fuel storage expansion. The basic reracking technology in this instance has been developed and demonstrated in other applications for fuel pool capacity increases previously approved by the NRC.

Based upon the foregoing, CECo concludes that the proposed Technical Specification and associated reracking modification does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3) Would operation of the facility in accordance with the proposed amendment involve a significant reduction in the margin of safety?

The NRC Staff safety evaluation review process has established that the issue of margin of safety, when applied to a reracking modification, should address the following areas:

1. Nuclear criticality considerations,

2. Thermal-hydraulic considerations, and

3. Mechanical, material, and structural considerations.

The established acceptance criterion for criticality is that the neutron multiplication factor in spent fuel pools shall be less than or equal to 0.95, including all uncertainties, under all conditions. This margin of safety has been adhered to in the criticality analysis methods for the new rack design.

The methods used in the criticality analysis conform to the applicable portions of the appropriate NRC guidance and industry codes, standards, and specifications. In meeting the acceptance criteria for criticality in the spent fuel pool, the analyses showed that k_{eff} is always less than 0.95, including uncertainties at a 95% confidence and 95% probability. Therefore, the proposed amendment does not involve a reduction in the margin of safety for nuclear criticality, as defined in the UFSAR.

The K-infinity criticality approach for allowing storage of advanced fuel designs in the new Unit 1 fuel racks includes the same type of conservatisms that were used in the original analysis performed for the new spent fuel storage racks. Therefore, the use of the K-infinity analysis does not involve a reduction in the margin of safety for nuclear criticality.

Conservative methods were used to calculate the maximum fuel cladding temperature and the increase in temperature of the water in the spent fuel pool. The thermal-hydraulic evaluation used the methods previously employed for evaluations of previously licensed high density spent fuel racks to demonstrate that adequate temperature margin is maintained. The proposed modification will increase the heat load in the spent fuel pool. However, the evaluation shows that the existing spent fuel cooling system will maintain the bulk pool water temperature at or below 140 °F with both cooling trains in operation. Thus, it is demonstrated that the peak value of the pool bulk temperature is lower than the temperature guidelines for both normal and abnormal conditions specified in the Standard Review Plan, Section 9.1.3. The evaluation also shows that maximum local water temperatures along the hottest fuel assembly are below the nucleate boiling condition value. Thus, there is no reduction in the margin of safety for thermal hydraulic or spent fuel cooling concerns as defined in the UFSAR.

The main safety function of the spent fuel pool and the racks is to maintain the spent fuel assemblies in a safe configuration through all normal or abnormal loadings. Abnormal loadings which have been considered are the effect of an earthquake and the impact due to the drop of a spent fuel assembly. The mechanical, material, and structural design of the new spent fuel racks is in accordance with applicable portions of "NRC OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications," dated April 14, 1978, as modified January 18, 1979 and other applicable NRC guidance and industry codes. The rack materials used are compatible with the spent fuel pool and the spent fuel assemblies. The structural considerations of the new racks address margins of safety against tilting and deflection or movement, such that the racks, if they do impact each other during the postulated seismic events, will only come in contact with each other at locations designed for that purpose. In addition the spent fuel assemblies remain intact and no criticality concerns exist. Thus the margins of safety as defined in the UFSAR are not reduced by the proposed rerack.

The Finite Element Method was used to evaluate the margins of the spent fuel pool concrete structure. The evaluation demonstrates that the strength margin of safety of the fuel pool structure is maintained.

From the foregoing, it is concluded that the margin of safety against nuclear criticality, structural integrity and material compatibility are consistent with the provision of the LaSalle UFSAR and USNRC regulations. The new worse case maximum bulk pool water temperature is 140 °F. This is found to result in a negligible decrease in the time-to-boil stated in the UFSAR. The margin of safety in the pool structure due to thermal loadings is well within the UFSAR specifications.

In summation, it has been shown that the proposed spent fuel storage facility modifications do not:

1. Involve a significant increase in the probability or consequences of an 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.

Thus, CECo has determined that the proposed amendment does not involve significant hazards considerations, and that the criteria specified in 10 CFR 50.92 have accordingly been met. In addition, the proposed amendment most closely resembles example (X) of "Amendments That Are Considered Not Likely to Involve Significant Hazards Considerations" as provided in the final NRC adoption of 10 CFR 50.92 published on page 7751 of the Federal Register Volume 51, No.44, March 6, 1986. This example indicates that an amendment is not likely to involve a significant hazards consideration as follows:

(X) An expansion of the storage capacity of a spent fuel pool when all of the following are satisfied:

1) The storage expansion method consists of either replacing existing racks with a design which allows closer spacing between stored spent fuel assemblies or placing additional racks of the original design on the pool floor if space permits.

The LaSalle spent fuel pool rerack involves the replacement of the present capacity racks with a design which allows closer spacing of the stored spent fuel cells.

2) The storage expansion method does not involve rod consolidation or double tiering.

The LaSalle racks are not double tiered and all racks will sit on the spent fuel pool floor. In addition, the amendment application does not involve rod consolidation of spent fuel.

3) The k_{eff} of the pool is maintained less than or equal to 0.95.

The design of the new spent fuel racks contains a neutron absorber, Boral™, to ensure that the k_{eff} remains less than 0.95 under all conditions (with unborated water in the pool).

4) No new technology or unproven technology is utilized in either the construction process or the analytical techniques necessary to justify the expansion.

The rack design has been licensed for use at other nuclear utilities. The technology for the construction processes and analytical techniques remain substantially the same as those utilized by other utilities in completing their storage rack projects. Thus, no new or unproven technology is utilized in the construction or analysis of the proposed LaSalle spent fuel racks.

Thus, this submittal meets example (X) as presented in the supplementary information accompanying publication of the Final Rule as an example of situations which are considered not to involve significant hazards considerations.

Based on the foregoing, CECo has concluded that all criteria for issuance of a No Significant Hazard statement are satisfied.

Attachment E

Environmental Assessment

The proposed changes in this amendment request have been evaluated against the criteria for and identification of licensing and regulatory actions requiring environmental assessment in accordance with 10CFR51.21. It has been determined that the proposed changes meet the criteria for categorical exclusion as provided for under 10CFR51.22(c)(9). The following is a discussion of how the proposed changes meet the criteria for categorical exclusion:

10CFR51.22 (c)(9): The proposed changes do involve changes to the installation or use of facility components, however,

(i) the proposed changes involve no significant hazards consideration (Refer to Attachment D, Significant Hazards Consideration)

(ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and

(iii) there is no significant increase in individual or cumulative occupational radiation exposure

Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion stated in 10CFR51.22 (c)(9). Therefore, in accordance with 10CFR51.22(b), no environmental assessment nor environmental impact statement is necessary to support the proposed changes of this amendment request.