Omaha Public Power District

444 South 16th Street Mall
Omaha NE 68102-2247

June 2, 2006
LIC-06-0063

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

References:
1. Docket No. 50-285
2. Letter from OPPD (D. J. Bannister) to NRC (Document Control Desk) dated March 17, 2006, "Commitment to Fuel Storage Area Radiation Monitoring for 10 CFR 50.68(b)" (LIC-06-0029)

SUBJECT: Fort Calhoun Station, Unit No. 1, Exigent License Amendment Request, Deletion of Design Features Technical Specifications Redundant to 10 CFR 50.68, "Criticality Accident Requirements"

Pursuant to 10 CFR 50.91(a)(6), Omaha Public Power District (OPPD) hereby submits an exigent license amendment request (LAR) deleting Technical Specification (TS) 4.3.1.2b and TS 4.3.1.2c of the Fort Calhoun Station, Unit No. 1 (FCS) Technical Specifications. OPPD also proposes an administrative change to TS 4.3.1.2. There is actually only one new fuel storage rack installed at FCS while the current wording of TS 4.3.1.2 and TS 4.3.1.2d implies that more than one rack is installed.

TS 4.3.1.2b and TS 4.3.1.2c contain requirements related to the estimated ratio of neutron production to neutron absorption and leakage (k_{eff}) of new fuel stored in the new fuel storage rack. The Specifications require new fuel assemblies stored in the new fuel storage rack to remain subcritical if flooded with unborated water (TS 4.3.1.2b) or moderated by aqueous foam (TS 4.3.1.2c).

OPPD has documented compliance (Reference 2) with 10 CFR 50.68(b)(2) and (b)(3) which allow crediting of design features and/or administrative controls to maintain the associated k_{eff} limits. OPPD recently determined that the k_{eff} limits of TS 4.3.1.2b and 4.3.1.2c cannot be met without taking credit for design features and/or administrative controls, which is not allowed by the current Specifications. Since the k_{eff} limits of TS 4.3.1.2b and 4.3.1.2c are redundant to 10 CFR 50.68(b)(2) and (b)(3), OPPD concludes that the proposed amendment deleting these Specifications presents no significant hazards considerations under the standards set forth in 10 CFR 50.92(c).

FCS is scheduled to receive new fuel as early as July 11, 2006 for a refueling outage scheduled to begin September 9, 2006. It will be necessary to store this fuel in the new fuel storage rack. There is insufficient room remaining in the spent fuel pool storage

racks to accommodate both full core offload and interim storage of the new fuel assemblies. Therefore, OPPD respectfully requests approval and issuance of this amendment request on an exigent basis no later than July 3, 2006 with a 7-day implementation period.

Attachment 1 provides a description of the proposed change, and a description of the design features and administrative controls that demonstrate compliance with 10 CFR 50.68(b)(2) and (b)(3). Attachment 2 provides the existing TS pages marked up to show the proposed change. Attachment 3 provides revised (clean) TS pages. Attachment 4 contains an explanation of the exigency and why the situation could not have been avoided. Attachment 4 also contains a list of the commitment(s) made in this letter.

I declare under penalty of perjury that the foregoing is true and correct. (Executed on June 2, 2006).

If you have any questions or require additional information, please contact Mr. Thomas C. Matthews at (402) 533-6938.

Sincerely,

J. A. Reinhart
Site Director
Fort Calhoun Station

JAR/MLE/mle

Attachments:

1. Omaha Public Power District Evaluation
2. Markup of Technical Specification Pages
3. Proposed Technical Specifications (clean)
4. Explanation of the Exigency and Why the Situation Could Not Have Been Avoided & List of Commitment(s)

cc: Director of Consumer Health Services, Department of Regulation and Licensure, Nebraska Health and Human Services, State of Nebraska

Omaha Public Power District's Evaluation
For
Amendment of Operating License

1.0 DESCRIPTION

This letter is a request to amend Operating License DPR-40 for Fort Calhoun Station, Unit No. 1 (FCS).

2.0 PROPOSED CHANGE

TS 4.3.1.2 and TS 4.3.1.2d currently indicate that FCS possesses new fuel storage racks. In actuality, only one new fuel storage rack is installed. These Specifications are revised to eliminate this discrepancy. This is considered an administrative change.

TS 4.3.1.2b states that k_{eff} of the new fuel storage rack must be less than or equal to 0.95 if fully flooded with unborated water, which includes an allowance for uncertainties. It is proposed that this Specification be deleted as the k_{eff} limits are redundant to 10 CFR 50.68(b)(2) which states:

The estimated ratio of neutron production to neutron absorption and leakage (k-effective) of the fresh fuel in the fresh fuel storage racks shall be calculated assuming the racks are loaded with fuel of the maximum fuel assembly reactivity and flooded with unborated water and must not exceed 0.95, at a 95 percent probability, 95 percent confidence level.

However, TS 4.3.1.2b does not allow crediting of administrative controls and/or design features as does 10 CFR 50.68(b)(2) which states:

This evaluation need not be performed if administrative controls and/or design features prevent such flooding or if fresh fuel storage racks are not used.

TS 4.3.1.2c states that k_{eff} of the new fuel storage rack must be less than or equal to 0.98 if moderated by aqueous foam, which includes an allowance for uncertainties. It is proposed that this Specification be deleted as the k_{eff} limits are redundant to 10 CFR 50.68(b)(3) which states:

If optimum moderation of fresh fuel in the fresh fuel storage racks occurs when the racks are assumed to be loaded with fuel of the maximum fuel assembly reactivity and filled with low-density hydrogenous fluid, the k-effective corresponding to this optimum moderation must not exceed 0.98, at a 95 percent probability, 95 percent confidence level.

However, TS 4.3.1.2c does not allow crediting of administrative controls and/or design features as does 10 CFR 50.68(b)(3) which states:

This evaluation need not be performed if administrative controls and/or design features prevent such moderation or if fresh fuel storage racks are not used.

3.0 BACKGROUND

At FCS, with licensed enrichment levels, the special nuclear material (SNM) in the fuel assemblies cannot achieve criticality without both a critical configuration and the presence of a moderator. The new fuel storage rack is designed and analyzed to prevent inadvertent criticality assuming credit for design features and administrative controls. In addition, Criterion 66 of Appendix G of the FCS USAR (See Section 5.2 below) reinforces prevention of criticality in fuel storage and handling. Fuel handling at FCS occurs only under strict procedural control and supervision, including the use of certified fuel handlers.

FCS operates on an 18-month refueling cycle. Therefore, new fuel is typically received and stored in the new fuel storage rack for 1 to 3 months out of 18. The new fuel storage rack is located south of the fuel transfer canal at the 1025-foot level of the Auxiliary Building in the New Fuel Receipt and Storage Room (Room 25A). The rack is on an elevated balcony above the general floor area to minimize the likelihood of flooding. The rack is vertically oriented to provide adequate drainage in the unlikely event that any water intrusion occurs. The rack is designed to hold 48 new fuel assemblies, which are stored dry. One cell has a manufacturing defect and is not utilized for storage. The spacing between the new fuel assemblies and the rack's solid neutron absorbers (Boral^{TM}) is sufficient to maintain the dry fuel array subcritical. (Reference 7.1)

Nuclear fuel is moved between the NRC-approved shipping containers, the new fuel receipt inspection stands, the new fuel storage rack, the reactor vessel, and the spent fuel pool to accommodate refueling operations. In all cases, fuel movements are procedurally controlled and designed to prevent criticality. For example, during new fuel receipt inspection, FCS fuel handling procedures allow a maximum of two fuel assemblies to be in the inspection stands in the receipt area (out of the shipping container and not in the new fuel storage rack). However, when installed in the inspection stands, both assemblies have an edge-to-edge separation distance in excess of 14 feet. This geometric spacing is well in excess of that maintained by the NRC-approved shipping container (approximately 3 inches).

Aqueous foam (AF) is a fire-fighting agent. AF contains bubbles that act as a surfactant to coat and penetrate ordinary fuels e.g., wood, paper (Class A material) to prevent them from burning at normal temperatures. AF is also used on oil/gasoline (Class B material) fires. AF is applied using an eductor or compressed air foam system (CAFS) and is pumped through a fire hose to a foam nozzle (or sometimes a less-effective fog nozzle). AF will provide optimal moderation of nuclear fuel equivalent to a low-density hydrogenous fluid, which may also result from a water based mist or fog.

4.0 TECHNICAL ANALYSIS

The revision to TS 4.3.1.2 and TS 4.3.1.2d eliminates a discrepancy regarding the number of new fuel storage racks at FCS. FCS possesses only one new fuel storage rack and the elimination of this discrepancy is administrative in nature.

Technical Specifications 4.3.1.2b and 4.3.1.2c can be deleted as they are redundant to 10 CFR 50.68(b)(2) and (b)(3) respectively and these design requirements are also contained in Appendix G of the USAR (Criterion 66). To prevent a criticality accident, 10 CFR 50.68(b)(2) requires that the new fuel storage rack maintain k_{eff} less than or equal to 0.95 if the rack is flooded by unborated water. 10 CFR 50.68(b)(3) requires that k_{eff} be maintained less than or equal to 0.98 under the condition of optimum moderation resulting from filling the new fuel storage rack with low-density hydrogenous fluid. The regulation further states that evaluations need not be performed if administrative controls or design features prevent such moderation.

For the purpose of this discussion, optimal moderation is assumed to occur from either a water-based mist/fog (low-density hydrogenous fluid) or AF resulting from fire fighting in this area. No other credible source of low-density hydrogenous fluid/AF exists. The source of unborated water is also assumed to be from fire fighting activities since no other source of unborated water sufficient to flood the rack is credible given its location and design. An automatic fire protection sprinkler system does not exist in this area and there is no automatic or unattended source of unborated water, low-density hydrogenous fluid, or AF to provide moderation.

Compliance with 10 CFR 50.68(b)(2) and (b)(3) is achieved using design features and administrative controls as described below.

Design Features

The Auxiliary Building is a seismic Class 1 structure with a roof made of concrete. Therefore, roof failure allowing water intrusion into Room 25A is not considered credible. Two small (4-inch) stainless steel pipes pass through Room 25A carrying borated water discharged from the fuel transfer canal drain pumps. The piping is only in service during a small fraction of the year and is lightly stressed (40 psi) such that even if there were a failure, it would not produce a significant discharge sufficient to spray down the room or flood the rack. In any case, the water is greater than or equal to refueling boron concentration and thus is not a criticality concern. An automatic fire protection sprinkler system does not exist in this area and there is no automatic or unattended source of unborated water, low-density hydrogenous fluid, or AF to provide moderation.

The new fuel storage rack is also a seismic Class 1 structure. Verification of the seismic Class 1 capability of the rack has been performed. The rack is a free standing braced framed steel structure and is anchored to the supporting floor structure of the Auxiliary Building. New fuel assemblies are supported by a three tiered array of concentric funnels which are held in place by the structural frame. The rack loaded with new fuel, its anchorage, and supporting floor structure were analyzed using the finite element structural analysis program GTSTRUDL. The analysis demonstrated that these systems will not fail nor collapse assuming a worst case earthquake (MHE). (Reference 7.1)

The new fuel storage rack is located on an elevated balcony 18.75 feet above the general floor area to prevent flooding and the rack is vertically oriented to facilitate drainage in the unlikely event of water intrusion. New fuel assemblies are stored dry in the rack. The spacing between new fuel assemblies and the solid neutron absorbers (Boral^{TM}) in the storage rack is sufficient to maintain the dry array in a subcritical condition.

Administrative Controls

When new fuel is stored in the new fuel storage rack, OPPD will utilize administrative controls to provide sufficient criticality margin. Examples of these administrative controls are as follows:

1. The new fuel storage rack is covered on both the top and sides with flame retardant, waterproof tarps whenever new fuel is stored there. The tarps minimize the penetration of foreign material as well as unborated water/low-density hydrogenous fluid/AF. Tarp(s) on top of the rack are removed to allow access to the rack when new fuel receipt/storage is actively occurring. Tarps on the side remain in place at all times when new fuel is stored there. When fuel receipt/storage activities are complete or not occurring, the top tarp(s) are placed over the rack to protect the new fuel assemblies while they are unattended.

2. Permanent storage of combustible material is not allowed in the New Fuel Receipt and Storage Room (Room 25A) without an engineering evaluation by the Fire Protection Engineer. The amount of transient combustible materials allowed in Room 25A and the Truck Bay (Room 25) and the duration that they may be used or stored there is also limited.

3. Procedures do not allow the use of AF near the new fuel storage rack whenever new fuel is stored there. Fire fighting water (unborated) may be used in the area because the elevation of the rack prevents flooding. The waterproof and flame retardant tarps minimize water and steam entry and reduce the likelihood of the formation of low-density hydrogenous fluid. Finally, the vertical orientation of the storage rack facilitates drainage.

4. An additional administrative control is available for the 2006 Refueling Outage. FCS has procured new CEAs for the upcoming operating cycle and these CEAs will be available for storage in the new fuel assemblies for additional reactivity control. This administrative control alone is estimated to provide k_{eff} less than or equal to 0.85 for the optimum moderation case.

Summary

The revision to TS 4.3.1.2 and TS 4.3.1.2d regarding the number of new fuel storage racks at FCS is an administrative change that has no nuclear safety implications.

In regards to the proposed deletion of TS 4.3.1.2b and TS 4.3.1.2c, an automatic fire protection sprinkler system does not exist in Room 25A and there is no automatic or unattended source of unborated water, low-density hydrogenous fluid, or AF to provide moderation. During the relatively short time that new fuel is stored in the new fuel storage rack, the design features and administrative controls described above preclude criticality even if a fire does occur.

OPPD will utilize an appropriate combination of design features and administrative controls to prevent the occurrence of moderation from unborated water/low-density hydrogenous fluid/AF resulting from fire fighting activities. Additional enhancements are necessary to consider the administrative controls listed above as fully implemented. Therefore, OPPD is making a regulatory commitment to complete these enhancements and provide necessary training prior to receipt of new fuel for the 2006 Refueling Outage. New fuel is currently scheduled to be received at FCS as early as July 11, 2006.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

OPPD has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10CFR 50.92, "Issuance of amendment," as discussed below:

1. **Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?**

   Response: No.

   The revision to TS 4.3.1.2 and TS 4.3.1.2d regarding the number of new fuel storage racks at Fort Calhoun Station, Unit No. 1, (FCS) is an administrative change that has no nuclear safety implications.

The probability of a criticality accident in the new fuel storage rack is not significantly increased by the deletion of Technical Specifications (TS) 4.3.1.2b and 4.3.1.2c. Compliance with the k_{eff} requirements of 10 CFR 50.68(b)(2) and (b)(3) as well as Criterion 66 of Appendix G of the Updated Safety Analysis Report (USAR) is maintained. The k_{eff} limits of 10 CFR 50.68(b)(2) and (b)(3) are identical to those of the deleted TS. However, 10 CFR 50.68(b)(2) and (b)(3) allow crediting of design features and/or administrative controls preventing the occurrence of flooding by unborated water or optimum moderation by low-density hydrogenous fluid.

Compliance with 10 CFR 50.68(b)(2) and (b)(3) is achieved by a combination of design features and administrative controls as described above preventing flooding the rack with unborated water or optimum moderation by low-density hydrogenous fluid or aqueous foam (AF) while new fuel is stored in the new fuel storage rack.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of any accident previously evaluated.

2. **Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No.

The revision to TS 4.3.1.2 and TS 4.3.1.2d regarding the number of new fuel storage racks at Fort Calhoun Station, Unit No. 1, (FCS) is an administrative change that has no nuclear safety implications.

The deleted Specifications require new fuel assemblies stored in the new fuel storage rack to remain subcritical if flooded with unborated water or moderated by AF. OPPD complies with 10 CFR 50.68(b)(2) and (b)(3), and Criterion 66, which have identical k_{eff} limits as the deleted Specifications. In accordance with 10 CFR 50.68(b)(2) and (b)(3) and Criterion 66, OPPD utilizes design features and administrative controls as described above preventing flooding the new fuel storage rack with unborated water or optimum moderation by low-density hydrogenous fluid/AF while the rack is loaded with new fuel.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

3. **Does the proposed amendment involve a significant reduction in a margin of safety?**

Response: No.

The revision to TS 4.3.1.2 and TS 4.3.1.2d regarding the number of new fuel storage racks at FCS is an administrative change that has no nuclear safety implications.

Deletion of TS 4.3.1.2b and 4.3.1.2c does not involve a significant reduction in a margin of safety. This change does not eliminate the requirement to comply with k_{eff} limits imposed on storage of new fuel in the new fuel storage rack by 10 CFR 50.68(b)(2) and (b)(3), and Criterion 66. OPPD utilizes design features and administrative controls as described above preventing flooding the new fuel storage rack with unborated water or optimum moderation by low-density hydrogenous fluid/AF while the rack is loaded with new fuel.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based on the above, OPPD concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

FCS was licensed for construction prior to May 21, 1971, and at that time committed to the draft General Design Criteria (GDC). The draft GDC are contained in Appendix G of the FCS USAR and are similar to 10 CFR 50 Appendix A, General Design Criteria for Nuclear Power Plants. The draft GDC that govern prevention of fuel storage criticality at FCS is Criterion 66 from USAR Appendix G.

CRITERION 66 - PREVENTION OF FUEL STORAGE CRITICALITY

Criticality in new and spent fuel storage shall be prevented by physical systems or processes. Such means as geometrically safe configurations shall be emphasized over procedural controls.

This criterion is met. The criteria for the design of the spent fuel storage racks is that the k_{eff} of the fuel array shall remain less than or equal to 0.95 during normal use and in the event of postulated accidents or mishandling. The criteria for the design of the new fuel storage rack is that the k_{eff} of the fuel array shall remain

less than or equal to 0.95 during normal use and in the event of postulated flooding accidents, and less than or equal to 0.98 for the optimal moderated accident condition. This is consistent with 10 CFR 50.68, which allows credit for design features and/or administrative controls to prevent certain accident conditions from occurring.

The safe geometry criteria are established as follows:

1. The receptacles or cavities containing the new or spent fuel assemblies will be arranged vertically in a square lattice, and the dimensions of the storage rack will be such that the clear space between adjacent receptacles will be sufficient to yield a k_{eff} less than or equal to 0.95 with unborated water.

2. The insertion of a new or spent fuel assembly into any part of water slab between receptacles is prevented by the top frame. The openings in the top frame at each side of a receptacle are not large enough to receive a fuel element.

3. The vertical dimensions of the storage rack will be such that the top of the active fuel portion of the fuel assembly will be a sufficient distance below the top frame to assure that the keff is less than or equal to 0.95 even with a fresh fuel assembly located at the level of the top frame.

4. Distortion of the structure due to seismic loading shall be prevented by the use of lateral bracing so that there will be no reduction of the water slab between the cavities.

Compliance with 10 CFR 50.68(b)(2) and (b)(3) regarding storage of new fuel in the new fuel storage rack is accomplished by a combination of design features and administrative controls as described in Section 4.0 above. OPPD will complete additional enhancements for compliance with 10 CFR 50.68(b)(2) and (b)(3) prior to receipt of new fuel for the 2006 Refueling Outage.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulation, and (3) the issuance of amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amount of any

effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

7.1 USAR Section 9.5

MARKUP OF TECHNICAL SPECIFICATION PAGE

4.0 **DESIGN FEATURES** (Continued)

c. A nominal 8.6 inch center to center distance between fuel assemblies placed in Region 2, the high density fuel storage racks,

d. A nominal 9.8 inches (East-West) by 10.3 inches (North South) center to center distances between fuel assemblies placed in Region 1, the low-density fuel storage racks,

e. New or partially spent fuel assemblies with a discharge burnup in the "acceptable domain" of Figure 2-10 for "Region 2 Unrestricted" may be allowed unrestricted storage in any of the Region 2 fuel storage racks in compliance with Reference (1).

f. Partially spent fuel assemblies with a discharge burnup between the "acceptable domain" and "Peripheral Cells" of Figure 2-10 may be allowed unrestricted storage in the peripheral cells of the Region 2 fuel storage racks in compliance with Reference (1).

g. New or partially spent fuel assemblies with a discharge burnup in the "unacceptable domain" of Figure 2-10 will be stored in Region 1 in compliance with Reference (1).

4.3.1.2 The new fuel storage racks ~~are~~ is designed and shall be maintained with:

a. Fuel assemblies having a maximum U-235 enrichment of 5.0 weight percent,

~~b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Reference (2).~~

~~c. $k_{eff} \leq 0.98$ if moderated by aqueous foam, which includes an allowance for uncertainties as described in Reference (2).~~

~~d~~b. A nominal 16 inch center to center distance between fuel assemblies placed in the storage rack~~s~~.

4.3.1.3 The spent fuel casks are designed and shall be maintained with:

a. Fuel assemblies having a maximum U-235 enrichment of 4.5 weight percent,

b. $k_{eff} < 1.0$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.5 of the USAR,

c. $k_{eff} \leq 0.95$ if fully flooded with borated water ≥ 800 ppm, which includes an allowance for uncertainties as described in Section 9.5 of the USAR,

d. A nominal 9.075-inch center-to-center distance between fuel assemblies placed in the spent fuel cask,

e. Spent fuel assemblies with a combination of discharge burnup and initial average assembly enrichment in the "acceptable" range of Figure 2-11.

PROPOSED TECHNICAL SPECIFICATION PAGE

4.0 **DESIGN FEATURES** (Continued)

c. A nominal 8.6 inch center to center distance between fuel assemblies placed in Region 2, the high density fuel storage racks,

d. A nominal 9.8 inches (East-West) by 10.3 inches (North South) center to center distances between fuel assemblies placed in Region 1, the low-density fuel storage racks,

e. New or partially spent fuel assemblies with a discharge burnup in the "acceptable domain" of Figure 2-10 for "Region 2 Unrestricted" may be allowed unrestricted storage in any of the Region 2 fuel storage racks in compliance with Reference (1).

f. Partially spent fuel assemblies with a discharge burnup between the "acceptable domain" and "Peripheral Cells" of Figure 2-10 may be allowed unrestricted storage in the peripheral cells of the Region 2 fuel storage racks in compliance with Reference (1).

g. New or partially spent fuel assemblies with a discharge burnup in the "unacceptable domain" of Figure 2-10 will be stored in Region 1 in compliance with Reference (1).

4.3.1.2 The new fuel storage rack is designed and shall be maintained with:

a. Fuel assemblies having a maximum U-235 enrichment of 5.0 weight percent,

b. A nominal 16 inch center to center distance between fuel assemblies placed in the storage rack.

4.3.1.3 The spent fuel casks are designed and shall be maintained with:

a. Fuel assemblies having a maximum U-235 enrichment of 4.5 weight percent,

b. $k_{eff} < 1.0$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.5 of the USAR,

c. $k_{eff} \leq 0.95$ if fully flooded with borated water ≥ 800 ppm, which includes an allowance for uncertainties as described in Section 9.5 of the USAR,

d. A nominal 9.075-inch center-to-center distance between fuel assemblies placed in the spent fuel cask,

e. Spent fuel assemblies with a combination of discharge burnup and initial average assembly enrichment in the "acceptable" range of Figure 2-11.

Explanation of the Exigency and Why the Situation Could Not Have Been Avoided

On May 11, 2006, Engineering Analysis (EA)-94-0029, Revision 0, "New Fuel Storage Rack Analysis," was reviewed as part of proposed fuel design changes for the upcoming operating cycle. This required validation of criticality analyses for the spent fuel racks and new fuel storage rack. A review of the Technical Specifications (TS) found that Amendment No. 236 had inadvertently imposed new requirements associated with aqueous foam and flooding for the new fuel storage rack, which were not part of the previous design basis. Subsequently, it was determined that based on the 1994 analysis, the k_{eff} limits of TS 4.3.1.2c could not be met and the k_{eff} limits of TS 4.3.1.2b might not be met, without crediting design features and administrative controls as allowed by 10 CFR 50.68(b)(2) and (b)(3).

Fort Calhoun Station, Unit No. 1 (FCS) is scheduled to receive new fuel as early as July 11, 2006 for a refueling outage scheduled to begin September 9, 2006. It will be necessary to store this fuel in the new fuel storage rack. There is insufficient room remaining in the spent fuel pool storage racks to accommodate both full core offload and interim storage of the new fuel assemblies. It is impractical to delay receipt of new fuel without extremely adverse affects on pre-outage/outage activities and resources. Pre-outage activities that would be adversely affected include spent fuel dry cask loading, which takes place near the location of new fuel receipt/storage and presumes that new fuel receipt/storage activities are complete prior to loading the dry casks with spent fuel.

Because the scope of this refueling outage includes such major activities as the replacement of the steam generators, reactor vessel head, pressurizer etc., personnel and equipment needed for new fuel receipt, inspection and storage will not be available for new fuel receipt activities during the outage. Furthermore, delaying receipt of new fuel until later in the outage could significantly delay plant startup as it reduces the time necessary to resolve problems with the new fuel should they arise.

Commitment(s)

OPPD will complete additional enhancements of administrative controls for compliance with 10 CFR 50.68(b)(2) and (b)(3) prior to receipt of new fuel for the 2006 Refueling Outage. **(AR 38935)**