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OPPD
Omaha Public Power District

444 South 16th Street Mall
Omaha NE 68102-2247

LIC-01-0110
December 14, 2001

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

References:
1. Docket No. 50-285
2. Letter (Safety Evaluation Report) from NRC to OPPD (S. K. Gambhir), "Fort Calhoun Station, Unit No. 1 – Issuance of Amendment (TAC No. MB1221)," dated December 5, 2001

SUBJECT: Fort Calhoun Station Unit No. 1 License Amendment Request (LAR), "Revise Technical Specifications 2.8.2(1) and 2.8.2(3) to Allow Open Containment Penetrations"

Pursuant to 10 CFR 50.90, Omaha Public Power District (OPPD) hereby requests the following amendment to modify requirements in Technical Specifications (TS) Section 2.8.2(1), "Containment Penetrations," and Section 2.8.2(3), "Ventilation Isolation Actuation Signal (VIAS)." The proposed amendment will remove requirements for having the equipment hatch closed with four (4) bolts, and one door of the Personnel Access Lock (PAL) closed during core alterations and refueling operations. The specification for other containment penetrations will be modified to delete the requirement to be closed by an operable ventilation isolation actuation signal during core alterations and refueling operations. The proposed amendment will modify requirements for radiation monitors during core alterations and refueling operations. The TS Bases that are affected by the changes described above will be modified. OPPD bases this amendment upon the alternate source term design basis site boundary and control room dose analyses (Reference 2). OPPD concludes (refer to Section 7.0 of Attachment 1) that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92.

Precedence for containment penetrations to remain open during core alterations and refueling operations has been established at several nuclear facilities. Specifically, Shearon Harris, Three Mile Island, Turkey Point, Vogtle, and Arkansas Nuclear One have either requested or have been granted permission for containment penetrations to remain open during core alterations and refueling operations. Refer to Section 9.0 of Attachment 1 for a detailed discussion.

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OPPD requests approval of the proposed amendment by March 1, 2002. Approval by this date is necessary to support the spring 2002 refueling outage. Once approved, the amendment shall be implemented within 60 days.

This letter contains new commitments (refer to Attachment 4) and revises, by elimination, requirements regarding containment closure during core alterations or refueling operations.

I declare under penalty of perjury that the foregoing is true and correct. (Executed on December 14, 2001)

If you have additional questions, or require further information, please contact Dr. R. L. Jaworski at (402) 533-6833.

Sincerely,

W. G. Gates
Vice President

WGG/DLS/dls

Attachments:
1. Fort Calhoun Station's Evaluation
2. Requested Changes to Technical Specifications
3. Clean Revised TS Pages
4. OPPD Commitments

c: E. W. Merschoff, NRC Regional Administrator, Region IV
A. B. Wang, NRC Project Manager
W. C. Walker, NRC Senior Resident Inspector
Division Administrator, Public Health Assurance, State of Nebraska
Winston & Strawn

Attachment 1

Fort Calhoun Station's Evaluation

1.0 INTRODUCTION

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

The proposed changes will revise the FCS Technical Specification (TS) requirements related to containment penetrations. TS 2.8.2(1), "Containment Penetrations," and 2.8.2(3), "Ventilation Isolation Actuation Signal (VIAS)," will be revised.

TS 2.8.2(1) currently requires that the containment equipment hatch shall be closed and held in place by at least four (4) bolts while in Mode 5 (REFUELING SHUTDOWN) during core alterations and refueling operations inside containment. TS 2.8.2(1) also requires that one Personnel Air Lock (PAL) door be closed and each penetration providing direct access from the containment atmosphere to the outside atmosphere either be closed by a manual or automatic isolation valve, blind flange, or equivalent, or be capable of being closed by an operable VIAS. TS 2.8.2(3) requires that VIAS be operable with two gaseous radiation monitors operable and supplied by independent power supplies during core alterations and refueling operations.

The proposed changes to the TS and associated Bases will permit the equipment hatch, PAL doors, and containment building penetrations to remain open under administrative controls and remove the requirement to have two gaseous radiation monitors operable during core alterations and refueling operations inside containment. The basis for the proposed changes is a re-analysis of the limiting design basis Fuel Handling Accident (FHA) using the Alternative Source Term (AST) in accordance with 10 CFR 50.67, "Accident Source Term," and Regulatory Guide (RG) 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors." The re-analysis of the FHA has been approved by the NRC (Reference 10.1).

Approval of the proposed license amendment is requested by March 1, 2002, to support the spring 2002 refueling outage.

2.0 DESCRIPTION OF PROPOSED AMENDMENT

OPPD proposes to revise FCS TS 2.8.2(1), "Containment Penetrations," and 2.8.2(3) "Ventilation Isolation Actuation Signal (VIAS)."

TS 2.8.2(1) currently requires that the containment equipment hatch shall be closed and held in place by at least four (4) bolts while in Mode 5 (refueling shutdown) during core alterations or refueling operations inside containment. TS 2.8.2(1) also requires that at least one door in the Personnel Air Lock (PAL) be closed and each penetration providing direct access from the containment atmosphere to the outside atmosphere either be closed by manual or automatic isolation valve, blind flange, or equivalent, or be capable of being closed by an operable ventilation isolation actuation signal (VIAS). The Bases for TS 2.8.2(1) is to restrict release of fission product radioactivity to the environment in the event of a FHA.

The proposed amendment will revise TS 2.8.2(1)a. to delete requirements for having the equipment hatch closed with four (4) bolts and replace it with a requirement for the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch to be capable of being closed. TS 2.8.2(1)b. will be revised to delete the requirement for at least one door in the PAL to be closed and replace it with a requirement for one door in the PAL to be capable of being closed. TS 2.8.2(1)c. will be revised to delete the requirement for penetrations providing direct access from the containment atmosphere to the outside atmosphere to be closed by an operable VIAS and replace it with a requirement to be capable of being closed. A note will be added to TS 2.8.2(1) stating that, "Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere may be unisolated under administrative controls."

The proposed amendment will revise TS 2.8.2(1) to permit the containment equipment hatch, PAL doors, and penetrations providing direct access from the containment to the outside atmosphere to be open during core alterations and refueling operations in containment provided the following administrative controls are in place:

a. the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL are capable of being closed in less than one hour of a FHA,

b. the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL shall not be obstructed unless capability for rapid removal of obstructions is provided (such as quick disconnects for hoses),

c. penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be capable of being closed on one side in less than one hour of a FHA,

d. an individual or individuals shall be designated and available during core alterations and refueling operations, capable of closing the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch, one door in the PAL, and penetrations that provide direct access from the containment atmosphere to the outside atmosphere.

The Bases for TS 2.8.2(1) and plant procedures will be revised to reflect the administrative controls described above.

TS 2.8.2(3) currently requires that VIAS be operable with two gaseous radiation monitors operable and supplied by independent power supplies during core alterations and refueling operations. The Bases for TS 2.8.2(3) is to restrict the release of fission product radioactivity to the environment in the event of a FHA.

The proposed amendment will revise TS 2.8.2(3) to delete requirements that two gaseous radiation monitors on the auxiliary building exhaust stack be operable (and supplied by independent power supplies). The proposed change will require one gaseous radiation monitor to be operable during core alterations and refueling operations. The Bases for TS 2.8.2(3) and plant procedures will be revised to reflect this change.

3.0 BACKGROUND

Containment penetrations were designed to withstand normal environmental conditions prevailing during plant operation and to maintain their integrity following a design basis accident. Additionally, the penetrations were designed, in part, to restrict a release of fission product radioactivity from escaping to the environment during a FHA in containment. Refer to the Section 5.9 of the FCS Updated Safety Analysis Report (USAR) for additional detail.

The TS 2.8.2(1) proposed change is to revise the FCS TS requirements for containment penetrations associated with the equipment hatch, Personnel Air Lock (PAL), and other penetrations during core alterations and refueling operations. These changes will allow for more efficient plant refueling outages. During a refueling outage, additional work other than just core alterations and refueling operations occurs inside containment. The capability to close the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one PAL door within one hour, although not credited for mitigation of a FHA, provides "defense in depth" to minimize the consequences of a FHA. The existing TS requirement specifies that containment penetrations shall be closed or capable of being closed automatically. With the proposed change, the equipment hatch, PAL doors, and other penetrations can be open during core alterations and refueling operations, which will provide greater efficiency in the movement of personnel and equipment in and out of containment. This results in a decreased outage critical path time and significant cost savings over the life of the plant.

Should a FHA occur, having the equipment hatch and PAL doors already open will facilitate a faster evacuation of personnel from within containment. These changes thereby could enhance worker safety by potentially reducing dose to workers in the event of an accident while maintaining acceptable doses to the public.

During core alterations and refueling operations, administrative controls will be in place to assure closure of the Equipment Hatch Enclosure doors or the equipment hatch, one PAL door, as well as other open containment penetrations, following a containment evacuation. These administrative control requirements are identified in Section 2.0 of this license amendment request.

The proposed change to TS 2.8.2(3) revises the requirement to have two gaseous radiation monitors operable and supplied by independent power supplies. This change is justified because of the re-analysis of the FHA, which does not credit VIAS actuation for containment closure. To mitigate control room operator doses, a new TS section (Reference 10.1) was inserted for refueling operations in containment which requires that the control room ventilation system be in operation and in the Filtered Air Mode during core alterations and refueling operations (TS 2.8.2(4)). A VIAS signal is not credited during core alterations and refueling operations to initiate control room ventilation in the Filtered Air Mode due to the new TS requirement (2.8.2(4)). The purpose of maintaining VIAS by having one radiation monitor operable during core alterations and refueling operations is to ensure that prompt containment purge and automatic penetrations can be automatically isolated upon detection of high radiation levels within containment (although this actuation is not credited for mitigating the design basis accident). The operability of this system is a "defense in depth" approach to limit the consequences of a FHA in containment. The

requirement to have VIAS operable by having one gaseous radiation monitor operable ensures that a FHA that results in a release of fission products is identified for the safety of plant workers and to allow mitigating actions.

In accordance with RG 1.183, the FHA re-analysis assumed that the radioactive material escapes from the reactor cavity pool to the containment (puff release, instantaneous) and is then released to the environment over a two-hour time period. With no credit taken for containment closure and containment filtration, the new analysis yielded doses at the exclusion area boundary (EAB) and the low population zone (LPZ) well below the 10 CFR 50.67 limits (Refer to Section 5.0 and Reference 10.1).

4.0 REGULATORY REQUIREMENTS & GUIDANCE

The applicable regulatory requirements associated with this proposed amendment are 10 CFR 50.67 and RG 1.183. Commitment to 10 CFR 50.67 and RG 1.183 in Reference 10.1 establishes that the FCS accident source term to be used in design basis radiological consequences analysis is based on the Alternative Source Term (AST). These regulatory requirements establish the criteria based on total effective dose equivalent (TEDE) for the EAB, LPZ, and control room (CR) doses as a result of postulated design basis accidents. As such, any proposed changes to the TS related to design basis accidents and mitigation thereof must be assessed and performed in accordance with these requirements. 10 CFR 50.67 and RG 1.183 establish the worst 2-hour dose criteria in addition to TEDE limits. For the FHA in containment, the requirements stated in 10 CFR 50.67 and RG 1.183 were applied such that dose consequences for EAB/LPZ had to be below 6.3 rem (TEDE). For the control room, the total integrated dose had to be shown to be below 5.0 rem (TEDE 30-day dose). In addition, the EAB dose for the worst 2-hour period was assessed, determined, and reported. The FHA in-containment analysis has been documented in Reference 10.1 and is discussed in Section 5.0.

The FHA in-containment analysis documented in Reference 10.1 and discussed in Section 5.0 used RG 1.183 guidance for radiological consequences assessment (minor exceptions noted in Section 5.0). RG 1.183 guidance is applicable for these proposed TS changes as it is part of the licensing basis that establishes dose consequences as a result of a FHA in containment to be well below the regulatory limits set in 10 CFR 50.67.

5.0 TECHNICAL ANALYSIS

5.1 Design Basis

The FCS FHA was re-analyzed as part of Reference 10.1 and approved by the NRC. As part of this analysis FCS redefined the bounding source term inventory (for the worst case radionuclide activity) and documented this source term in Reference 10.1. The development of the core inventory was based on maximum full power operation of the core at a power level equal to the current licensed rated thermal power including a two-percent instrument error and current licensed

values of fuel enrichment and burnup. The FCS equilibrium core inventory for radiological calculations was calculated using ORIGEN-S as documented in Reference 10.1. Reference 10.1 provides a table of the core inventory of dose significant isotopes relative for the FHA analysis. The proposed amendment changes are only applicable to core alterations and refueling operations based on the re-analysis of a FHA. The analysis performed is not applicable for mid-loop conditions or heavy load movement over the core operations; hence, the proposed changes are not applicable to mid-loop conditions and heavy load movements over the core. For mid-loop conditions and heavy load movements over the core, containment closure is required.

In addition, a determination of the radiological impact of a FHA was assessed using the new source term and using the analytical guidance from RG 1.183. Per Reference 10.1, it was documented that the FHA analysis was to calculate the control room and site boundary dose due to airborne radioactivity releases following a FHA in containment. International Commission on Radiological Protection (ICRP) 30 dose conversion factors were used in the re-analyzed FHA. The analysis performed followed the guidance provided in RG 1.183 for FHA calculations; exceptions noted in Reference 10.1 are repeated herein:

a. The site boundary and control room breathing rates "traditionally acceptable" to the NRC in accident analyses were rounded up from their traditional values when presented in RG 1.183. The FCS accident analyses, which were initiated prior to the release of RG 1.183, utilize the traditional breathing rates, which had been noted in Draft Guide (DG) 1081. The impact on the dose analyses due to the usage of the traditional breathing rates is negligible.

b. To account for fuel conditions outside of the bounds of RG 1.183, conservative estimates of FCS specific fuel gap fractions are utilized (i.e., double that of values noted in Table 3 of RG 1.183) for non-LOCA events.

c. A Loss of Offsite Power (LOOP) is not assumed with the FHA. As documented in Reference 10.1, FHA cannot cause a LOOP; consequently, this analysis did not address the potential effect of a LOOP (Per NRC Information Notice 93-17).

Table 1 below lists some of the key assumptions/parameters that were documented in Reference 10.1 for the radiological consequences assessment of a FHA in containment. They are repeated here for ease of reference/review.

Table 1
Analysis Assumptions & Key Parameter Values for a Fuel Handling Accident in Containment

Power Level	1530 MWth
Number of Damaged Fuel Assemblies	1
Total Number of Fuel Assemblies	133
Decay Time Prior to Fuel Movement	72 hours
Radial Peaking Factor	1.8
Fraction of Core Inventory in Gap	I-131 (16%) Kr-85 (20%) Other Noble Gases (10%) Other Halides (10%) Alkali Metals (24%)
Equilibrium Core Activity	See Reference 10.1
Iodine Form of Gap Release Before Scrubbing	99.85% Elemental 0.15% Organic
Scrubbing Decontamination Factors	Elemental Iodine (500) Organic Iodine (1) Noble Gas (1) Particulates (∞)
Rate of Release from Fuel	PUFF
Environmental Release Rate	All airborne activity in a 2-hour period

Environmental Release Point
Accident in Containment — Containment Wall

CR Emergency Ventilation
CR emergency ventilation placed in operation prior to fuel movement

Atmospheric Dispersion Factors (m^3/sec) (Release Point is Containment Wall)

EAB	(0-2 hours)	2.56E-04
LPZ	(0-2 hours)	2.51E-05
	(0-8 hours)	7.29E-06
	(8-24 hours)	4.83E-06
	(24-96 hours)	1.98E-06
	(96-720 hours)	5.49E-07
Control Room	(0-2 hours)	4.87E-03
	(2-8 hours)	4.19E-03
	(8-24 hours)	2.11E-03
	(24-96 hours)	1.61E-03
	(96-720 hours)	1.35E-03

Control Room Parameters

Free Volume	45,100 ft^3
Unfiltered Normal Operation Intake	1000 cfm +/-10%
Emergency Intake Rate	1000 cfm +/-10%

Control Room Parameters (continued)		
Emergency Recirculation Rate		1000 cfm +/-10%
Emergency Intake Filter Efficiency		99% (iodine and particulates)
Emergency Recirculation Filter Efficiency		99% (iodine and particulates)
Unfiltered Inleakage		38 cfm
Occupancy Factors	0-24 hours	(1.0)
	1-4 days	(0.6)
	4-30 days	(0.4)
Operator Breathing Rate	0-30 days	(3.47E-04 m^3/sec)

By procedure, fuel handling activities in the containment cannot be initiated until 72 hours after reactor shutdown. It is postulated that a FHA results in the damage of one (1) fuel assembly, thus releasing all of the fuel gap activity associated with that assembly. As discussed above, the gap fractions utilized for non-LOCA analyses at FCS are twice that recommended by RG 1.183. The activity (consisting of noble gases, halogens, and alkali metals) is released in a puff to the reactor cavity, which has a minimum of 23 feet of water above the reactor vessel flange.

The radioiodine released from the fuel gap is assumed to be 95% Cesium Iodine (CsI), 4.85% elemental, and 0.15% organic. Due to the acidic nature of the water in the reactor cavity (pH less than 7), the CsI will immediately disassociate, thus, changing the chemical form of iodine in the water to 99.85% elemental and 0.15% organic. Based on decontamination factors of 500 and 1 for the elemental and organic iodines, respectively, the chemical form of the iodines above the reactor cavity is 57% elemental and 43% organic.

Noble gas and unscrubbed iodines rise to the water surface where they are mixed in the available air space. All of the alkali metals released from the gap are retained in the reactor cavity water. Since the containment is assumed open, and there are no means of isolating the FHA, all of the airborne activity resulting from the FHA is exhausted out of the containment in a period of two hours.

For analysis reasons, the containment purge exhaust flow is considered operative during fuel movement in containment. This exhaust flow is released to the environment via the auxiliary building vent stack. However, since the containment is open, containment releases could occur from anywhere along the containment wall (e.g., via the equipment hatch or other penetrations). Because the location of the release is unknown, the worst case dispersion factors (χ/Q) are used in this analysis, i.e., those associated with the containment wall.

The event is based on a 2-hour release. The worst 2-hour period for the EAB is the 0 to 2-hour period. As documented in Reference 10.1, the 2-hour delay previously associated with manual alignment/repair of the recirculation damper for the CR ventilation is not applicable for this event. Per procedure, fuel movement in containment cannot be initiated prior to placing the CR in emergency ventilation mode. Consequently, automatic initiation of CR emergency ventilation scenarios are not applicable to FHA in containment. The EAB, LPZ, and CR dose following a FHA in containment are presented below.

Fuel Handling Accident in Containment		
EAB Dose (rem)	1.5[1] -	**Regulatory Limit (rem) 6.3**
LPZ Dose (rem)	0.5[2] -	**Regulatory Limit (rem) 6.3**
Control Room Dose (rem)	0.5[3] -	**Regulatory Limit (rem) 5.0**

The rounded-up doses calculated and shown above (from Reference 10.1) indicate that the dose consequences to EAB, LPZ, and CR are well within current regulatory limits even without crediting any containment or restriction of fission products. Therefore, with implementation of the AST methodology as documented in Reference 10.1, refueling operations at FCS can be carried out with the containment equipment hatch, the PAL doors, and other penetrations open without exceeding the regulatory dose requirement, should a FHA occur.

Based on the conservative dose calculation, the risk to the health and safety of the public as a result of a FHA is minimal. FCS procedures require that fuel cannot be moved until after 72 hours shutdown (72 hours of decay). Radioactive decay is a natural phenomenon that is modeled in the deterministic analysis. It has a reliability of 100 percent in reducing the radiological release from damaged fuel rods. In addition, TS requirements are in place that require more than 23 feet of water above the top of the reactor vessel flange. This requirement applies to core alterations and refueling operations in containment. Requiring at least 23 feet of water above the flange provides a barrier for significant radiological release. Administrative controls will be in place such that the Equipment Hatch Enclosure doors or the equipment hatch, one PAL door, and other containment penetrations shall be closed in the unlikely event of a FHA. The TS requirement to maintain VIAS with one gaseous radiation monitor operable will be in place to ensure that if a FHA results in a release of radiation, that it can be identified for the safety of plant workers and to allow mitigating actions. Therefore, the risk to the health and safety of the public as a result of allowing the equipment hatch, PAL doors, and other containment penetrations to be open during core alterations and refueling operations is minimal.

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[1] Dose rounded to the nearest 0.5 rem (TEDE); EAB dose based on the worst 2 hours following the event, which for this event is 0 to 2 hours.
[2] Dose rounded to the nearest 0.5 rem (TEDE); LPZ dose based on the duration of the release
[3] Dose rounded to the nearest 0.5 rem for 30-day integrated control room dose (TEDE)

6.0 REGULATORY ANALYSIS

The technical analysis provided in Section 5.0 satisfies all applicable regulatory requirements and guidance of 10 CFR 50.67 and RG 1.183 with regard to the proposed changes. Formal commitments are established with these proposed changes. Although the analysis shows these commitments are not required to meet regulatory requirements, they will be put in place to minimize fission product release in the event of a FHA. The formal commitments for administrative controls are as follows:

a. The Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL are capable of being closed in less than one hour of a FHA.

b. The Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL shall not be obstructed unless capability for rapid removal of obstructions is provided (such as quick disconnects for hoses).

c. Penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be capable of being closed on one side in less than one hour of a FHA.

d. An individual or individuals shall be designated and available during core alterations and refueling operations, capable of closing the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch, one door in the PAL, and penetrations that provide direct access from the containment atmosphere to the outside atmosphere.

These administrative controls will be put in place through plant procedures. These administrative controls will be required to be in place prior to any core alterations or refueling operations.

Regulatory Analysis Summary Table

TS #	Regulatory Requirements	Design Basis	Analysis (linked to Design Basis)	Licensee Actions
2.8.2(1)	10 CFR 50.67 and RG 1.183	Radiological Dose Consequences as a result of FHA: a. EAB/LPZ 6.3 rem (TEDE), b. CR Operators 30-Day Integrated Dose: 5.0 rem (TEDE)	Reference 10.1 and Section 5.0 of this amendment request: a. EAB 1.5 rem (TEDE) b. LPZ 0.5 rem (TEDE) c. CR Operator 0.5 rem (TEDE) Note – All values rounded-up as noted in Section 5.0.	Although the analysis shows actions not necessary to meet regulatory requirements, administrative controls established for "defense in depth."
2.8.2(3)	10 CFR 50.67 and RG 1.183	Same as above.	Same as above.	Same as above.

For a FHA in containment, the requirements stated in 10 CFR 50.67 and RG 1.183 were applied such that dose consequences for EAB/LPZ had to be below 6.3 rem (TEDE). For the control room, the total integrated dose had to be shown to be below 5.0 rem (TEDE 30-day dose). In addition, the EAB dose for the worst 2-hour period was assessed, determined, and reported. The FHA in-containment analysis was previously documented in Reference 10.1 and is discussed in Section 5.0 of this amendment request.

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 regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

7.0 NO SIGNIFICANT HAZARDS CONSIDERATION (NSHC)

The standards used to arrive at a determination that a request for amendment involves no significant hazards consideration are included in the Commission's regulations, 10 CFR 50.92, which state that the operation of the facility in accordance with the proposed amendments would 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 previously evaluated; or (3) involve a significant reduction in a margin of safety.

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

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

Response: No.

The proposed changes to FCS TS modify requirements to have containment closure in place during core alterations and refueling operations in containment. These TS changes do not impact operation of other equipment or systems important to safety. The proposed TS changes reflect the parameters used in the radiological consequence calculations described in Section 5.0 of this license amendment request.

The proposed change to TS 2.8.2(1) will be to delete the requirement for having equipment hatch closed and held in place by at least four (4) bolts and the requirement to have at least one door in the PAL closed. The requirements for containment penetration isolation via an operable VIAS have been deleted with these proposed changes. Administrative controls will be put in place instead for "defense in depth" action in regards to containment penetrations. These administrative controls include:

a. The Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL shall be capable of being closed in less than one hour of a FHA.

b. The Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL shall not be obstructed unless capability for rapid removal of obstructions is provided (such as quick disconnects for hoses).

c. Penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be capable of being closed on one side in less than one hour of a FHA.

d. An individual or individuals shall be designated and available during core alterations and refueling operations, capable of closing the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch, one door in the PAL, and penetrations that provide direct access from the containment atmosphere to the outside atmosphere.

In addition, allowance will be granted to have penetration flow paths with direct access from the containment atmosphere to the outside atmosphere to be unisolated during core alterations and refueling operations. These proposed changes are based on a re-analysis that was performed with respect to radiological consequences. The FHA re-analysis (Reference 10.1) was performed in accordance with current accepted methodology, and consequences were expressed in TEDE dose.

The proposed change to TS 2.8.2(3) will delete the requirement for two gaseous radiation monitors being operable and supplied by independent power supplies. Instead, only one gaseous radiation monitor is required to be operable. VIAS actuation upon radiation monitor alert is not credited in the FHA re-analysis. VIAS actuation for containment purge or other penetration isolation is not credited.

The current methodology as described in 10 CFR 50.67 specifies dose acceptance criteria in terms of TEDE dose. The revised FHA analysis results as discussed in Section 5.0 meet the applicable TEDE dose acceptance criteria (specified also in RG 1.183) for AST. The most current FHA analysis does not credit containment integrity and, hence, is conservative in that aspect. These administrative controls proposed as stated above ensure that in the event of a FHA in containment (even though the containment fission product control function is not required to meet dose consequence criteria) that the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch, one PAL door, and other pathways can be promptly closed.

Currently the equipment hatch is closed with four (4) bolts, at least one PAL door closed, and other penetrations either are closed or capable of being closed on VIAS during core alterations and refueling operations to prevent the escape of radioactive material in the event of a FHA in containment. Whether the equipment hatch or other penetrations are open or closed during core alterations and refueling operations has no effect on the probability of any accident previously evaluated.

Based on the TS changes approved in Reference 10.1, the changes being proposed in this amendment request will not affect assumptions contained in other plant safety analyses (Updated Safety Analysis Report) or the physical design of the plant, nor do they affect other TS that preserve safety assumptions.

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

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

Response: No.

The current FHA analysis (Reference 10.1) assumes that all the iodine and noble gases become airborne, escape, and reach the site boundary and low population zone with no credit for filtration, containment closure, or deposition. Since the proposed changes do not involve the addition or modification of equipment nor alter the design of plant systems, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated. The changes proposed do not change how design basis accident (DBA) events were postulated nor do the changes themselves initiate a new kind of accident or failure mode with a unique set of conditions (proposed administrative controls). The FHA analysis documented in Reference 10.1 was performed consistent with 10 CFR 50.67 and RG 1.183. Not crediting filtration systems for EAB/LPZ dose consequences and only crediting natural forces is conservative from the aspect of dose consequences.

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

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

Response: No.

The implementation of the proposed changes does not reduce the margin of safety as defined in the alternate source term design basis site boundary and control room dose analyses (Reference 10.1). The radiological analyses results, with the proposed changes, remain within the regulatory acceptance criteria (10 CFR 50.67) utilizing the TEDE dose acceptance criteria directed in RG 1.183. These criteria have been developed for application to analyses performed with alternative source terms. These acceptance criteria have been developed for the purpose of use in design basis accident analyses such that meeting these limits demonstrates adequate protection of public health and safety. An acceptable margin of safety is inherent in these licensing limits.

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

Based on the above, OPPD concludes that the proposed amendments present 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.

8.0 ENVIRONMENTAL CONSIDERATION

10 CFR 51.22(c)(9) provides criterion for and identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration; (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; (3) result in a significant increase in individual or cumulative occupational radiation exposure. OPPD has reviewed this request and determined that the proposed amendment meets the eligibility criteria 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 needs to be prepared concerning the issuance of the amendment. The basis for this determination follows:

Proposed Change
OPPD proposes to revise TS to allow use of administrative controls on open containment penetrations (equipment hatch, PAL doors, other penetrations) during core alterations and refueling operations. OPPD also proposes to remove the requirement to have two gaseous radiation monitors operable during core alterations and refueling operations.

Basis
OPPD bases these changes on the revised fuel handling accident analysis that was approved by the NRC (Reference 10.1), which uses the guidance of NRC Regulatory Guide 1.183. The changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22 (c)(9) for the following reasons:

a. As demonstrated in Section 7.0, the proposed amendment does not involve a significant hazards consideration.

b. The proposed amendment does not result in a significant change in the types or increase in the amounts of any effluents that may be released offsite as demonstrated in Section 5.0. Also the change does not introduce any new effluents or significantly increase the quantities of existing effluents. As such, the change cannot significantly affect the types or amounts of any effluents that may be released offsite.

The proposed amendment does not result in a significant increase in individual or cumulative occupational radiation exposure. The proposed changes do not result in any physical plant changes. No new surveillance requirements are anticipated as a result of these changes that would require additional personnel entry into radiation controlled areas. Designated personnel will perform necessary administrative controls to close applicable containment penetrations. Therefore, the amendment has no significant affect on either individual or cumulative occupational radiation exposure.

9.0 PRECEDENCE

In Reference 10.2 the NRC issued Amendment No. 104 to revise the Shearon Harris NPP Unit 1 TS related to containment building penetrations. This change permitted containment building penetrations to remain open under administrative controls during core alterations or the movement of irradiated fuel within the containment. Reference 10.2 also identified that Carolina Power and Light (CP&L) incorporated the AST methodology for the fuel handling accident analysis. Reference 10.2 specified that the CP&L TS were revised to remove portions of a note restricting the applicability of administrative controls with respect to containment penetrations and includes the use of administrative controls on the equipment hatch and other penetrations that provided access from the containment atmosphere to outside atmosphere. Reference 10.3 identifies that CP&L measured the length of time to close "any" penetration (including the equipment hatch) and demonstrated that any penetration can be closed in less than one hour. Reference 10.3 TS/Bases markups do not identify a requirement that closure is accomplished within a specified amount of time nor did NRC in Reference 10.2 stipulate a specific closure time. Reference 10.2 concluded that the amendment request complied with the Commission's rules, and the activities authorized could be conducted without endangering the health and safety of the public. Both Reference 10.2 and 10.3 cite Reference 10.4 (Technical Specifications Task Force (TSTF) No. 312) as a guidance document that allows implementation of administrative controls for all containment penetrations. This TSTF appears applicable for support of the FCS amendment.

Reference 10.3 illustrates a direct comparison for the FCS amendment in that the FCS FHA analysis, which is the technical basis for this amendment, was also based on AST methodology (Reference 10.1), and similar administrative controls will be put in place on containment penetrations for FCS to meet "defense in depth" commitments. Reference 10.2 sets precedence for an acceptable method, which illustrates that TS regarding containment penetrations can be amended, based on technical justification, without endangering the health and safety of the public. In addition, Reference 10.4 provides the means for implementing guidance to administratively control containment penetrations during core alterations and refueling operations.

TSTF-68, Revision 2 was approved July 17, 1999, and is specifically related to containment personnel airlock doors being opened during fuel movement (Reference 10.5). This TSTF provided guidance for justification on allowing both containment personnel airlock doors to remain open during fuel movement. TSTF-68 identifies that many plants have been granted this option since August 31, 1994, with approval of an amendment to Calvert Cliffs Nuclear Power Plant Technical Specifications.

Additional recent license submittals by other utilities have been made for removal of containment penetration requirements during fuel handling (Reference 10.6, 10.7). These licensee submittals also were based on AST methodology and prescribed administrative controls for containment penetrations during irradiated fuel handling in containment. However, it should be noted that at this point in time that NRC safety evaluations have not been docketed for References 10.6 and 10.7 submittals.

Three additional licensee submittals were reviewed for relevant precedence. References 10.8, 10.9, and 10.10 were reviewed from the Agencywide Documents Access and Management System (ADAMS) and found to be applicable with respect to establishing that administrative controls could be put in place to justify removal of TS requirements. References 10.8, 10.9, and 10.10 indicated that the licensees used 10 CFR 100 radiological consequence methods and limits for FHA analysis, and the dose consequences for FHA were found to be below the criteria. The NRC approved similar changes for Vogtle Units (Reference 10.8), and Arkansas Nuclear One, Unit 1 (Reference 10.9) and Unit 2 (Reference 10.10) for personnel and equipment doors.

10.0 REFERENCES

10.1 Letter (Safety Evaluation Report) from NRC to OPPD (S. K. Gambhir), "Fort Calhoun Station, Unit No. 1 – Issuance of Amendment (TAC No. MB1221)," dated December 5, 2001

10.2 Letter (Safety Evaluation Report) from NRC to James Scarola (CP&L), "Shearon Harris Nuclear Power Plant Unit 1 - Issuance of Amendment Regarding Containment Penetrations during Core alterations and Movement of Irradiated Fuel," dated July 30, 2001 (TAC No. MB1961)

10.3 Letter from CP&L to NRC (Document Control Desk), "Request for License Amendment, Technical Specifications 3/4.9.4 and Unreviewed Safety Question," Shearon Harris Nuclear Power Plant, Docket No. 50-400/License No. NPF-63, HNP-01-068, dated May 18, 2001

10.4 Technical Specification Task Force (TSTF) No. 312, Revision 1, "Administratively Control Containment Penetrations," dated July 17, 1999

10.5 Technical Specification Task Force (TSTF) No. 68, Revision 2, "Containment Personnel Airlock Doors Open During Fuel Movement," dated July 17, 1999

10.6 Letter from AmerGen to NRC (Document Control Desk), "License Amendment Request No. 249 Containment Integrity During Refueling Operations," Three Mile Island, Unit 2 (TMI Unit1) Operating License No. DPR-50 Docket No. 50-289, dated January 23, 2001 (5928-00-20299)

10.7 Letter from FPL to NRC (Document Control Desk), "Proposed License Amendments Selective Implementation of Alternate Source Term: Containment Equipment Door Open

10.9 Letter (Safety Evaluation Report) from NRC to Arkansas Nuclear One, Unit 1, "Amendment No. 184," dated September 20, 1996

10.10 Letter (Safety Evaluation Report) from NRC to Arkansas Nuclear One, Unit 2, "Amendment No. 166," dated September 28, 1995

During Core alterations," Turkey Point Units 3 and 4 Docket Nos. 50-250 and 50-251, dated July 18, 2001 (L-2001-152)

10.8 Letter from NRC to Vogtle Electric Generating Plant, Units 1 and 2, "License Amendments 115 and 93 to Facility Operating Licenses NPF-68 and NPF-81," issued on September 11, 2000

10.9 Letter (Safety Evaluation Report) from NRC to Arkansas Nuclear One, Unit 1, "Amendment No. 184," dated September 20, 1996

10.10 Letter (Safety Evaluation Report) from NRC to Arkansas Nuclear One, Unit 2, "Amendment No. 166," dated September 28, 1995

Attachment 2

Requested Changes to Technical Specifications Set Forth in Appendix A of the Facility Operating License No. DPR-40

2.0 **LIMITING CONDITIONS FOR OPERATION**
2.8 Refueling
2.8.2 Refueling Operations - Containment

2.8.2(1) Containment Penetrations

Applicability

Applies to containment penetrations in MODE 5 during CORE ALTERATIONS and REFUELING OPERATIONS inside containment.

Objective

To minimize the consequences of an accident occurring during CORE ALTERATIONS and REFUELING OPERATIONS inside containment that could affect public health and safety.

Specification

The containment penetrations shall be in the following status:

a. The Equipment Hatch Enclosure (Room 66) doors or the equipment hatch shall be capable of being closed; ~~The equipment hatch closed and held in place by at least four bolts;~~

b. One ~~At least one~~ door in the Personnel Air Lock shall be capable of being closed; and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere either:

   1. closed by a manual or automatic isolation valve, blind flange, or equivalent, or

   2. capable of being closed~~, by an OPERABLE Ventilation Isolation Actuation Signal.~~

Note - Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere may be unisolated under administrative controls.

Required Actions

(1) With one or more containment penetrations not in required status, suspend CORE ALTERATIONS and REFUELING OPERATIONS within containment immediately.

2.0 **LIMITING CONDITIONS FOR OPERATION**
2.8 Refueling
2.8.2 Refueling Operations - Containment

2.8.2(3) Ventilation Isolation Actuation Signal (VIAS)

Applicability

Applies to operation of the Ventilation Isolation Actuation Signal (VIAS) during CORE ALTERATIONS and REFUELING OPERATIONS inside containment.

Objective

To minimize the consequences of an accident occurring during CORE ALTERATIONS or REFUELING OPERATIONS that could affect public health and safety.

Specification

VIAS, including manual actuation capability, shall be OPERABLE with one~~two~~ gaseous radiation monitor~~s~~ OPERABLE ~~and supplied by independent power supplies~~.

Required Actions

(1) Without one ~~With less than two~~ radiation monitor~~s~~ OPERABLE, or VIAS manual actuation capability inoperable, immediately suspend CORE ALTERATIONS and REFUELING OPERATIONS.

2.0 **LIMITING CONDITIONS FOR OPERATION**
2.8 Refueling

Bases (Continued)

2.8.2(1) Containment Penetrations

During CORE ALTERATIONS or REFUELING OPERATIONS inside ~~of~~ containment, a release of fission product radioactivity within the containment will be minimized ~~restricted~~ from escaping to the environment when the LCO requirements are met. In MODE 5, the potential for containment pressurization as a result of an accident is not likely; therefore, requirements to isolate the containment from the outside atmosphere are less stringent than when the reactor is at power. The LCO does not require CONTAINMENT INTEGRITY. Since there is no potential for containment pressurization as a result of a fuel handling accident, the Appendix J leakage criteria and tests are not required.

For a fuel handling accident in containment, the very conservative assumption that all the rods in a single assembly fail with no credit for containment isolation or atmosphere filtration yields worst 2-hour doses at the exclusion area boundary (EAB) and low population zone (LPZ) that remain well within the limits of 10 CFR 50.67.

During CORE ALTERATIONS or REFUELING OPERATIONS inside of containment, the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch shall be capable of being closed within one hour after a fuel handling accident per administrative controls. Placing administrative controls (closure requirements) on the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch ensures that the release of fission products is minimized (defense in depth). ~~The containment equipment hatch, which is part of the containment pressure boundary, provides a means of moving large equipment and components into and out of containment. During CORE ALTERATIONS or REFUELING OPERATIONS inside of containment, the equipment hatch must be held in place by at least four bolts. Good engineering practice dictates that the bolts required by this LCO be approximately equally spaced.~~

The Personnel Air Lock (PAL), which is also part of the containment pressure boundary, provides a means for personnel access into containment. The doors are normally interlocked to prevent simultaneously opening when CONTAINMENT INTEGRITY is required. During periods of shutdown when containment closure is not required, the interlock may be disabled and both PAL doors allowed to remain open for extended periods when frequent containment entry is necessary. During CORE ALTERATIONS or REFUELING OPERATIONS inside ~~of~~ containment, CONTAINMENT INTEGRITY is not required, therefore the door interlock mechanism may remain disabled, but one PAL door shall ~~must~~ always remain capable of being closed.

2.0 **LIMITING CONDITIONS FOR OPERATION**
2.8 Refueling

Bases (Continued)

2.8.2(1) Containment Penetrations (Continued)

The other containment penetrations that provide direct access from containment atmosphere to outside atmosphere shall ~~must~~ be capable of being closed within one hour, per administrative controls, ~~isolated~~ on at least one side. The specification is met when one of the two automatic isolation valves per penetration is OPERABLE, or by closure of a manual isolation valve, blind flange, or equivalent. Equivalent isolation methods must be approved (through 10 CFR 50.59 safety evaluation process) and may include use of a material that can provide a temporary, atmospheric pressure ventilation barrier for the other containment penetrations during fuel movements.
~~For automatic isolation valves with direct access to the outside atmosphere to be OPERABLE requires that the Ventilation Isolation Actuation Signal (VIAS) is OPERABLE in order to close the valves. This action prevents release of significant radionuclides from the containment to atmosphere. During CORE ALTERATIONS and REFUELING OPERATIONS, the OPERABILITY of VIAS is addressed by Specification 2.8.2(3).~~ The administrative controls to ensure closure of the Equipment Hatch Enclosure (Room 66) doors or equipment hatch, one PAL door, and other penetrations within one hour of a FHA will be implemented in plant procedures. These administrative controls are as follows:

a. the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL shall be capable of being closed in less than one hour of a FHA,
b. the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL shall not be obstructed unless capability for rapid removal of obstructions is provided (such as quick disconnects for hoses),
c. penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be capable of being closed on one side in less than one hour of a FHA,
d. an individual or individuals shall be designated and available during CORE ALTERATIONS and REFUELING OPERATIONS, capable of closing the Equipment Hatch Enclosure (Room 66) doors or equipment hatch, one door in the PAL, and penetrations that provide direct access from the containment atmosphere to the outside atmosphere.

The required actions shall be completed within one hour after the time of a FHA. Provision of these required actions minimizes the release of fission product radioactivity. The fuel handling accident in containment uses the conservative assumptions that activity is instantaneously released to the reactor coolant cavity water and then released over a two-hour time period from containment to the environment. Implementing closure of containment within one hour from the time of accident minimizes the dose consequences to the EAB and LPZ.

When "immediately" is used as a completion time, the required action should be pursued without delay and in a controlled manner.

2.0 LIMITING CONDITIONS FOR OPERATION
2.8 Refueling

2.8.2(2) Refueling Water Level

Prior to REFUELING OPERATIONS inside containment, the reactor refueling cavity is filled with approximately 250,000 gallons of borated water. The minimum refueling water level meets the assumption of iodine decontamination factors following a fuel handling accident. When the water level is lower than the required level, CORE ALTERATIONS and REFUELING OPERATIONS inside of containment shall be suspended immediately. This effectively precludes a fuel handling accident from occurring. When "immediately" is used as a completion time, the required action should be pursued without delay and in a controlled manner. Suspension of REFUELING OPERATIONS and CORE ALTERNATIONS shall not preclude completion of movement of a component to a safe, conservative position. In addition to suspending REFUELING OPERATIONS and CORE ALTERATIONS, action to restore the refueling water level must be initiated immediately.

Movement of irradiated fuel from the reactor core is not initiated before the reactor core has been subcritical for a minimum of 72 hours if the reactor has been operated at power levels in excess of 2% rated power. The restriction of not moving fuel in the reactor for a period of 72 hours after the power has been removed from the core takes advantage of the decay of the short half-life fission products and allows for any failed fuel to purge itself of fission gases, thus reducing the consequences of a fuel handling accident.

2.8.2(3) Ventilation Isolation Actuation Signal (VIAS)

A Ventilation Isolation Actuation Signal (VIAS) is initiated by a Safety Injection Actuation Signal (SIAS), a Containment Spray Actuation Signal (CSAS) or a Containment Radiation High Signal (CRHS). During CORE ALTERATIONS and REFUELING OPERATIONS only the CRHS is required to respond to a fuel handling or reactivity accident. At least one~~two~~ of the following three radiation monitors (Containment Monitor (RM-051), Containment/Auxiliary Building Stack Swing Monitor (RM-052), Auxiliary Building Stack Radiation Monitor (RM-062) must be OPERABLE and aligned to monitor the containment atmosphere or stack effluents. ~~, powered from independent 480-VAC buses, and capable of actuating both the A and B trains of VIAS, to fulfill the requirements of this specification. The independent 480-VAC buses may be supplied by a single 4160-VAC power source. In addition, one manual actuation channel is required to be OPERABLE.~~ (Note, the Offsite Dose Calculation Manual may have additional requirements/restrictions concerning operation of these monitors.)

2.0 **LIMITING CONDITIONS FOR OPERATION**
2.8 Refueling

Bases (Continued)

2.8.2(3) Ventilation Isolation Actuation Signal (VIAS) (Continued)

In the event that noneonly one of the above radiation monitors areis OPERABLE or VIAS manual actuation capability is inoperable, CORE ALTERATIONS and REFUELING OPERATIONS must be suspended thus precluding the possibility of a fuel handling/reactivity accident.

For the fuel handling accident in containment, the very conservative assumption that all the rods in a single assembly fail with no credit taken for containment isolation or atmosphere filtration yields doses at the exclusion area boundary (EAB) and low population zone (LPZ) that remain well within the limits of 10 CFR 50.67100.

VIAS initiates closure of the containment pressure relief, air sample, and purge system valves, if open. This action minimizesprevents release of significant radionuclides from the containment to the environment. The containment penetrations providing direct access to the environment are required to be closed, or capable of being closed by an OPERABLE VIAS in accordance with Specification 2.8.2(1). VIAS also initiates other actions, such as opening of the air supply and exhaust dampers in the safety injection pump rooms in preparation for safety injection pump operation. These other functions are not required to mitigate the consequences of a fuel handling accident, and therefore are not required to be OPERABLE.

Requiring one (1) radiation monitor to be OPERABLE and aligned to monitor the containment atmosphere is a conservative measure to reduce exposure. Radiation monitoring will assure operators are alerted if a radiological incident occurs in containment to enable implementation of administrative controls as specified in the Bases for 2.8.2(1) "Containment Penetrations." During CORE ALTERATIONS and REFUELING OPERATIONS, the OPERABILITY of the control room ventilation system is addressed by Specification 2.8.2(4). The control room ventilation system is placed in Filtered Air mode as a conservative measure to reduce control room operator exposure. Specification 2.8.2(4) allows the radiological consequences analysis for a fuel handling accident to credit the Filtered Air mode at the time of the accident.

When VIAS is inoperable, CORE ALTERATIONS and REFUELING OPERATIONS in containment are immediately suspended. This effectively precludes a fuel handling accident from occurring. When "immediately" is used as a completion time, the required action should be pursued without delay and in a controlled manner. Suspension of CORE ALTERATIONS and REFUELING OPERATIONS shall not preclude completion of movement of a component to a safe, conservative position.

Attachment 3

Requested Changes to Technical Specifications Set Forth In Appendix A of the Facility Operating License No. DPR-40 Clean Revised TS Changes

2.0 **LIMITING CONDITIONS FOR OPERATION**
2.8 Refueling
2.8.2 Refueling Operations - Containment

2.8.2(1) Containment Penetrations

Applicability

Applies to containment penetrations in MODE 5 during CORE ALTERATIONS and REFUELING OPERATIONS inside containment.

Objective

To minimize the consequences of an accident occurring during CORE ALTERATIONS and REFUELING OPERATIONS inside containment that could affect public health and safety.

Specification

The containment penetrations shall be in the following status:

a. The Equipment Hatch Enclosure (Room 66) doors or the equipment hatch shall be capable of being closed;

b. One door in the Personnel Air Lock shall be capable of being closed; and

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere either:

   1. closed by a manual or automatic isolation valve, blind flange, or equivalent, or

   2. capable of being closed.

Note - Penetration flow path(s) providing direct access from the containment atmosphere to the outside atmosphere may be unisolated under administrative controls.

Required Actions

(1) With one or more containment penetrations not in required status, suspend CORE ALTERATIONS and REFUELING OPERATIONS within containment immediately.

2.0 **LIMITING CONDITIONS FOR OPERATION**
2.8 Refueling
2.8.2 Refueling Operations - Containment

2.8.2(3) Ventilation Isolation Actuation Signal (VIAS)

Applicability

Applies to operation of the Ventilation Isolation Actuation Signal (VIAS) during CORE ALTERATIONS and REFUELING OPERATIONS inside containment.

Objective

To minimize the consequences of an accident occurring during CORE ALTERATIONS or REFUELING OPERATIONS that could affect public health and safety.

Specification

VIAS, including manual actuation capability, shall be OPERABLE with one gaseous radiation monitor OPERABLE.

Required Actions

(1) Without one radiation monitor OPERABLE, or VIAS manual actuation capability inoperable, immediately suspend CORE ALTERATIONS and REFUELING OPERATIONS.

2.0 **LIMITING CONDITIONS FOR OPERATION**
2.8 Refueling

Bases (Continued)

2.8.2(1) Containment Penetrations

During CORE ALTERATIONS or REFUELING OPERATIONS inside containment, a release of fission product radioactivity within the containment will be minimized from escaping to the environment when the LCO requirements are met. In MODE 5, the potential for containment pressurization as a result of an accident is not likely; therefore, requirements to isolate the containment from the outside atmosphere are less stringent than when the reactor is at power. The LCO does not require CONTAINMENT INTEGRITY. Since there is no potential for containment pressurization as a result of a fuel handling accident, the Appendix J leakage criteria and tests are not required.

For a fuel handling accident in containment, the very conservative assumption that all the rods in a single assembly fail with no credit for containment isolation or atmosphere filtration yields worst 2-hour doses at the exclusion area boundary (EAB) and low population zone (LPZ) that remain well within the limits of 10 CFR 50.67.

During CORE ALTERATIONS or REFUELING OPERATIONS inside of containment, the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch shall be capable of being closed within one hour after a fuel handling accident per administrative controls. Placing administrative controls (closure requirements) on the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch ensures that the release of fission products is minimized (defense in depth).

The Personnel Air Lock (PAL), which is also part of the containment pressure boundary, provides a means for personnel access into containment. The doors are normally interlocked to prevent simultaneously opening when CONTAINMENT INTEGRITY is required. During periods of shutdown when containment closure is not required, the interlock may be disabled and both PAL doors allowed to remain open for extended periods when frequent containment entry is necessary. During CORE ALTERATIONS or REFUELING OPERATIONS inside containment, CONTAINMENT INTEGRITY is not required, therefore the door interlock mechanism may remain disabled, but one PAL door shall always remain capable of being closed.

2.0 **LIMITING CONDITIONS FOR OPERATION**
2.8 Refueling

Bases (Continued)

2.8.2(1) Containment Penetrations (Continued)

The other containment penetrations that provide direct access from containment atmosphere to outside atmosphere shall be capable of being closed within one hour, per administrative controls, on at least one side. The specification is met when one of the two automatic isolation valves per penetration is OPERABLE, or by closure of a manual isolation valve, blind flange, or equivalent. Equivalent isolation methods must be approved (through 10 CFR 50.59 safety evaluation process) and may include use of a material that can provide a temporary, atmospheric pressure ventilation barrier for the other containment penetrations during fuel movements.

The administrative controls to ensure closure of the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch, one PAL door, and other penetrations within one hour of a FHA will be implemented in plant procedures. These administrative controls are as follows:

a. the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL shall be capable of being closed in less than one hour of a FHA,
b. the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL shall not be obstructed unless capability for rapid removal of obstructions is provided (such as quick disconnects for hoses),
c. penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be capable of being closed on one side in less than one hour of a FHA,
d. an individual or individuals shall be designated and available during CORE ALTERATIONS and REFUELING OPERATIONS, capable of closing the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch, one door in the PAL, and penetrations that provide direct access from the containment atmosphere to the outside atmosphere.

The required actions shall be completed within one hour after the time of a FHA. Provision of these required actions minimizes the release of fission product radioactivity. The fuel handling accident in containment uses the conservative assumptions that activity is instantaneously released to the reactor coolant cavity water and then released over a two-hour time period from containment to the environment. Implementing closure of containment within one hour from the time of accident minimizes the dose consequences to the EAB and LPZ.

When "immediately" is used as a completion time, the required action should be pursued without delay and in a controlled manner.

2.0 LIMITING CONDITIONS FOR OPERATION

2.8 Refueling

2.8.2(2) Refueling Water Level

Prior to REFUELING OPERATIONS inside containment, the reactor refueling cavity is filled with approximately 250,000 gallons of borated water. The minimum refueling water level meets the assumption of iodine decontamination factors following a fuel handling accident. When the water level is lower than the required level, CORE ALTERATIONS and REFUELING OPERATIONS inside of containment shall be suspended immediately. This effectively precludes a fuel handling accident from occurring. When "immediately" is used as a completion time, the required action should be pursued without delay and in a controlled manner. Suspension of REFUELING OPERATIONS and CORE ALTERNATIONS shall not preclude completion of movement of a component to a safe, conservative position. In addition to suspending REFUELING OPERATIONS and CORE ALTERATIONS, action to restore the refueling water level must be initiated immediately.

Movement of irradiated fuel from the reactor core is not initiated before the reactor core has been subcritical for a minimum of 72 hours if the reactor has been operated at power levels in excess of 2% rated power. The restriction of not moving fuel in the reactor for a period of 72 hours after the power has been removed from the core takes advantage of the decay of the short half-life fission products and allows for any failed fuel to purge itself of fission gases, thus reducing the consequences of a fuel handling accident.

2.8.2(3) Ventilation Isolation Actuation Signal (VIAS)

A Ventilation Isolation Actuation Signal (VIAS) is initiated by a Safety Injection Actuation Signal (SIAS), a Containment Spray Actuation Signal (CSAS) or a Containment Radiation High Signal (CRHS). During CORE ALTERATIONS and REFUELING OPERATIONS only the CRHS is required to respond to a fuel handling or reactivity accident. At least one of the following three radiation monitors (Containment Monitor (RM-051), Containment/Auxiliary Building Stack Swing Monitor (RM-052), Auxiliary Building Stack Radiation Monitor (RM-062) must be OPERABLE and aligned to monitor the containment atmosphere or stack effluents. (Note, the Offsite Dose Calculation Manual may have additional requirements/restrictions concerning operation of these monitors.)

2.0 **LIMITING CONDITIONS FOR OPERATION**
2.8 Refueling

Bases (Continued)

2.8.2(3) Ventilation Isolation Actuation Signal (VIAS) (Continued)

In the event that none of the above radiation monitors are OPERABLE or VIAS manual actuation capability is inoperable, CORE ALTERATIONS and REFUELING OPERATIONS must be suspended thus precluding the possibility of a fuel handling/reactivity accident.

For the fuel handling accident in containment, the very conservative assumption that all the rods in a single assembly fail with no credit taken for containment isolation or atmosphere filtration yields doses at the exclusion area boundary (EAB) and low population zone (LPZ) that remain well within the limits of 10 CFR 50.67.

VIAS initiates closure of the containment pressure relief, air sample, and purge system valves, if open. This action minimizes release of significant radionuclides from the containment to the environment. VIAS also initiates other actions, such as opening of the air supply and exhaust dampers in the safety injection pump rooms in preparation for safety injection pump operation. These other functions are not required to mitigate the consequences of a fuel handling accident, and therefore are not required to be OPERABLE.

Requiring one (1) radiation monitor to be OPERABLE and aligned to monitor the containment atmosphere is a conservative measure to reduce exposure. Radiation monitoring will assure operators are alerted if a radiological incident occurs in containment to enable implementation of administrative controls as specified in the Bases for 2.8.2(1) "Containment Penetrations." During CORE ALTERATIONS and REFUELING OPERATIONS, the OPERABILITY of the control room ventilation system is addressed by Specification 2.8.2(4). The control room ventilation system is placed in Filtered Air mode as a conservative measure to reduce control room operator exposure. Specification 2.8.2(4) allows the radiological consequences analysis for a fuel handling accident to credit the Filtered Air mode at the time of the accident.

When VIAS is inoperable, CORE ALTERATIONS and REFUELING OPERATIONS in containment are immediately suspended. This effectively precludes a fuel handling accident from occurring. When "immediately" is used as a completion time, the required action should be pursued without delay and in a controlled manner. Suspension of CORE ALTERATIONS and REFUELING OPERATIONS shall not preclude completion of movement of a component to a safe, conservative position.

Attachment 4

OPPD Commitments

The formal commitments for administrative controls are as follows:

a. The Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL shall be capable of being closed in less than one hour of a FHA.

b. The Equipment Hatch Enclosure (Room 66) doors or the equipment hatch and one door in the PAL shall not be obstructed unless capability for rapid removal of obstructions is provided (such as quick disconnects for hoses).

c. Penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be capable of being closed on one side in less than one hour of a FHA.

d. An individual or individuals shall be designated and available during core alterations and refueling operations, capable of closing the Equipment Hatch Enclosure (Room 66) doors or the equipment hatch, one door in the PAL, and penetrations that provide direct access from the containment atmosphere to the outside atmosphere.

These administrative controls will be put in place through plant procedures.