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A Duke Energy Company

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November 21, 2002

U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

Subject: Oconee Nuclear Station
Docket Numbers 50-269, 270, and 287
Supplement to License Amendment Request for Full-Scope Implementation of the Alternate Source Term
Technical Specification Change (TSC) Number 2001-07

In a letter dated October 16, 2001, Duke Energy (Duke) submitted a license amendment requesting approval of the Alternate Source Term (AST) analysis methodology for Oconee Nuclear Station.

Duke received questions from the NRC related to the AST LAR and discussed these questions with the NRC in a March 21, 2002 meeting. A common understanding of the questions and required responses were obtained, and an initial supplement to the LAR was submitted on May 20, 2002. Follow-up discussions indicated that some additional information would be helpful for the NRC review. That information was submitted as supplement 2 on September 12, 2002.

Information provided in the LAR describes preliminary design information. Some variation is expected in the final design and field installation. In a conference call on November 19, 2002, Duke discussed the preliminary versus final design with the NRC. Duke made assumptions and performed additional analyses that demonstrates the effect of changes in final design values on dose analysis results.

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The staff has requested that this information be submitted for further consideration. It is included as Attachment 1. Attachment 2 contains the revised X/Q values. Attachment 3 contains the dose results for the Loss of Coolant Accident and Fuel Handling Accident.

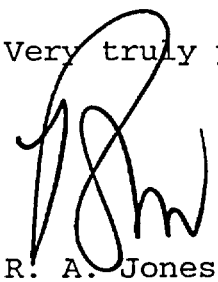
The submittal dated May 20, 2002 contained a typographical error in the offsite dose tabulated for one Fuel Handling Accident case. Case 7 in Duke's response to Request for Additional Information (RAI) 18, which represents a Transport Cask drop in the Unit 1&2 Spent Fuel Pool, was previously reported as 1.2 rem TEDE at the EAB. This dose should have been reported as 1.8 rem TEDE at the EAB. A revised page is provided in Attachment 4.

Duke committed to three modifications in the AST submittal dated 5/20/02. These modifications included: a dual air intake system to the Control Room; a high pressure/low pressure injection relief valve discharge to the reactor building emergency sump; and a passive caustic addition system. The technical specifications will be fully implemented upon completion of these modifications on all three Oconee units.

Pursuant to 10 CFR 50.91, a copy of this proposed license amendment is being sent to the State of South Carolina.

If there are any questions regarding this submittal, please contact Reene' Gambrell at (864) 885-3364.

Very truly yours,



R. A. Jones, Vice President
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R. A. Jones, being duly sworn, states that he is Vice President, Oconee Nuclear Site, Duke Energy Corporation, that he is authorized on the part of said Company to sign and file with the U. S. Nuclear Regulatory Commission this revision to the Renewed Facility Operating License Nos. DPR-38, DPR-47, DPR-55; and that all the statements and matters set forth herein are true and correct to the best of his knowledge.

R. A. Jones, Vice President
Oconee Nuclear Site

Subscribed and sworn to before me this 21 day of November, 2002

Notary Public

My Commission Expires:

My Commission Expires Aug. 19, 2009

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ATTACHMENT 1

Final Design Analysis

Attachment 1
Final Design Analysis

Information provided in Duke Energy's License Amendment Request (LAR) submittal that describes the features and analytical impact of future plant modifications is based on preliminary design information; therefore, some variation is expected in the final design and field installation. Once the modifications are installed and post-modification testing has been performed, changes in χ/Q values and other modeling values along with the resultant change in the calculated doses will be reflected in the Oconee UFSAR update that implements this change. Also, any flow imbalance or other operational differences identified in post-modification testing of the dual control room air intakes will also be addressed in this analysis of the installed modification.

As described in Duke's May 20, 2002 response to Request for Additional Information (RAI) 12, the selection of bounding values from the 1998 testing for unfiltered inleakage for the analyses as submitted in the LAR provides Duke with margin to accommodate changes in input assumptions that could be required to account for possible plant operational changes, such as increases in ECCS system leakage flow, imbalances in ventilation system flow rates, or reductions in filtration efficiencies. Duke has concluded that the appropriate input values for unfiltered inleakage as derived from the tracer gas test results should correspond to the nominal values determined from the testing programs. For the UFSAR analysis, these nominal inleakage values will partially or wholly offset any increases in dose due to final design implementation and operational differences.

As a demonstration, we have evaluated a change of inputs for control room unfiltered inleakage, intake location, and airflow imbalance between dual intakes. For this demonstration, we have chosen the 1998 nominal values for unfiltered inleakage into the control room, with an addition of 10 cfm allowance for unfiltered inflow due to Control Room ingress and egress during the course of an accident. To represent a variation in planned installation, we have chosen a control room intake location which is 10 feet higher (closer to the unit vent release) than in our LAR submittal. This variation causes a dose

increase of approximately 1%. To represent an operational difference, we have chosen a 60% / 40% flow imbalance between the dual control room intakes, which is based on operational experience with dual intakes at Catawba Nuclear Station. This variation causes a dose increase of approximately 20%.

Calculated doses for the LOCA and the limiting Fuel Handling Accident case were evaluated using these assumptions. The results of this demonstration are shown in the table below.

CR Intake Air Imbalance	Unfiltered Inleakage Before / After Booster Fans (cfm)	Height of Control Room Intake	LOCA Control Room Dose (rem TEDE)	Limiting FHA Control Room Dose (rem TEDE)
Balanced	1150 / 150 (1)	Preliminary design	3.2	2.8
60 / 40 Imbalance	1075 / 90 (2)	10' higher than preliminary design	2.7	3.4

(1) Bounding values selected from the 1998 CR testing (with 10 cfm for ingress/egress)
(2) Nominal value results from the 1998 CR testing (with 10 cfm for ingress/egress)

As demonstrated, the LOCA analysis with nominal unfiltered inleakage values results in a dose that is lower than previously reported. The lower inleakage values more than offset the increases in dose from operational differences. For the limiting FHA event, the increased dose is partially offset by nominal inleakage values, but the calculated dose is higher than previously reported primarily due to the assumed CR intake air imbalance. The limiting FHA is considered extremely unlikely, and it involves the assumption of cladding damage and gap activity release from hundreds of assemblies stored in the spent fuel pool by a transport cask drop onto the pool. The calculated FHA dose remains within the regulatory limits.

Duke Energy Corporation will assure that the UFSAR will provide analysis results derived from the final design and will document the demonstrated margins to limits for all

events. A revised set of values as presented in tables provided in Duke's response to Request for Additional Information (RAI) 18 for the FHA dose response and in Section I of the Duke Energy Corporation Supplement to the License Amendment Request (letter, dated September 12, 2002) for the LOCA dose response is provided in Attachment 3.

ATTACHMENT 2

Revised χ/Q Values

ATTACHMENT 2

Revised χ/Q Values

Revised χ/Q values which represent a 60/40 airflow imbalance in dual control room air intakes, and an intake location that is 10' higher that preliminary design.

Release Point Type	Bounding χ/Q value
Vent Release	
0 to 2 hr	5.38E-04
2 to 8 hr	3.74E-04
8 to 24 hr	1.57E-04
1 to 4 days	1.24E-04
4 to 30 days	1.01E-04
Equipment Hatch Release	
0 to 2 hr	3.73E-04
2 to 8 hr	2.90E-04
8 to 24 hr	1.23E-04
1 to 4 days	9.30E-05
4 to 30 days	7.20E-05
Fuel Handling Building Roll-up Door Release	
0 to 2 hr	1.72E-04
2 to 8 hr	1.37E-04
8 to 24 hr	5.75E-05
1 to 4 days	4.43E-05
4 to 30 days	3.36E-05
BWST Release	
0 to 2 hr	2.32E-04
2 to 8 hr	1.76E-04
8 to 24 hr	7.26E-05
1 to 4 days	5.64E-05
4 to 30 days	4.42E-05

ATTACHMENT 3

Dose Results for Loss of Coolant Accident and Fuel Handling Accident

ATTACHMENT 3
Final Design Values for LOCA and FHA

Dose results with a 60 / 40 airflow imbalance, and a control room intake location 10' higher than preliminary design. Nominal 1998 unfiltered inleakage values (plus 10 cfm for doors) were used to offset the increase in dose due to airflow imbalance. Tables also contain a correction of a typographical error in EAB dose for Case 7.

LOCA Calculated Doses			
	Containment Model (rem TEDE)	**RBES Model (rem TEDE)**	**Total TEDE (rem)**
EAB	8.6	0.2	8.8
LPZ	1.6	0.1	1.7
Control Room	2.2	0.5	2.7

Calculated Doses to Control Room Operators due to Fuel Handling Events Spent Fuel Pool (SFP) and Containment					
Case	**Group**	**Source**	**Release Point**	**Control Room Unit Destination**	**TEDE (rem)**
1	1	Fuel Assembly Accident in Either SFP	Any Unit Vent	Unit 1&2	2.2
2	1	Fuel Assembly Accident in Either SFP	Either Roll-Up Door	Unit 1&2	0.7
3	1	Fuel Assembly Accident in Either SFP	Any Unit Vent	Unit 3	1.4
4	1	Fuel Assembly Accident in Either SFP	Either Roll-Up Door	Unit 3	0.4
5	2	Fuel Assembly Accident in Any Containment	Any Unit Vent	Unit 1&2	1.3
6	2	Fuel Assembly Accident in Any Containment	Any Unit Vent	Unit 3	0.8
7	3	Transport Cask Drop in Unit 1&2 SFP	Any Unit Vent	Unit 1&2	3.4
8	3	Transport Cask Drop in Unit 1&2 SFP	Any Unit Vent	Unit 3	2.2
9	3	ISFSI Cask Drop in Unit 1&2 SFP	Any Unit Vent	Unit 1&2	1.5
10	3	ISFSI Cask Drop in Unit 1&2 SFP	Any Unit Vent	Unit 3	0.9
11	3	ISFSI Cask Drop in Unit 3 SFP	Either Roll-Up Door	Unit 1&2	0.5
12	3	ISFSI Cask Drop in Unit 3 SFP	Either Roll-Up Door	Unit 3	0.3

Calculated Offsite Doses due to Fuel Handling Events Spent Fuel Pool (SFP) and Containment					
Case	**Group**	**Source**	**Release Point**	**EAB TEDE (rem)**	**LPZ TEDE (rem)**
1	1	Fuel Assembly Accident in Either SFP	Any Unit Vent	1.2	0.1
2	1	Fuel Assembly Accident in Either SFP	Either Roll-Up Door	1.2	0.1
5	2	Fuel Assembly Accident in Any Containment	Any Unit Vent	0.7	0.1
7	3	Transport Cask Drop in Unit 1&2 SFP	Any Unit Vent	1.8	0.2
9	3	ISFSI Cask Drop in Unit 1&2 SFP	Any Unit Vent	0.8	0.1
11	3	ISFSI Cask Drop in Unit 3 SFP	Either Roll-Up Door	0.8	0.1

ATTACHMENT 4

Revised Page from Submittal dated May 20, 2002

Calculated Doses to Control Room Operators due to Fuel Handling Events Spent Fuel Pool (SFP) and Containment					
Case	**Group**	**Source**	**Unit and Release Point**	**Control Room Unit Destination**	**TEDE (rem)**
1	1	Fuel Assembly Accident in SFP	Unit 2 Unit Vent	Unit 1&2	1.8
2	1	Fuel Assembly Accident in SFP	Unit 3 Roll-Up Door	Unit 1&2	0.6
3	1	Fuel Assembly Accident in SFP	Unit 2 Unit Vent	Unit 3	1.2
4	1	Fuel Assembly Accident in SFP	Unit 3 Roll-Up Door	Unit 3	0.4
5	2	Fuel Assembly Accident in Containment	Unit 2 Unit Vent	Unit 1&2	1.0
6	2	Fuel Assembly Accident in Containment	Unit 3 Unit Vent	Unit 3	0.7
7	3	Transport Cask Drop in SFP	Unit 2 Unit Vent	Unit 1&2	2.8
8	3	Transport Cask Drop in SFP	Unit 2 Unit Vent	Unit 3	1.9
9	3	ISFSI Cask Drop in SFP	Unit 2 Unit Vent	Unit 1&2	1.2
10	3	ISFSI Cask Drop in SFP	Unit 2 Unit Vent	Unit 3	0.8
11	3	ISFSI Cask Drop in SFP	Unit 3 Roll-Up Door	Unit 1&2	0.4
12	3	ISFSI Cask Drop in SFP	Unit 3 Roll-Up Door	Unit 3	0.3

Calculated Offsite Doses due to Fuel Handling Events Spent Fuel Pool (SFP) and Containment					
Case	**Group**	**Source**	**Unit and Release Point**	**EAB TEDE (rem)**	**LPZ TEDE (rem)**
1	1	Fuel Assembly Accident in SFP	Unit 2 Unit Vent	1.2	0.1
2	1	Fuel Assembly Accident in SFP	Unit 3 Roll-Up Door	1.2	0.1
5	2	Fuel Assembly Accident in Containment	Unit 2 Unit Vent	0.7	0.1
7	3	Transport Cask Drop in SFP	Unit 2 Unit Vent	1.8	0.2
9	3	ISFSI Cask Drop in SFP	Unit 2 Unit Vent	0.8	0.1
11	3	ISFSI Cask Drop in SFP	Unit 3 Roll-Up Door	0.8	0.1