

March 26, 1999

Mr. William R. McCollum, Jr.  
Vice President, Oconee Site  
Duke Energy Corporation  
P. O. Box 1439  
Seneca, SC 29679

**DISTRIBUTION**

~~Docket File~~

PUBLIC

PDII-2 RF

JZwolinski/S.Black

CNorsworthy (e-mail SE only)

OGC

ACRS T-6 E26

GHill(6)

COgle,RII

WBeckner,TSB

MHart

SUBJECT: ISSUANCE OF AMENDMENTS - OCONEE NUCLEAR STATION, UNITS 1, 2,  
AND 3 (TAC NOS. MA3706, MA 3707, AND MA3708)

Dear Mr. McCollum:

The Nuclear Regulatory Commission has issued the enclosed Amendment Nos. 301 ,  
301 , and 301 to Facility Operating Licenses DPR-38, DPR-47, and DPR-55, respectively,  
for the Oconee Nuclear Station, Units 1, 2, and 3. The amendments authorize changes to the  
Updated Final Safety Analysis Report (UFSAR) in response to your application dated  
September 30, 1998.

The amendments increase the maximum fuel rod internal pressure in the spent fuel pool from  
1200 pounds per square inch gauge (psig) to 1300 psig by changing the UFSAR reference to  
the computer code used to determine the fuel rod internal pressure (TACO3 computer code  
would be added) in UFSAR, Chapter 15. In addition, the amendments justify not increasing the  
overall effective decontamination factor for iodine as a consequence of a fuel handling accident  
and change the terminology used in the UFSAR from "fuel assembly gap gas pressure" to "fuel  
rod internal pressure."

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included  
in the Commission's biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:

David E. LaBarge, Senior Project Manager  
Project Directorate II-2  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-269, 50-270, and 50-287

Enclosures:

1. Amendment No. 301 to DPR-38
2. Amendment No. 301 to DPR-47
3. Amendment No. 301 to DPR-55
4. Safety Evaluation

cc w/encls: See next page

DOCUMENT NAME: G:\OCONEE\OA3706AM.wpd

To receive copy of document, indicate in box: "C" = Copy w/o encl "E" = Copy w/encl "N" = No copy

OFFICE	PM:PD22	E	LA:PD22	PERB	OGC	D:PD22
NAME	D.LaBARGE:cn	C.HAWES	R. Hinch	H. Berkow		
DATE	3/17/99	3/17/99	3/17/99	3/26/99	3/24/99	

OFFICIAL RECORD COPY

9904020001 990326  
PDR ADOCK 05000269  
P PDR



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

March 26, 1999

Mr. William R. McCollum, Jr.  
Vice President, Oconee Site  
Duke Energy Corporation  
P. O. Box 1439  
Seneca, SC 29679

SUBJECT: ISSUANCE OF AMENDMENTS - OCONEE NUCLEAR STATION, UNITS 1, 2,  
AND 3 (TAC NOS. MA3706, MA3707, AND MA3708)

Dear Mr. McCollum:

The Nuclear Regulatory Commission has issued the enclosed Amendment Nos. 301 , 301 , and 301 to Facility Operating Licenses DPR-38, DPR-47, and DPR-55, respectively, for the Oconee Nuclear Station, Units 1, 2, and 3. The amendments authorize changes to the Updated Final Safety Analysis Report (UFSAR) in response to your application dated September 30, 1998.

The amendments increase the maximum fuel rod internal pressure in the spent fuel pool from 1200 pounds per square inch gauge (psig) to 1300 psig by changing the UFSAR reference to the computer code used to determine the fuel rod internal pressure (TACO3 computer code would be added) in UFSAR, Chapter 15. In addition, the amendments justify not increasing the overall effective decontamination factor for iodine as a consequence of a fuel handling accident and change the terminology used in the UFSAR from "fuel assembly gap gas pressure" to "fuel rod internal pressure."

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

A handwritten signature in black ink, appearing to read "D. LaBarge", is positioned above the typed name.

David E. LaBarge, Senior Project Manager  
Project Directorate II-2  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-269, 50-270, and 50-287

Enclosures:

1. Amendment No. 301 to DPR-38
2. Amendment No. 301 to DPR-47
3. Amendment No. 301 to DPR-55
4. Safety Evaluation

cc w/encls: See next page

Oconee Nuclear Station

cc:

Ms. Lisa F. Vaughn  
Legal Department (PBO5E)  
Duke Energy Corporation  
422 South Church Street  
Charlotte, North Carolina 28201-1006

Anne Cottingham, Esquire  
Winston and Strawn  
1400 L Street, NW.  
Washington, DC 20005

Mr. Rick N. Edwards  
Framatome Technologies  
Suite 525  
1700 Rockville Pike  
Rockville, Maryland 20852-1631

Manager, LIS  
NUS Corporation  
2650 McCormick Drive, 3rd Floor  
Clearwater, Florida 34619-1035

Senior Resident Inspector  
U. S. Nuclear Regulatory  
Commission  
7812B Rochester Highway  
Seneca, South Carolina 29672

Virgil R. Autry, Director  
Division of Radioactive Waste Management  
Bureau of Land and Waste Management  
Department of Health and Environmental  
Control  
2600 Bull Street  
Columbia, South Carolina 29201-1708

County Supervisor of Oconee County  
Walhalla, South Carolina 29621

Mr. J. E. Burchfield  
Compliance Manager  
Duke Energy Corporation  
Oconee Nuclear Site  
P. O. Box 1439  
Seneca, South Carolina 29679

Ms. Karen E. Long  
Assistant Attorney General  
North Carolina Department of  
Justice  
P. O. Box 629  
Raleigh, North Carolina 27602

L. A. Keller  
Manager - Nuclear Regulatory  
Licensing  
Duke Energy Corporation  
526 South Church Street  
Charlotte, North Carolina 28201-1006

Mr. Richard M. Fry, Director  
Division of Radiation Protection  
North Carolina Department of  
Environment, Health, and  
Natural Resources  
3825 Barrett Drive  
Raleigh, North Carolina 27609-7721

Mr. Steven P. Shaver  
Senior Sales Engineer  
Westinghouse Electric Company  
5929 Carnegie Blvd.  
Suite 500  
Charlotte, North Carolina 28209



UNITED STATES  
**NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

DUKE ENERGY CORPORATION

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT 1

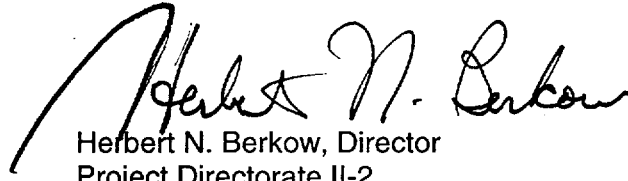
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 301  
License No. DPR-38

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Oconee Nuclear Station, Unit 1 (the facility) Facility Operating License No. DPR-38 filed by the Duke Energy Corporation (the licensee) dated September 30, 1998, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended to authorize revision to the Final Safety Analysis Report (FSAR) as set forth in the application for amendment by the licensee, dated September 30, 1998. The licensee shall update the FSAR to reflect changes related to increasing the maximum rod internal pressure in the spent fuel pool from 1200 to 1300 psig.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read "Herbert N. Berkow". The signature is fluid and cursive, with the first name "Herbert" being more prominent and the last name "Berkow" following in a similar style.

Herbert N. Berkow, Director  
Project Directorate II-2  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Date of Issuance: March 26, 1999



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

DUKE ENERGY CORPORATION

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT 2

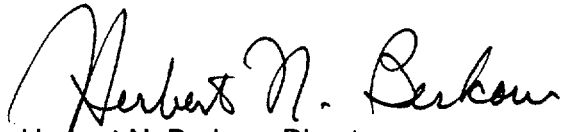
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 301  
License No. DPR-47

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Oconee Nuclear Station, Unit 2 (the facility) Facility Operating License No. DPR-47 filed by the Duke Energy Corporation (the licensee) dated September 30, 1998, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended to authorize revision to the Final Safety Analysis Report (FSAR) as set forth in the application for amendment by the licensee, dated September 30, 1998. The licensee shall update the FSAR to reflect changes related to increasing the maximum rod internal pressure in the spent fuel pool from 1200 to 1300 psig.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, reading "Herbert N. Berkow". The signature is fluid and cursive, with the first name "Herbert" being more prominent and the last name "Berkow" following in a similar style.

Herbert N. Berkow, Director  
Project Directorate II-2  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Date of Issuance: March 26, 1999



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

DUKE ENERGY CORPORATION

DOCKET NO. 50-287

OCONEE NUCLEAR STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

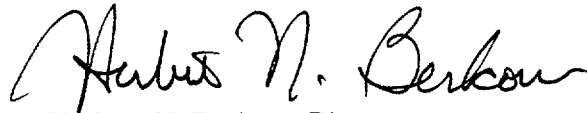
Amendment No. 301  
License No. DPR-55

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Oconee Nuclear Station, Unit 3 (the facility) Facility Operating License No. DPR-55 filed by the Duke Energy Corporation (the licensee) dated September 30, 1998, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended to authorize revision to the Final Safety Analysis Report (FSAR) as set forth in the application for amendment by the licensee, dated September 30, 1998. The licensee shall update the FSAR to reflect changes related to increasing the maximum rod internal pressure in the spent fuel pool from 1200 to 1300 psig.



3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, reading "Herbert N. Berkow". The signature is fluid and cursive, with the first name "Herbert" being more prominent and the last name "Berkow" following in a similar style.

Herbert N. Berkow, Director  
Project Directorate II-2  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Date of Issuance: March 26, 1999



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 301 TO FACILITY OPERATING LICENSE DPR-38

AMENDMENT NO. 301 TO FACILITY OPERATING LICENSE DPR-47

AND AMENDMENT NO. 301 TO FACILITY OPERATING LICENSE DPR-55

DUKE ENERGY CORPORATION

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3

DOCKET NOS. 50-269, 50-270, AND 50-287

1.0 INTRODUCTION

By letter dated September 30, 1998, Duke Energy Corporation (the licensee) submitted a request for changes to the Oconee Nuclear Station, Units 1, 2, and 3, Updated Final Safety Analysis Report (UFSAR). The requested changes would increase the maximum fuel rod internal pressure in the spent fuel pool from 1200 pounds per square inch gauge (psig) to 1300 psig by changing the UFSAR reference to the computer code used to determine the fuel rod internal pressure (TACO3 computer code would be added) in UFSAR, Chapter 15. In addition, the amendments justify not increasing the overall effective decontamination factor for iodine as a consequence of a fuel handling accident and change the terminology used in the UFSAR from "fuel assembly gap gas pressure" to "fuel rod internal pressure." The licensee concluded that the assumptions for the fuel handling accident dose calculation need not change, despite the increase in the maximum rod internal pressure.

2.0 BACKGROUND

The licensee stated that approval of this request would permit full utilization of fuel mechanical reload analysis capabilities provided by the TACO3 computer code, which is described in BAW-10162P-A, "TACO3 Fuel Pin Thermal Analysis Computer Code," Babcock & Wilcox Fuel Company, dated November 1989. The TACO3 computer code methodology has previously been submitted to the NRC in DPC-NE-2008P-A, "Fuel Mechanical Reload Analysis Methodology Using TACO3," dated January 1995. The licensee stated that approval of this request is needed to permit Duke to fully utilize this methodology to provide increased flexibility in fuel cycle designs.

3.0 EVALUATION

The staff reviewed the licensee's justification for not assuming a decreased effective iodine decontamination factor (DF) for the spent fuel pool despite the proposed increase in maximum fuel rod internal pressure. Regulatory Guide (RG) 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors," specifies conditions for which the

effective iodine DF of 100 is applicable. These conditions include (1) maximum fuel rod pressurization of 1200 psig and (2) a minimum water depth between the top of the damaged fuel rods and the fuel pool surface of 23 feet. RG 1.25 does not provide the methodology used to derive the pool DF assumption, nor does it provide a reference to the bases for the stated values. Since the minimum spent fuel pool depth at Oconee is 21.34 feet, the licensee had previously reduced the effective DF from 100 to 89 to maintain a level of conservatism comparable to that of RG 1.25.

Using the methodology specified in Westinghouse Topical Report WCAP-7828, "Radiological Consequences of a Fuel Handling Accident," dated December 1971, Duke calculated a DF of 443 for a rod internal pressure of 1300 psig and a spent fuel pool depth over the fuel rods of 21.34 feet. This factor is well above the DF of 89 currently used by the licensee in fuel handling accident analyses.

Standard Review Plan (SRP), Section 15.7.4, "Radiological Consequences of Fuel Handling Accidents," states that if factors less conservative than those recommended in RG 1.25 are used, guidance provided by G. Burley, Radiological Safety Branch, Division of Reactor Licensing, NRC, titled, "Evaluation of Fission Product Release and Transport for a Fuel Handling Accident," revised October 5, 1971, should be consulted to determine if an adequate basis for the proposed deviation exists. This evaluation is based, in part, on an earlier Westinghouse Topical Report WCAP-7518, "Radiological Consequences of a Fuel Handling Accident," dated June 1970. The basis of RG 1.25 utilized the experimental data and formulation of WCAP-7518 in a manner intended to assure a conservative result appropriate for licensing purposes. The equation used by the staff at the time RG 1.25 was prepared is identical to that used by the licensee, except that differences occur in the parameter values used in the equation. The overall DF of 100 was arbitrarily chosen as the most probable value from a parametric analysis that varied bubble size and iodine partitioning; therefore, the overall DF of 100 cannot be directly traced to particular parameter values.

In both the licensee's proposed method and RG 1.25, the DF is directly proportional to the bubble contact time, and inversely proportional to pool depth. Thus, the staff finds the licensee's method of calculating DF is in accordance with the bases for assumptions given in RG 1.25. Since the licensee has a current DF that is lower in value than that newly calculated, the staff finds that the licensee's proposal to continue use of the assumed DF value of 89 is acceptable.

In addition, the current fuel handling accident analyses remain valid. The staff reviewed the methodology the licensee used to justify allowing the effective DF to remain the same, and determined it to be acceptable. Therefore, the change to increase the maximum fuel rod internal pressure in the spent fuel pool from 1200 psig to 1300 psig by changing the Updated Final Analysis Report (UFSAR) reference to the computer code used to determine the fuel rod internal pressure (addition of a reference to the TACO3 computer code) in UFSAR, Chapter 15 is acceptable.

Also, staff review of the change in terminology used in the UFSAR from "fuel assembly gap gas pressure" to "fuel rod internal pressure" determined that the change is acceptable since it corrects the UFSAR to the proper terminology used in the industry.

#### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the South Carolina State official was notified of the proposed issuance of the amendments. The State official had no comments.

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in Title 10 of the Code of Federal Regulations (10 CFR) Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (63 FR 59590 dated November 4, 1998). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

#### 6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Michelle Hart

Date: March 26, 1999