

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NMR: 8601220215 DOC. DATE: 86/01/14 NOTARIZED: YES DOCKET #
 FACIL: 50-269 Oconee Nuclear Station, Unit 1, Duke Power Co. 05000269
 50-270 Oconee Nuclear Station, Unit 2, Duke Power Co. 05000270
 50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287
 AUTH. NAME AUTHOR AFFILIATION
 TUCKER, H. B. Duke Power Co.
 RECIP. NAME RECIPIENT AFFILIATION
 DENTON, H. R. Office of Nuclear Reactor Regulation, Director (post 851125
 STOLZ, J. F. Office of Nuclear Reactor Regulation, Director (post 851125

SUBJECT: Application for amends to Licenses DPR-23, DPR-47 & DPR-55,
 extending duration of license to 40 yrs from date of
 issuance of full power license. Technical justification &
 environ assessment encl. Fee paid.

DISTRIBUTION CODE: A001D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 12
 TITLE: OR Submittal: General Distribution

NOTES: AEOD/Ornstein: 1cy 05000269
 OL: 02/06/73
 AEOD/Ornstein: 1cy. 05000270
 OL: 10/06/73
 AEOD/Ornstein: 1cy. 05000287
 OL: 07/19/74

RECIPIENT ID CODE/NAME	COPIES LTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTR ENCL
PWR-B ADTS	1 0	PWR-B PD6 PD 01	5 5
PWR-B EB	1 1	EI	1 1
PWR-B FOB	1 1	NICOLARAS, H	1 1
PWR-B PETCSB	1 1	PWR-B RSB	1 1

INTERNAL: ACRS 09	6 6	ADM/LFMR	1 0
ELD/HDS4	1 0	NRR/DHFI/TSCB	1 1
NRR/DSRO/RRAB	1 1	NRR/GRAS	1 0
<u>REC FILE</u> 04	1 1	RCN2	1 1
EXTERNAL: 24X	1 1	EG&G BRUSKF, S	1 1
LPDR 03	1 1	NRC PDR 02	1 1
NSIC 05	1 1		

NOTES:

add: NRR PWR-3 ADTS
 w/ check \$150.⁰⁰
 #18243551

TOTAL NUMBER OF COPIES REQUIRED: LTR 32 ENCL 28

DUKE POWER COMPANY

P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

January 14, 1986

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. J. F. Stolz, Chief
Operating Reactors Branch No. 4

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287

Dear Sir:

Pursuant to 10 CFR 50, §50.90, Duke Power Company (Duke) hereby requests amendments to Facility Operating Licenses DPR-38, DPR-47 and DPR-55 for the Oconee Nuclear Station, Units 1, 2 and 3, respectively. The purpose of these license amendments is to extend the duration of the licenses to forty (40) years from the date of issuance of the full-power license. A license term of 40 years from the date of issuance of the full-power license is permitted by the the NRC regulations, specifically 10 CFR 50, §50.51. Further, commission approval of the proposed amendments would be consistent with recent NRC actions.

The Oconee Nuclear Station is currently licensed for Plant operation for 40 years commencing with the issuance of the construction permit, which was on November 6, 1967 for all three units. Thus, for all three units the licenses will expire at midnight, November 6, 2007. It is, therefore, requested that these license expiration dates be changed to February 6, 2013 for Unit 1 (DPR-38 was issued February 6, 1973); to October 6, 2013 for Unit 2 (DPR-47 was issued October 6, 1973); and to July 19, 2014 for Unit 3 (DPR -55 was issued July 19, 1974). Attachment 1 provides the proposed changes to the Facility Operating Licenses for Oconee Nuclear Station (DPR-38, -47 and -55).

A Technical Justification and Environmental Assessment in support of the proposed changes is provided by Attachment 2. In accordance with 10 CFR 50, §50.92, a No Significant Hazards Evaluation was performed. Attachment 3 provides a discussion of the results of the evaluation. Pursuant to 10 CFR §50.91(b)(1), Duke will forward a copy of this submittal to the South Carolina Department of Health and Environmental Control.

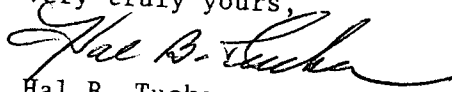
8601220215 860114
PDR ADDCK 05000269
P PDR

Pool
Add: NER PWR-B ADTS
w/ check
\$150.00
#18249551

Mr. Harold R. Denton, Director
January 14, 1986
Page Two

A check in the amount of \$150.00 is enclosed in accordance with 10 CFR 170.12 to cover the application fee specified by §170.12.

Very truly yours,


Hal B. Tucker

PFG: slb

Attachments

cc: Ms. Helen Nicolaras
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. J. C. Bryant
NRC Resident Inspector
Oconee Nuclear Station


Mr. Heyward Shealy, Chief
Bureau of Radiological Health
S. C. Department of Health & Environmental Control
2600 Bull Street
Columbus, South Carolina 29201

Mr. Harold R. Denton, Director
January 14, 1986
Page Three

HAL B. TUCKER, being duly sworn, states that he is Vice President of Duke Power Company; that he is authorized on the part of said Company to sign and file with the Nuclear Regulatory Commission this request for amendment of the Oconee Nuclear Station Facility Operating Licenses DPR-38, DPR-47, and DPR-55; and that all statements and matters set forth therein are true and correct to the best of his knowledge.


Hal B. Tucker, Vice President

Subscribed and sworn to before me this 14th day of January, 1986.


Notary Public

My Commission Expires:

September 20, 1989

Attachment 1

Duke Power Company
Oconee Nuclear Station

Proposed Facility Operating License Amendment

- I. Please revise Facility Operating License No. DPR-38 to read as follows:
 4. This License amendment is effective as of the date of issuance and shall expire at midnight, February 6, 2013.
- II. Please revise Facility Operating License No. DPR-47 to read as follows:
 4. This License amendment is effective as of the date of issuance and shall expire at midnight, October 6, 2013.
- III. Please revise Facility Operating License No. DPR-55 to read as follows:
 4. This License amendment is effective as of the date of issuance and shall expire at midnight, July 19, 2014.

Attachment 2

Duke Power Company
Oconee Nuclear Station

Technical Justification
and
Environmental Assessment

INTRODUCTION

Oconee Nuclear Station is currently licensed for plant operation for 40 years commencing with issuance of the construction permits. The Unit 1 license (DPR-38), the Unit 2 license (DPR-47) and the Unit 3 license (DPR-55) currently expire on November 6, 2007. By this license amendment application, Duke requests that these license expiration dates be changed to February 6, 2013 for Unit 1, October 6, 2013 for Unit 2 and July 19, 2014 for Unit 3.

A study to evaluate the potential impacts associated with extending the operating licenses for all three Oconee Units to a full 40-year service life was conducted. The study assessed the potential impacts an extended service may have on: 1) Safety related structures systems and equipment; and 2) the favorable conclusions reached in the Final Environmental Statement (FES) issued by the NRC for the Oconee Nuclear Station.

ASSESSMENT OF NSSS SCOPE

An assessment of the potential impact to the Nuclear Steam Supply System (NSSS) equipment was performed by the Vendor, Babcock and Wilcox (B&W). Based on the assessment made, B&W concluded that there would be no need to change the existing criteria for determining the design life of the NSSS equipment, since the 40-year design life is equivalent to 32 Effective Full Power Years (EFPYs). Specifically, from a materials point of view, the equipment design life is based on the time and cycles of exposure to the plant operating environment. During the plant construction stage, the materials were not exposed to the operating environment except for short time periods for various system functional tests. The system components were not subjected to the environmental impact of radiation until after the operating license was issued.

In addition, all primary and secondary side pressure boundary components within B&W's scope of supply have been designed in accordance with the criteria as specified by the ASME Code, one requirement of which states that protection against fatigue failure must be assured based upon a set of pre-defined operational cycles and the number of occurrences of each, as provided in the RCS Functional Specification.

The ASME Code prescribes a method of determining the fatigue life through the fatigue utilization factor. The life of any pressure boundary component can be predicted by knowing the expected operating service conditions and determining the fatigue utilization. The design life is reached when the fatigue utilization factor, expressed as a fraction, equals 1.0 or greater.

For the Oconee Units, a program has been established to monitor the fatigue utilization factor. This program provides assurances that any potential degradation of the pressure boundary components due to transient cycles will be anticipated and allow for the Initiation of the appropriate corrective measures. This program ensures that the cumulative usage factor remains less than 1.0 throughout the plant operating life.

The Reactor Vessel material analyses have shown that the expected cumulative neutron fluence on the reactor vessel will not be a limiting consideration for a 40 year operating life. The B&WOG's Integrated Reactor Vessel Material

Surveillance Program and the Cavity Dosimetry Program shall provide a means for continuously monitoring the cumulative effects of the neutron exposure on the materials of the reactor vessel. The analyses of the Oconee Unit's plant specific surveillance capsules irradiated inside the reactor vessel of the Crystal River Unit No. 3 will confirm that the predictions used in the analytical techniques for establishing operating limitations for the reactor vessels are conservative.

Compliance with 10CFR50.61 provides assurance that the PTS screening criteria will be met. In a Babcock & Wilcox Report (BAW - 1895, January 1986), Table 2-1 indicates that the calendar year that the RT_{pts} criteria will be exceeded is 2032, 2011, 2100 for units 1, 2, and 3 respectively. The results are conservatively based upon a unit capacity factor of 80%. Currently unit 2's cumulative capacity factor is approximately 65%. Therefore, it can be shown that the projected RT_{pts} values will be below the screening limits at the proposed expiration date of Oconee Unit 2's operating license. This additional information will be provided no later than April 1, 1986.

MECHANICAL SYSTEMS AND EQUIPMENT ASSESSMENT

The safety implications of extending the Oconee operating licenses have been evaluated for safety-related structures, mechanical systems, and equipment that are outside of the NSSS scope of supply. This evaluation included a review of extended service life impacts on equipment integrated dose qualifications. Based on this evaluation, Duke concludes that safety-related structures, mechanical systems, equipment, and components considered will not be impacted by a 40-year operating lifetime. This does not imply that some mechanical system related equipment and components will not wear out or need replacement during the plant operating lifetime. However, existing surveillance and maintenance programs are sufficient to maintain or determine replacement of safety-related components. Periodic inservice inspection and testing requirement have been incorporated into Oconee's Technical Specifications and procedures to provide the added assurance that any unanticipated degradation in systems or equipment will be identified and corrected in a timely manner.

ELECTRICAL EQUIPMENT ASSESSMENT

The safety implications of extending Oconee operating licenses have been evaluated for safety-related electrical systems and equipment. This evaluation included a review of extended service life impacts on equipment integrated dose qualification and environmental qualification in response to NRC IE Bulletin 79-01B and 10 CFR 50.49. For safety-related electrical equipment within the scope of 10 CFR 50.49, aging reviews have been conducted so as to establish a qualified life for the equipment. Where necessary, qualification related maintenance/surveillance/refurbishment/ replacement requirements are integrated into station procedures to ensure that qualification is maintained over the life of the plant. Based on this evaluation, Duke concludes that the electrical systems design, electrical equipment selection and application, and environmental qualification of electrical equipment considered, or is not impacted, by a 40-year operational lifetime.

OCONEE FES IMPACTS

The Final Environmental Statement (FES) for Oconee Nuclear Station dated March, 1972 has been reviewed to determine if conclusions reached by the NRC in that document are materially affected by an extended Oconee operational lifetime. Updated population estimates for the area surrounding Oconee were compared to population estimates referenced in the FES. Additionally, Oconee environmental monitoring programs were reviewed to verify compliance with operating license commitments referenced in the FES.

The estimates for the population within a 20-mile radius of Oconee in the FES were based on the 1970 census and were projected to the year 2010. The population estimates were recalculated based on the 1980 census to the years 2010 and 2020 resulting in the following:

Population Projections Within 20 Mile Radius of Oconee Nuclear Station

<u>Year</u>	<u>Population Total</u>	<u>Population Annual Average Growth (%/Yr.)</u> ³
2010 (1970 census) ¹	125,639	0.754
2020 (1970 census)	135,438 ²	0.754
2010 (1980 census)	231,794	2.31
2020 (1980 census)	246,536	1.97

¹As reported in Oconee FES.

²Extrapolated using FES annual average growth rate projection from 1970 to 2010 within the 0-20 mile radius of Oconee.

³Calculated based on 1970 population of 93,038 within the 0-20 mile radius of Oconee as referenced in the Oconee FES.

The Oconee FES cost-benefit analyses used estimated population doses calculated based on 1970 population statistics to evaluate Oconee radiological impacts. Population growth projections were presumably used indirectly in these cost-benefit analyses to evaluate population growth impacts. In any case, the higher-than-projected population growth rates experienced in the vicinity of Oconee Nuclear Station will not alter the favorable conclusions reached in the FES. The site requirements of 10CFR100 will still be met. The radiological releases resulting from Oconee operation are as low as practicable and, thus, the additional years of Oconee operation will not increase the annual public risk from reactor operation.

The license for the operation of Oconee was issued provided that comprehensive monitoring, as described in the Final Environmental Statement, be undertaken to monitor the effects of plant operation on the aquatic environment of Lakes Keowee, Hartwell and Jocassee. A five-year monitoring program was initiated in 1971 and completed in 1976. The report, entitled "Oconee Nuclear Station Environmental Summary Report 1971-1976", was submitted to the NRC on December 2, 1977 requesting deletion of the technical specification requirements for further non-radiological environmental monitoring. On March 2, 1979, final approval was given to modify the technical specifications to be consistent with NPDES Permit No. SC0000515 issued by the South Carolina Department of

Health and Environmental Control. The permit is periodically reviewed and modified as needed and discharge limits are modified to assure protection of the environment is maintained throughout the operating life of the plant.

In sum, Duke has reviewed the Oconee FES and has concluded that a 40-year operating life is not expected to have a significant adverse effect on the environment.

OCCUPATIONAL EXPOSURE IMPACTS

Duke has also considered the impact on occupational radiation exposures for the additional years of operation from 2007 to 2013 for Units 1&2 and 2007 to 2014 for Unit 3. Based on eleven years of operation to date (1974 to 1984) and other considerations, the additional operation of Oconee is expected to result in no more than an average of 1200 person-rem per year for all three units. The dose reduction/benefits from the ALARA program is expected to offset increases due to plant age and higher dose rates. Oconee's average dose for operation to date is considerably below the current PWR average and represents no undue risk to the plant staff.

ECONOMIC ASSESSMENT

Operation of Oconee Nuclear Station beyond its current operating license period will be a considerable financial benefit to the customers served by Duke Power Company. Oconee Nuclear Station currently provides approximately 20% of the electrical power generated by Duke Power Company. Replacement of Oconee generation at present retirement date is currently projected to cost more than \$1.3 billion over the six years that an extension of the license would give. This cost difference, and the capital cost of the replacement generating facility, would have a considerable impact on consumer rates.

CONCLUSION

In conclusion, Duke reviews of balance of plant systems design, structures, equipment selection and applications, environmental qualification, and an assessment of the NSSS scope of supply by the vendor indicate that a 40-year plant operational lifetime creates no significant safety hazard. Additionally, the evaluation of population growth trends and the Oconee FES indicates that an extended Oconee operating life will not significantly impact FES conclusions.

Attachment 3

Duke Power Company
Oconee Nuclear Station

No Significant Hazards Evaluation

No Significant Hazards Consideration Evaluation

Pursuant to 10 CFR §50.91, Duke Power Company (Duke) has performed an analysis using the standards promulgated in §50.92 and has made the determination that this amendment request involves a no significant hazards consideration. This ensures that operation of the facility in accordance with the proposed amendment 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 accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety.

The proposed revisions to the Facility Operating Licenses for Oconee Nuclear Station do not involve any changes in the format or restraints on plant operations and only contemplates a change to the expiration date of the current license. This extension is within the range permissible by the commission's regulations, specifically 10 CFR 50, §50.51. In addition, a finding of No Significant Hazards Consideration is consistent with recent NRC actions on applications of this type.

As discussed in detail in the Technical Justification and Environmental Assessment (Attachment 2), the proposed extension will have no significant impact on the safe operation of the plant or present an undue risk to the health and safety of the public.

Based on the above considerations, Duke contends that the extension of Oconee's Operating Lifetime in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of accidents previously considered, nor create the possibility of a new or different kind of accident and will not involve a significant reduction in a safety margin. Therefore, Duke concludes that there is no significant hazards consideration associated with the proposed revision to Oconee's Facility Operating Licenses.