

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-416GRAND GULF NUCLEAR STATION, UNIT 1NOTICE OF ISSUANCE OF FACILITY OPERATING LICENSE

On June 16, 1982, the U.S. Nuclear Regulatory Commission (the Commission) issued Facility Operating License No. NPF-13 to the Mississippi Power & Light Company, Middle South Energy, Inc., and South Mississippi Electric Power Association (the licensees) authorizing operation of the Grand Gulf Nuclear Station, Unit 1, (the facility) at reactor core power levels not in excess of 191 megawatts thermal (five percent of full power) in accordance with the provisions of the license, the Technical Specifications and the Environmental Protection Plan.

The Commission has now issued Facility Operating License No. NPF-29 which authorizes operation of the Grand Gulf Nuclear Station, Unit 1, at reactor core power levels not in excess of 3833 megawatts thermal in accordance with the provisions of the license, the Technical Specifications, and the Environmental Protection Plan. License No. NPF-29 supersedes NPF-13, as amended, pursuant to Commission Order CLI-84-19, dated October 25, 1984.

The Grand Gulf Nuclear Station, Unit 1, is a boiling water reactor located at the licensees' site in Claiborne County, Mississippi. The license is effective as of its date of issuance and shall expire at midnight on June 16, 2022.

The application for the license complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations. The Commission has made appropriate findings as required by the Act and the Commission's regulations in 10 CFR Chapter 1, which are set forth

in the license. Prior public notice of the overall action involving the proposed issuance of an operating license was published in the Federal Register on July 28, 1978 (43 FR 32903).

The Commission has determined that the issuance of this license will not result in any environmental impacts other than those evaluated in the Final Environmental Statement since the activity authorized by the license is encompassed by the overall action evaluated in the Final Environmental Statement.

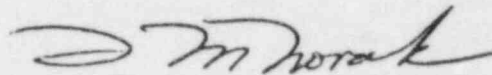
For further details with respect to this action, see (1) Facility Operating License No. NPF-29 complete with Technical Specifications and the Environmental Protection Plan; (2) the Commission's Safety Evaluation Report, dated September 1981 (NUREG-0831), and Supplements 1 through 7; (3) the Final Safety Analysis Report and Amendments thereto; (4) the Final Environmental Statement, dated September 1981 (NUREG-0777); (5) the Evaluation of the Effect of License Duration on Matters Discussed in the Final Environmental Statement for the Grand Gulf Nuclear Station Units 1 and 2 (dated September 1981); (6) the Commission's Memorandum dated August 1, 1984; and (7) Commission Order CLI-84-19, dated October 25, 1984.

These items are available at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D. C. 20555, and at the George McLendon Library, Hinds Junior College, Raymond, Mississippi 39154. A copy of Facility Operating License NPF-29 may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing. Copies of the Safety Evaluation Report and its Supplements (NUREG-0831) and the Final Environmental Statement (NUREG-0777) may be purchased at current rates from the National Technical Information Service, Department of

Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, and through the NRC GPO sales program by writing to the U.S. Nuclear Regulatory Commission, Attention: Sales Manager, Washington, D. C. 20555. GPO deposit account holders may call (301) 492-9530.

Dated at Bethesda, Maryland, this 1<sup>st</sup> day of November 1984.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas M. Novak, Assistant Director  
for Licensing  
Division of Licensing

EVALUATION OF THE EFFECT OF LICENSE DURATION ON MATTERS DISCUSSED  
IN THE FINAL ENVIRONMENTAL STATEMENT FOR THE GRAND GULF NUCLEAR STATION  
UNITS 1 AND 2 (Dated September 1981)

INTRODUCTION

The Final Environmental Statement (FES) for the operation of the Grand Gulf Nuclear Station Unit Nos. 1 and 2 was published in September 1981. At that time it was staff practice to issue operating licenses for a period of 40 years from the date of the construction permit. For Grand Gulf the CPs were issued in September 1974, thus, approximately 30 years of operating life would be available.

By letter dated June 10, 1982, Mississippi Power & Light Company requested that the operating license for Grand Gulf Nuclear Station, Unit 1 then under consideration by the staff, have a duration of 40 years from the date of issuance. On June 16, 1982, a license, conditioned to not exceed 5% power, effective for a 40-year period from issuance of the CP, was issued to MP&L for the operation of Grand Gulf Nuclear Station, Unit 1.

DISCUSSION

The staff has reviewed the Grand Gulf FES to determine which aspects considered in the FES are affected by the duration of the operating license. In general, the FES assesses various impacts associated with operation of the facility in terms of annual impacts and balances these against the anticipated annual energy production benefits. Thus, the overall assessment and conclusions would not be dependent on specific operating life. There are, however, three areas in which a specific operating life was assumed:

1. Project costs are based on a 30-year levelized cost.
2. Radiological assessments are based on a 15-year plant midlife.
3. Uranium fuel cycle impacts are based on one initial core load and annual refuelings.

These were assessed to determine whether the use of a 40-year operating period rather than a 30-year operating period would significantly affect our assessment concerning these areas.

EVALUATION:

The staff's appraisal of the significance of the use of 40 years of operation rather than 30 as it affects these three areas is presented in the following discussions:

1. Projected Costs - The projected costs of the facility which includes the cost of decommissioning are based on a 30-year operating life and are levelized over that period of time. The use of a 40-year operating period rather than a 30-year period would not significantly affect the operating and maintenance cost. If the facility's capital cost were spread over a 40-year period the overall resulting cost of facility operation would be lowered. Therefore, any extension in the operating life of the facility would result in savings in system production costs. The production of energy at reduced cost results in an incremental net benefit for the use of a 40-year operating life of the facility.
2. Radiological Assessments - The NRC staff calculates dose commitments to the human population residing around nuclear power reactors to assess the impact on people from radioactive material released from these reactors. The annual dose commitment is calculated to be the dose that would be received over a 50-year period following the intake of radioactivity for 1 year under the conditions that would exist 15 years after the plant began operation.

The 15 year period is chosen as representing the midpoint of plant operation and factors into the dose models by allowing for buildup of long life radionuclides in the soil. It affects the estimated doses only for radionuclides ingested by humans that have half-lives greater than a few years. For a plant licensed for 40 years, increasing the buildup period from 15 to 20 years would increase the dose from long life radionuclides via the ingestion pathways by 33% at most. It would have much less effect on dose from shorter life radionuclides. Tables D-4 and D-5 of Appendix D to the FES indicate that the estimated doses via the ingestion pathways are only a fraction of the regulatory design objectives. For example, the ingestion dose to the thyroid is 7.0 mrem/yr compared to an Appendix I design objective of 15 mrem/yr. Thus, for 7 mrem/yr, an increase of even as much as 33% in these pathways results in a dose within the Appendix I guidelines and would still not be significant.

3. Uranium Fuel Cycle Impacts - The impacts of the uranium fuel cycle are based on 30 years of operation of a model LWR. The fuel requirements for the model LWR were assumed to be one initial core load and 29 annual refuelings (approximately 1/3 core). The annual fuel requirement for the model LWR averaged out over a 40-year operating life (1 initial core and 39 refuelings of approximately 1/3 core) would be reduced slightly as compared to the annual fuel requirement averaged for a 30-year operating life.

The net result would be an approximately 1.5% reduction in the annual fuel requirement for the model LWR. This small reduction in fuel requirements would not lead to significant changes in the impacts of the uranium fuel cycle. The staff does not believe that there would be any changes to Grand Gulf FES Table 5.10 (S-3) that would be necessary in order to consider 40 years of operation. If anything, the values in Table 5.10 become more conservative when a 40-year period of operation is considered.

#### CONCLUSION

The staff has reviewed the Grand Gulf FES and determined that only three of the areas related to its NEPA analysis discussed in the statement were tied directly to a 30-year operating period. The staff has concluded, based on the reasons discussed in the sections above, that the impacts associated with a 40-year operating license duration are not significantly different from those associated with a 30-year operating license duration assessed in the Grand Gulf FES. Therefore, the staff considers that the Grand Gulf FES sufficiently addresses the environmental impacts associated with a 40-year operating period.



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

Docket No. 50-416

Amendment to Indemnity Agreement No. B-72  
Amendment No. 2

Effective November 1, 1984, Indemnity Agreement No. B-72 between Mississippi Power and Light Company, Middle South Energy, Inc., and South Mississippi Electric Power Association and the Nuclear Regulatory Commission dated July 15, 1981, as amended, is hereby further amended as follows:

Item 3 of the Attachment to the indemnity agreement is deleted in its entirety and the following substituted therefor:

Item 3 - License number or numbers

SNM-1882 (From 12:01 a.m., July 15, 1981 to 12 midnight, June 15, 1982, inclusive)

NPF-13 (From 12:01 a.m., June 16, 1982 to 12 midnight October 31, 1984 inclusive)

NPF-29 (From 12:01 a.m., November 1, 1984 )

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Jerome Saltzman, Assistant Director  
State and Licensee Relations  
Office of State Programs

Accepted \_\_\_\_\_, 1984

Accepted \_\_\_\_\_, 1984

By \_\_\_\_\_  
MISSISSIPPI POWER AND LIGHT CO.

By \_\_\_\_\_  
MIDDLE SOUTH ENERGY, INC.

Accepted \_\_\_\_\_, 1984

By \_\_\_\_\_  
SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION