



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

DUKE POWER COMPANY

DOCKET NO. 50-369

MCGUIRE NUCLEAR STATION, UNIT 1

LICENSE FOR FUEL LOADING AND ZERO POWER TESTING

License No. NPF-9

1. The Nuclear Regulatory Commission (the Commission) having found that:
 - A. The application for license filed by the Duke Power Company (the licensee) complies with the standards and requirements of the Atomic Energy Act of 1954, as amended, (the Act), and the Commission's regulations set forth in 10 CFR Chapter I and all required notifications to other agencies or bodies have been duly made;
 - B. Construction of the McGuire Nuclear Station, Unit 1 (the facility) has been substantially completed in conformity with Construction Permit No. CPPR-83 and the application, as amended, the provisions of the Act and the regulations of the Commission.
 - C. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission;
 - D. The facility requires exemptions from certain requirements of Appendices G and H to 10 CFR Part 50. These exemptions are described in the Office of Nuclear Reactor Regulation's Safety Evaluation Report, Supplement No. 2 and in Supplement No. 4. These exemptions are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest. The exemptions are, therefore, hereby granted. With the granting of these exemptions, the facility will operate, to the extent authorized therein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
 - E. There is reasonable assurance: (i) that the activities authorized by this license 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;
 - F. The licensee is technically and financially qualified to engage in the activities authorized by this license in accordance with the Commission's regulations set forth in 10 CFR Chapter I;

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- G. The licensee has satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements", of the Commission's regulations;
 - H. The issuance of this license will not be inimical to the common defense and security or to the health and safety of the public;
 - I. After weighing the environmental, economic, technical, and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of this License for Fuel Loading and Zero Power Testing No. NPF-9 (subject to the conditions for protection of the environment set forth in the Environmental Protection Plan incorporated by reference in this license) is in accordance with 10 CFR Part 51, of the Commission's regulations and all applicable requirements have been satisfied; and
 - J. The receipt, possession, and use of source, byproduct and special nuclear material as authorized by this license will be in accordance with the Commission's regulations in 10 CFR Part 30, 40 and 70.
 - K. The state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.
2. Pursuant to approval by the Nuclear Regulatory Commission at a meeting on January 23, 1980, License No. NPF-9 is hereby issued to the Duke Power Company (the licensee) to read as follows:
- A. This license applies to the McGuire Nuclear Station, Unit 1, a pressurized water reactor and associated equipment (the facility) owned by the Duke Power Company (Duke). The facility is located on the licensee's site in Mecklenburg County, North Carolina, on the shore of Lake Norman approximately 17 miles northwest of Charlotte, North Carolina and is described in Duke Power Company's "Final Safety Analysis Report," as supplemented and amended, and in its Environmental Report, as supplemented and amended.
 - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Duke:
 - (1) Pursuant to Section 103 of the Act and 10 CFR Part 50, to possess, use, and operate the facility at the designated location in Mecklenburg County, North Carolina, in accordance with the limitations set forth in this license;
 - (2) Pursuant to the Act and 10 CFR Part 70 to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

- (3) Pursuant to the Act and 10 CFR Parts 30, 40 and 70 to receive, possess and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
 - (4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
 - (5) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
- (1) Maximum Power Level
The licensee is authorized to (a) load fuel, (b) proceed to initial criticality, and (c) perform startup testing at zero power in Operational Mode 2. Zero power shall be considered to be one decade, as measured on the intermediate range nuclear instrumentation, above the point at which sensible heat is added to the reactor coolant.
 - (2) Technical Specifications and Environmental Protection Plan
The Technical Specifications contained in Appendix A and Environmental Protection Plan contained in Appendix B attached are hereby incorporated into this license. Duke shall operate the facility in accordance with the Technical Specifications and Environmental Protection Plan.
 - (3) Initial Test Program
The licensee shall conduct the post-fuel-loading initial test program through completion of the zero power physics tests. This program (set forth in Section 14 of the Final Safety Analysis Report) has been reviewed and approved by the NRC at the time of issuance of this license. Duke shall not make any modifications to this program unless such modifications are in accordance with the provisions of 10 CFR Section 50.59. In addition, the licensee shall not make any modifications to this program unless modifications have been identified and have received prior NRC approval. Major modifications are defined as:

- a. Elimination of any test identified in Section 14 of the Final Safety Analysis Report, as amended, as essential;
- b. Modification of test objectives, methods or acceptance criteria for any test identified in Section 14 of the Final Safety Analysis Report, as amended, as essential;
- c. Performance of any test at a power level different from that described in the program, as limited by this license authorization; and
- d. Failure to complete any tests included in the described program (planned or scheduled for power levels up to the authorized power level).

(4) Fire Protection Program

The licensee shall maintain in effect and fully implement all provisions of the approved fire protection plan and the NRC staff's McGuire Safety Evaluation Report Fire Protection Review in Supplement No. 2 to the McGuire Nuclear Station Safety Evaluation Report, dated March 1979. Duke Power Company shall comply with Sections 111.G Fire Protection of Safe Shutdown Capability; 111.J Emergency Lighting; and 111.O Oil Collection System for Reactor Coolant Pump of Appendix R to 10 CFR Part 50, dated November 19, 1980 according to the following schedule.

- a. Duke shall implement a Standby Shutdown Facility System to assure shutdown capability during certain postulated fire events as indicated in Duke's letter, dated January 31, 1979. All required changes shall be completed three months after the first refueling of Unit 1, but not later than 24 months after initial fuel loading of Unit 1.
 - b. Duke shall perform required modifications to the oil collection system and fire suppression system for the Reactor Coolant Pump (RCP) motor within three months after the first refueling of Unit 1, but not later than 24 months after initial fuel loading of Unit 1.
- (5) No later than 90 days following issuance of the pending revision to Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident", which was issued for public comment in December 1979, the licensee shall provide a schedule acceptable to the NRC for bringing this facility in compliance with Regulatory Guide 1.97, as revised.

- (6) The licensee shall take the following remedial actions, as alternative actions, acceptable to the environmental qualification requirements for Class IE equipment:
 - (a) Pursuant to SECY-80-370, dated August 6, 1980, complete and auditable records must be available and maintained at a central location which describes the environmental qualification method used for all safety-related electrical equipment in sufficient detail to document the degree of compliance with NUREG-0588. Such records shall be updated and maintained current as equipment is replaced, further tested, or otherwise further qualified to document complete compliance no later than June 30, 1982.
 - (b) No later than June 30, 1982, all safety-related electrical equipment in the facility shall be qualified in accordance with the provisions of NUREG-0588.
- (7) Prior to fuel loading, the licensee will ensure primary containment integrity to the satisfaction of the Office of Inspection and Enforcement to include:
 - (a) Completion of modifications of airlock seals and performance of satisfactory leakage tests.
- (8) Prior to fuel loading, the licensee will complete to the satisfaction of the Office of Inspection and Enforcement a verification that pre-service inspection data reveals no rejectable indications.
- (9) Prior to fuel loading, the licensee will complete to the satisfaction of the Office of Inspection and Enforcement the applicable portions of IE Bulletins 79-02 and 79-14.
- (10) Prior to fuel loading, the licensee will complete to the satisfaction of the Office of Inspection and Enforcement all required fire protection items identified in Table 9.5-1 and Appendix D of Supplement 2 to the McGuire Safety Evaluation Report.
- (11) Prior to fuel loading, the licensee will complete applicable preoperational testing and resolve significant test deficiencies to the satisfaction of the Office of Inspection and Enforcement. As of January 19, 1981, three functional tests requiring completion prior to fuel loading remained to be completed. All of these tests are in progress.

- (12) Prior to fuel loading, the licensee shall, perform confirmatory testing of the engineered safety features reset controls to assure that necessary equipment remain in the emergency mode following reset of its actuation signal. The Office of Inspection and Enforcement will verify.
- (13) The following conditions are related to matters specified in NUREG-0694 "TMI-Related Requirements for New Operating Licenses," June 1980 and NUREG-0737 "Clarification of TMI Action Plan Requirements", November 1980, and utilize the numbering sequence of NUREG-0737. The conditions shall be completed prior to fuel loading to the satisfaction of the Office of Inspection and Enforcement.
- a. The licensee shall obtain nuclear steam supply system vendor review of the zero-power portion of the low-power testing procedures (I.C.7).
 - b. The licensee shall provide procedures for estimating noble gas, radioiodine, and particulate releases rates if the existing effluent instrumentation goes off the scale (II.F.1).
 - c. The licensee shall provide the equipment, training and procedures necessary to accurately determine the presence of airborne radioiodine in areas within the plant where plant personnel may be present during an accident (III.D.3.3).
 - d. The licensee shall identify modifications to assure adequate access to vital areas and protection of safety equipment following an accident resulting in a degraded core (II.B.2).
 - e. The licensee shall complete corrective actions needed to provide the capability to promptly obtain and perform radioisotopic and chemical analysis of reactor coolant and containment atmosphere samples under degraded-core conditions without excessive exposure (II.B.3).
 - f. The licensee shall complete installation of positive indication in the control room of relief and safety valve position (II.D.3).
- (14) Prior to initial criticality, the licensee shall ensure the operability of radwaste systems to the satisfaction of the Office of Inspection and Enforcement including:
- a. Completion of testing of the following systems; liquid radwaste treatment, gaseous radwaste treatment, auxiliary building ventilation, and the radiation monitoring systems associated with the above systems;
 - b. Testing of the flow in the vicinity of the auxiliary building ventilation stack sample probe;

- c. Resolution of the matter of the liquid radwaste and containment ventilation condensate drain tank (CVCDT) discharge monitors being installed too close to the liquid radwaste and CVCDT discharge valves, respectively, to prevent the possible discharge of radioactive material of greater than allowed concentrations;
 - d. Installation of an effluent flow rate monitor on the Unit 1 vent;
 - e. Equipment and procedures used to perform Technical Specifications surveillance requirements for liquid and airborne effluent releases; and
 - f. Containment atmosphere monitors including movement of these monitors closer to sample points to provide representative sampling.
- (15) The acoustic emissions leak detection system must be fully operational prior to initial criticality. The Office of Inspection and Enforcement will verify.
- (16) The licensee shall implement enhanced structural inservice inspection procedures when performed at the normal frequency specified in Section XI of the ASME Boiler and Pressure Vessel Code. The Office of Inspection and Enforcement will verify.
- (17) Prior to initial entry into Hot Shutdown, the licensee will ensure that its pre-operability snubber testing and inspection programs are complete to the satisfaction of the Office of Inspection and Enforcement including:
- a. Establishment and documentation of appropriate test acceptance criteria for the surveillance testing of hydraulic shock suppressors and the verification that these values are consistent with piping design and seismic analysis;
 - b. Verification of manufacturer's certifications of snubber calibration data or onsite calibration data; and
 - c. Development and implementation of a generic program to verify adequate snubber installation.
- (18) The licensee shall re-analyze concrete masonry walls in the auxiliary building to confirm adequacy to support safety-related components or systems and modify as required to assure that failure of these walls will not cause the failure of safety-related items. The Office of Inspection and Enforcement will verify.

- D. The licensee shall maintain and fully implement and maintain in effect the physical security plan, entitled "McGuire Nuclear Station Security Plan", dated February 1, 1978 as revised on July 26, 1978 (Revision 2), August 23, 1978 (Revision 3), September 8, 1978 (Revision 4), October 20, 1978 (Revision 5), October 12, 1979 (Revision 6), March 24, 1980 (Revision 7), August 8, 1980 (Revision 8), October 27, 1980 (Revision 9), and as amended in accordance with the provisions of 10 CFR 50.54(p). Pursuant to 10 CFR Section 2.790(d), the security plan is being withheld from public disclosure because it is deemed to be commercial or financial information within the meaning of 10 CFR Section 9.5(a)(4) and subject to disclosure only in accordance with 10 CFR Section 9.12.
- E. The licensee shall follow all provisions of the NRC approved Guard Training and Qualification Plan, including amendments and changes made pursuant to 10 CFR 50.54(p). The approved Guard Training and Qualification Plan is identified as "McGuire Nuclear Station Guard Training and Qualification Plan" submitted by letter, dated August 7, 1979, as revised by Revision 1, dated June 9, 1980. The Guard Training and Qualification Plan shall be implemented in accordance with 10 CFR 73.55(b), 60 days after the date of the issuance of this license.
- F. The licensee shall immediately notify the NRC of any accident at this facility which could result in an unplanned release of quantities of fission products in excess of allowable limits for normal operation established by the Commission.
- G. The licensee shall report any violations of the requirements contained in Section 2 Items C.(1), C.(3) through C.(18), D and E of this license within 24 hours by telephone and confirm by telegram, mailgram, or facsimile transmission to the Director of the Regional Office, or his designate, no later than the first working day following the violation, with a written followup report within 14 days.
- H. The licensee shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims.
- I. Pursuant to an Order by the Atomic Safety and Licensing Board, dated April 23, 1975, the Nuclear Regulatory Commission incorporates herein the following antitrust conditions:
 - a. The licensee makes the commitments contained herein, recognizing that bulk power supply arrangements between neighboring entities normally tend to serve the public interest. In addition, where there are net benefits to all participants such arrangements also serve the best interests of each of the participants. Among the benefits of such transactions are increased electric system

reliability, a reduction in the cost of electric power, and minimization of the environmental effects of the production and sale of electricity.

Any particular bulk power supply transaction may afford greater benefits to one participant than to another. The benefits realized by a small system may be proportionately greater than those realized by a larger system. The relative benefits to be derived by the parties from a proposed transaction, however, should not be controlling upon a decision with respect to the desirability of participating in the transaction. Accordingly, the licensee will enter into proposed bulk power transactions of the types hereinafter described which, on balance, provide net benefits to the licensee. There are net benefits in a transaction if the licensee recovers the cost of the transaction (as defined in subparagraph (1)(d) hereof) and there is no demonstrable net detriment to the licensee arising from that transaction.

(1) As used herein:

- (a) "Bulk Power" means electric power and any attendant energy, supplied or made available at transmission or sub-transmission voltage by one electric system to another.
- (b) "Neighboring Entity" means a private or public corporation, a governmental agency or authority, a municipality, a cooperative, or a lawful association of any of the foregoing owning or operating, or proposing to own or operate, facilities for the generation and transmission of electricity which meets each of the following criteria: (1) its existing or proposed facilities are economically and technically feasible of interconnection with those of the licensee and (2) with the exception of municipalities, cooperatives, governmental agencies or authorities, and associations, it is, or upon commencement of operations will be, a public utility and subject to regulation with respect to rates and service under the laws of North Carolina or South Carolina or under the Federal Power Act; provided, however, that as to associations, each member of such association is either a public utility as discussed in this clause (2) or a municipality, a cooperative or a governmental agency or authority.
- (c) Where the phrase "neighboring entity" is intended to include entities engaging or proposing to engage only in the distribution of electricity, this is indicated by adding the phrase "including distribution systems."

- (d) "Cost" means any appropriate operating and maintenance expenses, together with all other costs, including a reasonable return on the licensee's investment, which are reasonably allocable to a transaction. However, no value shall be included for loss of revenues due to the loss of any wholesale or retail customer as a result of any transaction hereafter described.
- (2) (a) The licensee will interconnect and coordinate reserves by means of the sale and exchange of emergency and scheduled maintenance bulk power with any neighboring entity(ies), when there are net benefits to each party, on terms that will provide for all of the licensee's properly assignable costs as may be determined by the Federal Energy Regulatory Commission and consistent with such cost assignment will allow the other party the fullest possible benefits of such coordination.
- (b) Emergency service and/or scheduled maintenance service to be provided by each party will be furnished to the fullest extent available from the supplying party and desired by the party in need. The licensee and each party will provide to the other emergency service and/or scheduled maintenance service if and when available from its own generation and, in accordance with recognized industry practice, from generation of others to the extent it can do so without impairing service to its customers, including other electric systems to whom it has firm commitments.
- (c) Each party to a reserve coordination arrangements will establish its own reserve criteria, but in no event shall the minimum installed reserve on each system be less than 15%, calculated as a percentage of estimated peak load responsibility. Either party, if it has, or has firmly planned, installed reserves in excess of the amount called for by its own reserve criterion, will offer any such excess as may in fact be available at the time for which it is sought and for such period as the selling party shall determine for purchase in accordance with reasonable industry practice by the other party to meet such other party's own reserve requirements. The parties will provide such amounts of spinning reserve as may be adequate to avoid the imposition of unreasonable demands on the other part(ies) in meeting the normal contingencies of operating its (their) system(s). However, in no circumstances shall such spinning reserve requirement exceed the installed reserve requirement.
- (d) Interconnections will not be limited to low voltages when higher voltages are available from the licensee's installed facilities in the area where interconnection is desired and when the proposed arrangement is found to be technically and economically feasible.

- (e) Interconnection and reserve coordination agreements will not embody provisions which impose limitations upon the use or resale of power and energy sold or exchanged pursuant to the agreement. Further, such arrangements will not prohibit the participants from entering into other interconnection and coordination arrangements, but may include appropriate provisions to assure that (i) the licensee receives adequate notice of such additional interconnection or coordination, (ii) the parties will jointly consider and agree upon such measures, if any, as are reasonably necessary to protect the reliability of the interconnected systems and to prevent undue burdens from being imposed on any system, and (iii) the licensee will be fully compensated for its costs. Reasonable industry practice as developed in the area from time to time will satisfy this provision.
- (3) The licensee currently has on file, and may hereafter file, with the Federal Energy Regulatory Commission contracts with neighboring entity(ies) providing for the sale and exchange of short-term power and energy, limited term power and energy, economy energy, non-displacement energy, and emergency capacity and energy. The licensee will enter into contracts providing for the same or for like transactions with any neighboring entity on terms which enable the licensee to recover the full costs allocable to such transaction.
- (4) The licensee currently sells capacity and energy in bulk on a full requirements basis to several entities engaging in the distribution of electric power at retail. In addition, the licensee supplies electricity directly to ultimate users in a number of municipalities. Should any such entity(ies) or municipality(ies) desire to become a neighboring entity as defined in subparagraph (1)(b) hereof (either alone or through combination with others), the licensee will assist in facilitating the necessary transition through the sale of partial requirements firm power and energy to the extent that, except for such transition, the licensee would otherwise be supplying firm power and energy. The provision of such firm partial requirements service shall be under such rates, terms and conditions as shall be found by the Federal Energy Regulatory Commission to provide for the recovery of the licensee's cost. The licensee will sell capacity and energy in bulk on a full requirements basis to any municipality currently served by the licensee when such municipality lawfully engages in the distribution of electric power at retail.
- (5) (a) The licensee will facilitate the exchange of electric power in bulk in wholesale transactions over its transmission facilities (1) between or among two or more neighboring entities including distribution systems with which it is interconnected or may be interconnected in the future,

and (2) between any such entity(ies) and any other electric system engaging in bulk power supply between whose facilities the licensee's transmission lines and other transmission lines would form a continuous electric path, provided that permission to utilize such other transmission lines has been obtained. Such transaction shall be undertaken provided that the particular transaction reasonably can be accommodated by the licensee's transmission system from a functional and technical standpoint and does not constitute the wheeling of power to a retail customer. Such transmission shall be on terms that fully compensate the licensee for its cost. Any entity(ies) requesting such transmission arrangements shall give reasonable notice of its (their) schedule and requirements.

- (b) The licensee will include in its planning and construction program sufficient transmission capacity as required for the transactions referred to in subparagraph (a) of this paragraph, provided that (1) the neighboring entity(ies) gives the licensee sufficient advance notice as may be necessary reasonably to accommodate its (their) requirements from a functional and technical standpoint and (2) that such entity(ies) fully compensate the licensee for its cost. In carrying out this subparagraph (b), however, the licensee shall not be required to construct or add transmission facilities which (a) will be of no demonstrable present or future benefit to the licensee, or (b) which could be constructed by the requesting entity(ies) without duplicating any portion of the licensee's existing transmission lines, or (c) which would jeopardize the licensee's ability to finance or construct on reasonable terms facilities needed to meet its own anticipated system requirements. Where regulatory or environmental approvals are required for the construction or addition of transmission facilities, needed for the transactions referred to in subparagraph (a) of this paragraph it shall be the responsibility of the entity(ies) seeking the transaction to participate in obtaining such approvals, including sharing in the cost thereof.
- (6) To increase the possibility of achieving greater reliability and economy of electric generation and transmission facilities, the licensee will discuss load projections and system development plans with any neighboring entity(ies).
- (7) When the licensee's plans for future nuclear generating units (for which application will hereafter be made to the Nuclear Regulatory Commission) have reached the stage of serious planning, but before firm decisions have been made as to the size and desired completion date of the proposed nuclear units, the licensee will notify all neighboring entities

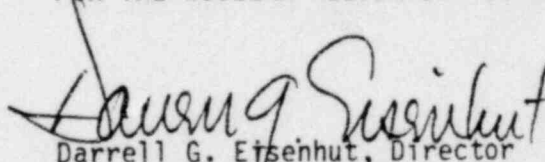
including distribution systems with peak loads smaller than the licensee's that the licensee plans to construct such nuclear units. Neither the timing nor the information provided need be such as to jeopardize obtaining the required site at the lowest possible cost.

- (8) The foregoing commitments shall be implemented in a manner consistent with the provisions of the Federal Power Act and all other lawful local, state and Federal regulation and authority. Nothing in these commitments is intended to determine in advance the resolution of issues which are properly raised at the Federal Energy Regulatory Commission concerning such commitments, including allocation of costs or the rates to be charged. The licensee will negotiate (including the execution of a contingent statement of intent) with respect to the foregoing commitments with any neighboring entity including distribution systems where applicable engaging in or proposing to engage in bulk power supply transactions, but the licensee shall not be required to enter into any final arrangement prior to resolution of any substantial questions as to the lawful authority of an entity to engage in the transactions.

In addition, the licensee shall not be obligated to enter into a given bulk power supply transaction if: (1) to do so would violate, or incapacitate it from performing, any existing lawful contracts it has with a third party; (2) there is contemporaneously available to it a competing or alternative arrangement which affords it greater benefits which would be mutually exclusive of such arrangement; (3) to do so would adversely affect its system operations or the reliability of power supply to its customers, or (4) if to do so would jeopardize the licensee's ability to finance or construct on reasonable terms facilities needed to meet its own anticipated system requirements.

- I. This license is effective as of the date of issuance and shall expire one year after that date.

FOR THE NUCLEAR REGULATORY COMMISSION



Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Date of Issuance: JAN 23 1981