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H. B. Barron
Vice President

March 7, 2001

Mr. Samuel J. Collins, Director
Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

John [Signature]
for action

Subject: Duke Energy Corporation
McGuire Nuclear Station
Docket Nos. 50-369, 50-370
Request for Exemption for License Candidates
10 CFR 55 Operators' Licenses
Docket Nos. 55-22266, 55-22613, 55-22614, 55-22615

GARY
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Duke Energy, acting on behalf of the candidates named in Attachment 2, requests an exemption from certain requirements of 10 CFR Part 55, "Operators' Licenses."

Specifically, Duke Energy requests an exemption from the requirements of 10 CFR 55.31(a)(5), which requires that five significant control manipulations which affect reactivity or power level be performed on the actual plant as a prerequisite for license eligibility. This exemption will allow these candidates to perform the control manipulations on a simulator facility in lieu of using the actual plant. The exemption request with supporting rationale is provided as Attachment 1. Duke Energy requests NRC approval of this exemption by May 7, 2001.

At McGuire, a license class is in progress, which includes five Reactor Operator (RO) or (Instant) Senior Reactor Operators (SRO) candidates who must obtain five control manipulations each. It is difficult to coordinate actual plant manipulations into the curriculum of the license class. Plant operations have improved at McGuire in a manner consistent with the nuclear industry. As a result of this improvement, fewer opportunities exist for reactor startups and other plant power level manipulations. In addition, it is difficult to predict and have available all license candidates for planned outage or power reductions due to the potential of schedule changes and limitations on control room access and work hour limitations.

The simulator will use models relating to the nuclear and thermal-hydraulic characteristics that replicate the core load that exists in the nuclear power unit for which a license is being sought at the time of the applicant's operating test. Simulator fidelity will be demonstrated so that

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U. S. Nuclear Regulatory Commission
March 7, 2001
Page 2

significant control manipulations are completed without procedural exceptions, simulator performance exceptions, or deviation from the approved training scenario sequence. Simulator training provides a wide range of operating conditions in an environment conducive to individualized instruction. In addition, there are potential cost saving that may result from increased power generating capability by avoiding training manipulations.

As described in detail in Attachment 1, this exemption request is authorized by law, will not endanger the life or property and is otherwise in the public interest. As such, this exemption meets the requirements of 10 CFR 55.11. The only commitments in this exemption request are those described in section II.D. "Simulator Assessment" of Attachment 1.

By letter dated October 11, 2000, as supplemented by letter dated December 12, 2000, Duke Energy requested a similar exemption for candidates in the operator licensing classes at Catawba Nuclear Station. This exemption was approved by the NRC staff by letter dated February 14, 2001 (TAC Nos. MB0355 and MB0356). Any questions related to this request for exemption should be directed to Kay Crane, McGuire Regulatory Compliance at (704) 875-4306.



H. B. Barron, Vice President
McGuire Nuclear Station

Attachment

U. S. Nuclear Regulatory Commission
March 7, 2001
Page 3

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U. S. Nuclear Regulatory Commission
March 7, 2001
Page 4

cc: C. A. Orton (MG03OT)
E. L. Roberts (MG03OT)
D. J. Taylor (MG03OT)
RGC File
EC050-ELL

McGuire Nuclear Station, Units 1 and 2
Request for Exemption
10 CFR Part 55, Operators' Licenses

I. Introduction

The purpose of this submittal is to request, in accordance with the provisions of title 10 Code of Federal Regulations, Section 55.1 (10CFR 55.11), "Specific Exemptions" an exemption from the requirements of 10 CFR 55.31(a) (5) on behalf of the candidates named in Attachment 2.

II. Discussion

A. Background

Pursuant to 10 CFR 55.31 (a) (5), a licensee shall provide evidence that an applicant, as a trainee, has successfully manipulated the controls of a facility for which a license is sought. At a minimum, five significant control manipulations must be performed which affect the reactivity or power level. At McGuire Nuclear Station (MNS), a class is in progress, which includes four candidates (reactor operator (RO) or (Instant) senior reactor operator (SRO)) who must obtain five control manipulations each for a total of twenty manipulations. It is difficult to coordinate actual plant manipulations into the curriculum of the license class. Plant operations have improved at McGuire in a manner consistent with the nuclear industry. As a result of this improvement, fewer opportunities exist for reactor startups and other plant power level manipulations. In addition, it is difficult to predict and have available all license candidates for planned outage or power reductions due to the potential of schedule changes and limitations on control room access and work hour limitations.

The standards applied by the NRC to grant an exemption from regulatory requirements are set forth in 10 CFR 55.11. The standards are that:

"The Commission may, upon application by an interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property and are otherwise in the public interest."

B. Requested Exemption

Duke Energy requests an exemption, on behalf of the candidates named in Attachment 2, from the requirements of 10 CFR 55.31 (a) (5) which requires that five significant control manipulations which affect reactivity or power level be performed on the actual plant as a prerequisite for license eligibility, so that a

simulation facility may be considered acceptable for completion of these requirements. This exemption will promote more effective plant operating experience for initial license candidates by allowing use of the simulation facility to satisfy the license eligibility requirements for performance of control manipulations. Simulator training provides a wide range of operating conditions in an environment conducive to individualized instruction. In addition, there are potential cost savings that may result from increased power generating capability by avoiding training manipulations.

The Nuclear Regulatory Commission is currently proposing to amend (FR 00-16751) the regulations of 10 CFR 55.31 (a) (5) for operator and senior operator licenses to fulfill a portion of the experience prerequisites for license eligibility by manipulating a plant-referenced simulator as an alternative to use of the actual plant. The plant-referenced simulator used must meet the requirements of the proposed revisions to 10 CFR 55.45 (b) (FR 00-16751).

SECY 99-225, "Rulemaking Plan for Changes to 10 CFR Part 55 to Reduce Unnecessary Regulatory Burden Associated With the Use of Simulation Facilities in Operator Licensing," dated September 8, 1999, discusses the rulemaking plan for changes to 10 CFR Part 55. Specifically in the background section entitled, "Interim Regulatory Burden Relief Through Exemptions to 10 CFR part 55.31 (a) (5), " it states that during the rulemaking, that staff is prepared to favorably consider requests for exemption from the requirements of 10 CFR 55.31 (a) (5). These exemptions will be reviewed on a case by case basis with evidence from the facility licensee that, with respect to the planned reactivity manipulation scenarios, simulator fidelity is assured by adequate software controls and is confirmed before the training session.

C. Bases for Requested Exemption

The requested exemption is consistent with the requirements of 10 CFR 55.11 and should be granted. First, in accordance with section 55.11, it is clear from the discussion herein that the exemption sought by Duke Energy, on behalf of the candidates named in Attachment 2, is authorized by law, and will not endanger life or property and is otherwise in the public interest.

- (1) Authorized by Law - As discussed above, exemptions from 10 CFR Part 55 are expressly authorized by 10 CFR 55.11.
- (2) Endanger Life or Property - The proposed exemption from the Operators' License requirements for control manipulations that affect the reactivity or power level will not endanger life or property because of use of a plant-referenced simulator facility essentially replicates the experience received from the plant. Use of a plant-referenced simulator facility for these control manipulations is appropriate based on improvements in simulator technology and successful experience in using plant-referenced simulators. The plant-

referenced simulator at McGuire provides operator training and examination scenarios that convey realism in reactivity control manipulations, other normal and abnormal procedure operations, complete plant operations, and emergency operating procedure evolutions, including simultaneous task management and faulted conditions. Performance of control manipulations that affect reactivity or power level constitute only a small part of an applicant's preparedness to perform licensed duties. As such, adequate protection of the public health and safety is provided.

Otherwise in the Public Interest - The proposed exemption is in the public interest because the exemption will promote more effective plant operating experience for initial license applicants by allowing use of the simulation facility in lieu of the actual plant to satisfy the license eligibility requirements. Simulator training provides a wide range of operating conditions in an environment conducive to individualized instruction. In addition, there are potential cost savings that may result from increased power generating capability by avoiding training manipulations.

D. Simulator Assessment

The McGuire plant-referenced simulator was certified in accordance with the requirements of 10 CFR 55.45, "Operating tests" by letter dated January 4, 1991. The simulator meets the guidance contained in American National Standards Institute (ANSI)/American Nuclear Society (ANS)-3-1985, "Nuclear Power Plant Simulators for Use in Operator Training." This standard defines requirements for Nuclear Power Plant Training Simulators for use in Operator Training and Examination and specifies simulator performance and configuration criteria for effective training. ANSI/ANS-3.5-1985 is endorsed by NRC Regulatory Guide 1.149, Revision 1, "Nuclear Power Plant Simulation Facilities For Use In Operator License Examinations." Simulator performance fidelity, as described below, is assured by rigorous simulator software controls and testing.

Duke Power Employee Training and Qualification Standard (ETQS) 701.0, "Simulator Configuration Management" applies to all Duke Power Company training simulators that have been certified as appropriate. This standard establishes guidance for maintaining simulator certification and ensures the above regulatory requirements are met. McGuire Training Procedure (MTP) 7-1, "Simulator Configuration Management and Operating Limits" provides specific detail in the implementation of the corporate standard, defines operating limits for the simulator and establishes a method for ensuring these limits are not exceeded. This MTP also describes configuration management, certification, database requirements, testing and modifications.

Software changes are controlled through a Simulator Modification Work Request process used for configuration management of the simulator. Controls exist

within this process that ensure proposed changes to software are reviewed, analyzed, documented and tested.

Simulator fidelity is verified through a simulator certification testing program. This program includes static fidelity with the Control Room, steady state operation, and operability testing - transients. The static physical aspects of the simulator are verified using visual checks including general appearance, control placement, communications, etc. The steady state and operability or transient verifications involve the dynamic nature of the simulator including 100% steady state operation to cold shutdown including mid-loop operations, various Operating Procedures (OP), Emergency Operating Procedure (EOP) conditions, emergency drill scenarios and plant procedure validations. The dynamics of the simulator are validated during steady state and operability testing.

Plant modifications are reviewed for applicability to the operator training Program. A simulator change package is created for those modifications affecting the operator training program and placed in the simulator tracking system to track to completion. All pertinent data is incorporated into the simulator design database and implemented based upon priority. Validation testing is completed with documented results.

Plant core to simulator core modeling evaluations are completed each cycle. Based upon this evaluation, core modeling updates are implemented as appropriate.

Duke Energy makes the following commitments:

- (1) McGuire staff will ensure that the plant-referenced simulator will use models relating to nuclear and thermal-hydraulic characteristics that reasonably reproduce the core load that exists in the referenced core, Unit 1, as it will exist following the upcoming Unit 1 refueling outage. Credit will only be taken for simulator control manipulations which has been evaluated and approved. The simulator evaluation will be performed in accordance with current site procedures. These procedures require an engineering review of each core cycle reload to determine the need for model updates. Approved procedures will be used during simulator testing.
- (2) Simulator fidelity will be ensured so that significant control manipulations are completed without procedural exceptions, simulator performance exceptions, or deviation from the approved training scenario sequences. Simulator fidelity will be validated prior to first use of a training scenario for control manipulations. This validation will be appropriately documented in accordance with Training Department procedures. This validation will be designed to ensure, to the extent practicable, that the simulator responds consistent with the reference plant.

III. Summary and Conclusion

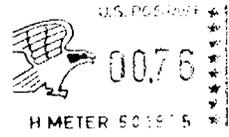
10 CFR 55 addresses Operators' License requirements. Exemptions are provided under the provisions of 10 CFR 55.11. The exemption requested is consistent with Section 55.11 of the Commission's regulations in that it is authorized by law and will not endanger life or property and is otherwise in the public interest. Accordingly, Duke Energy requests that the requested exemption be granted.

List of McGuire Operator License Candidates

<u>Instant Senior Reactor Operator License</u>	<u>Docket Number</u>
Kenneth N. Pitser	55-22614
Catherine M. Swiatek	55-22266
<u>Reactor Operator License</u>	<u>Docket Number</u>
Roger L. Dehart II	55-22613
Mark. S. Roskamp	55-22615



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