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U-603460

March 29, 2001

50-461

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Request for Exemption from Certain Requirements of 10 CFR 55.31, "How to Apply"

References: (1) 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

(2) Proposed Rule, "Operator License Eligibility and Use of Simulation Facilities in Operator Licensing," dated July 3, 2000 (65 FR 41021)

Dear Mr. Collins:

Pursuant to 10 CFR 55.11, "Specific Exemptions," AmerGen Energy Company, LLC (AmerGen) is requesting NRC approval of an exemption from the requirements of 10 CFR 55.31, "How to Apply," paragraph (a)(5) regarding reactivity or power level manipulations performed by applicants for operator and senior operator licenses at Clinton Power Station (CPS). The requested exemption would allow the required reactivity or power level changes to be performed by an applicant on the actual plant and/or the plant-referenced simulator for the facility.

The need for the requested exemption is driven by improvements in plant operations and capacity factors that have reduced the opportunities for applicants for operator and senior operator licenses to perform the number of required reactivity or power level changes on the actual plant without impacting planned full power operation. Additionally, the number of candidates being enrolled in our operator and senior operator training program is increasing. The combination of an increased number of candidates and a reduction in the number of reactivity manipulation opportunities in the plant could result in an increase in operating cost if the actual plant was required to be cycled to ensure all required manipulations were completed.

As explained in Attachment 1 to this letter, the NRC may grant the requested exemption since it would be authorized by law, would not endanger life or property, and would otherwise be in the public interest.

DF01 1/1 Add: NRR/DIPM/IOLB E-Rios

In the Reference 1 rulemaking plan, the NRC indicated it is prepared to favorably consider requests for exemption from the requirement of 10 CFR 55.31(a)(5) while the Reference 2 rulemaking proceeds. Those requests would be considered on a case-by-case basis with evidence that, with respect to the planned reactivity manipulation scenarios, simulator fidelity is assured by adequate software controls and is confirmed before the training session. As described in Attachment 1, simulator fidelity is assured by our simulator support program that maintains software control and pre-tested reactivity manipulation scenarios that are integral to our accredited training program.

Attachment 2 to this letter contains the names of the individuals, to whom this exemption would be granted.

We are requesting NRC approval of the exemption by May 1, 2001, to avoid the planning effort and potential operational costs associated with applicants for operator and senior operator licenses having to perform all the reactivity manipulations on the actual plant.

If you have any questions about this letter, please contact D. J. Russell at (217) 937-3815.

Sincerely yours,

J. M. Heffley
Vice President

JRF/krk

Attachments

cc: NRC Document Control Desk
Regional Administrator, NRC Region III
NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Illinois Department of Nuclear Safety

Exemption Request

References: (1) 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

(2) Proposed Rule, "Operator License Eligibility and Use of Simulation Facilities in Operator Licensing," dated July 3, 2000 (65 FR 41021)

I. Specific Exemption Request

In accordance with 10 CFR 55.11, "Specific Exemptions," we are requesting NRC approval of an exemption from the requirements of 10 CFR 55.31, "How to Apply," regarding reactivity or power level manipulations performed by applicants for operator and senior operator licenses. Specifically, 10 CFR 55.31(a)(5) requires evidence that an applicant for an operator or senior operator license, as a trainee, has successfully manipulated the controls of the facility for which the license is sought. At a minimum, five significant control manipulations which affect reactivity or power level must be performed as a prerequisite for license eligibility. The requested exemption would allow the required reactivity or power level changes to be performed by the applicant on the actual plant and/or the plant-referenced simulator for the facility.

In the Reference 1 rulemaking plan, the NRC indicated it is prepared to favorably consider requests for exemption from the requirement of 10 CFR 55.31(a)(5) while the Reference 2 rulemaking proceeds. Those requests would be considered on a case-by-case basis with evidence that, with respect to the planned reactivity manipulation scenarios, simulator fidelity is assured by adequate software controls and is confirmed before the training session. As described below, simulator fidelity is assured by our simulator support program that maintains software control and pre-tested reactivity manipulation scenarios that are integral to our accredited training program.

II. Basis For Exemption Request

The criteria for granting specific exemptions from 10 CFR 55 regulations are stated in 10 CFR 55.11. Pursuant to 10 CFR 55.11, the NRC is authorized to grant an exemption upon determining that the exemption is authorized by law and will not endanger life or property and is otherwise in the public interest.

The criteria of 10 CFR 55.11 are satisfied

The requested exemption will not endanger life or property. As stated above, the requested exemption would allow applicants for operator and senior operator licenses, as trainees, to perform the required reactivity or power level changes on the actual plant and/or the plant-referenced simulator. Simulator technology has advanced to the point where the simulator can reliably and accurately reproduce the effects of reactivity manipulations on the plant. Simulator scenarios specifically designated for use as reactivity manipulation scenarios will

be selected or developed as part of our accredited training program, and will be validated prior to use. These scenarios will approximate the plant reactor core fuel burn-up at the time the control manipulations are performed and will be implemented using approved plant procedures. The use of these scenarios should enhance operator training through the inclusion of malfunctions and instructor coaching not normally available to trainees on shift.

On-the-job training (OJT) will continue to remain an important aspect of initial licensed operator and senior operator training. Control manipulations that affect reactor power will continue to be performed on the actual plant as operational conditions allow. Taken together, use of the plant-referenced simulator and/or the actual plant for control manipulations will broaden the range of options available for selecting the most advantageous training method. For these reasons, the requested exemption will not endanger life or property.

The requested exemption is in the public interest because the experience prerequisites for license eligibility will continue to be fulfilled by our applicants for operator and senior operator licenses and, at the same time, Clinton Power Station power production capability will not be adversely impacted by the need to perform the required reactivity and power level changes on the actual plant.

Simulator software controls

The plant-referenced simulator is certified in accordance with the requirements of 10 CFR 55.45, "Operating Tests." The simulator meets the guidance contained in American National Standards Institute (ANSI)/American Nuclear Society (ANS)-3.5-1993, "Nuclear Power Plant Simulators for Use in Operator Training," as endorsed by NRC Regulatory Guide 1.149, Revision 2, "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.

Computer software used at Clinton Power Station plant reference simulator is controlled by the processes described below. Plant procedures govern the processes. Software changes are controlled through a Simulator Problem Report System (SPR) used for configuration management of the simulator. The SPR process encompasses simulator design specifications, computer program sources from a source control system, simulator control panel drawings, and the actual simulator control panels. Controls exist within the SPR process that ensure proposed changes to software are reviewed, analyzed, documented, and tested. If a proposed software change affects the simulator design database, it must also be approved by the curriculum review committee.

The simulator operates with a software load (i.e., a combination of programs and data that are tested to allow the simulator to model the plant). A proposed software change is initially designed, documented and implemented on a development load. The change is then incorporated into a test load for acceptance testing by simulator training staff. When the change has been tested, accepted and documented, it is incorporated into a training load for use in actual training applications.

In summary, the processes described above provide rigorous computer software control, including configuration management and structured software design and development. Simulator performance fidelity is ensured by these processes.

Accurate core neutronics and thermal-hydraulics models

Clinton Power Station has installed advanced core neutronics and thermal-hydraulics models. The models have very detailed nodalization which accurately reflects the designed core. The advanced neutronics model has input for every fuel bundle that is loaded in the core. Each fuel bundle is made up of several lattices and every lattice is modeled using a design grade neutron cross section computer code (i.e., CASMO-4). The outputs of the lattice calculations are converted into a format that can be read into the simulator. The reference power distribution for a specific core age is provided by a 3D nodal code (i.e., SIMULATE-3). The information from these codes provides the basis for the simulator models.

Extensive testing is performed to verify that the simulator performance matches the core design. Verification testing based on engineering calculations and/or actual plant performance is performed for the point of criticality at various temperatures, responses to changes in reactor recirculation flow, pressure, level, xenon concentration, boron and control rod movements. The Power to Flow Map is also verified for accuracy.

In summary, the advanced core neutronics and thermal-hydraulics models, as well as the series of tests to verify simulator performance matches the designed reactor core provides assurance of simulator fidelity with respect to planned reactivity manipulation scenarios.

III. Environmental Assessment

In accordance with 10 CFR 51.30, "Environmental Assessment," and 10 CFR 51.32, "Finding of No Significant Impact," the following information is provided in support of an environmental assessment and finding of no significant impact for the proposed action.

The proposed action would grant an exemption from the requirement of 10 CFR 55.31(a)(5) regarding reactivity or power level manipulations performed by applicants for operator and senior operator licenses. Specifically, the exemption would allow the required reactivity or power level changes to be performed by the applicant on the actual plant and/or the plant simulator.

The requested exemption from 10 CFR 55.31(a)(5) is needed because of an increasing number of operator and senior operator candidates and a reduction in the number of reactivity manipulation opportunities in the actual plant. This situation could result in an increase in operating cost if the plant was required to be cycled to ensure all required manipulations were completed.

The principal alternative to the proposed action would be to deny the requested exemption and require all the reactivity and power level manipulations to be performed on the actual plant. Denial of the exemption request would result in no change to environmental impacts. Concerning alternative use of resources, granting the requested exemption will not involve the

use of resources not previously considered in the Final Environmental Statement for Clinton Power Station.

The proposed action (i.e., granting the exemption) will not increase the probability or consequences of accidents, no changes are being made in the types or quantities of any radiological effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

The proposed action does not affect non-radiological plant effluents and has no other environmental impact. Therefore, there are no significant non-radiological impacts associated with the proposed action.

The environmental impacts of the proposed action and the alternative action are similar. Based on the assessment above, the proposed action will not have a significant effect on the quality of the human environment.

IV. Conclusion

We consider this exemption request is in accordance with the criteria of 10 CFR 55.11. The requested exemption will not endanger life or property because, taken together, use of the plant-referenced simulator and/or the actual plant for control manipulations will broaden the range of options available for selecting the most advantageous training method. The requested exemption is in the public interest the experience prerequisites for license eligibility will continue to be fulfilled by our applicants for operator and senior operator licenses and, at the same time, Clinton Power Station power production capability will not be adversely impacted by the need to perform the required reactivity and power level changes on the actual plant.

Simulator performance fidelity is assured by: 1) the use of advanced core neutronics and thermal-hydraulics models in the simulators, and 2) rigorous simulator software controls and processes including configuration management, structured software design and development, and testing.

There are no adverse environmental impacts associated with this specific exemption.

Clinton Power Station
Licensed Operator and Senior Operator Candidates

Reactor Operator

Michael J. Griffin
Stacey D. Hagan
Maxwel L. Kier
Richard R. Kiss
James Lucas
Robert T. Pakidis

Senior Reactor Operator

Bruce J. Alvey
Patrick J. Giancatarino
John R. Goodrich
Harry D. Jeans

We, the above named individuals, are seeking an exemption from the requirement of 10 CFR 55.31, "How to Apply," regarding reactivity or power level manipulations performed by applicants for operator and senior operator licenses. Specifically, 10 CFR 55.31 (a) (5) requires evidence that an applicant for an operator or senior operator license, as a trainee, has successfully manipulated the controls of the facility for which the license is sought. At a minimum, five significant control manipulations which affect reactivity of power level must be performed as a prerequisite for license eligibility. The requested exemption would allow us to perform the required reactivity or power level changes on the actual plant and/or the plant-reference simulator.

Our individual applications for operator or senior operator licenses will indicate that we performed the required reactivity or power level changes on the actual plant and/or the plant-reference simulator.

We affirm that the statements above are true and correct to the best of our knowledge, information and belief.

Michael J. Griffin

Stacey D. Hagan

Maxwel L. Kier

Richard R. Kiss

James Lucas

Robert T. Pakidis

Bruce J. Alvey

Patrick J. Giancatarino

John R. Goodrich

Harry D. Jeans