GPU Nuclear

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Writer's Direct Dial Number:

February 6, 1991
C321-91-2024

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Additional Information in Support of Simulator
Certification Exemption Request

Reference: 1. GPUN letter from E. E. Fitzpatrick to NRC Document Control Desk, September 5, 1990.

2. GPUN letter from E. E. Fitzpatrick to T. T. Martin September 20, 1990

By letter dated September 5, 1990 (Ref. 1), GPUN requested an exemption from the filing requirement of 10 CFR 55.45(b)(2)(iii) to allow for our submittal of NRC Form 474, "Simulator Facility Certification" after the March 26, 1991 deadline provided in the rule. In addition, we further requested an exemption from the requirement of 10 CFR 55.45(b)(2)(iv) to allow us to continue to administer the simulation facility portion of the annual operating test on the Nine Mile Point Unit 1 (NMP-1) simulator. This request was made under the provisions of 10 CFR 50.12 "Specific Exemptions" following the guidance in NRC Generic Letter 90-08 "Simulation Facility Exemptions", dated August 10, 1990.

GPUN explained that special circumstances, as set forth in 10 CFR 50.12(a)(2)(v), are present justifying the exemption, namely that the exemption would provide only temporary relief from the applicable regulation and GPUN has made good faith efforts to comply. GPUN stated, based on the simulator project development schedule at the time, the certification form would be submitted no later than December 31, 1991.

A meeting was held with the NRC on January 8, 1991 to discuss the status of GPUN's exemption request. At that meeting, GPUN agreed to provide additional information in support of the request, in particular, our analysis of the relative benefits of various alternatives for meeting 10 CFR 55.59 operator requalification requirements in lieu of using a certified plant referenced simulator. This analysis is provided in Attachment 1. Based on our analysis of these alternatives, GPUN is proposing to conduct operator requalification as well as additional operator evaluation and assessment in 1991 as identified in Attachment 2.

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As indicated in the attachments, GPUN has concluded that the NMP-1 simulator is the best alternative available for conducting a meaningful operating test and for satisfying the associated requirements of 10 CFR 55.59(a)(2),(3), and (4). The NMP-1 simulator, using Oyster Creek specific software, can reproduce the general operating characteristics of Oyster Creek and is very effective in evaluating a crew's communication skills and team-dependent behavior in a real time environment.

In order to further compensate for the lack of a certified plant referenced simulator during the exemption period, GPUN is proposing to conduct additional operator evaluations using the non-certified plant referenced simulator during factory acceptance testing. This additional evaluation will not be part of the operating test but will be done to emphasize procedure utilization (including emergency operating procedures), command and control, teamwork and communication and to identify possible generic weaknesses or areas where retraining is needed.

The exemption, if granted, would allow GPUN to continue to administer its operator requalification program for a period of approximately 7 months using the NMP-1 simulator as GPUN has done for the past 6 years. GPUN has an NRC approved and INPO accredited operator requalification program that is based on a systems approach to training. The program was rated as satisfactory by the NRC as a result of a program evaluation conducted in April-June, 1990. Furthermore, since that program evaluation, GPUN has made significant improvements in the exam administration process, exam questions and simulator scenarios as identified in our letter dated September 20, 1990 (Reference 2).

GPUN believes that, during the exemption period, this program will continue to ensure that our operators possess the knowledge, skills and abilities needed to safely operate the plant.

If there are any questions regarding this matter, please call Mr. Michael Heller, Licensing Engineer, at (609) 971-4680.

Very truly yours,

P. B. Fiedler
Vice President and Director
Nuclear Assurance

PBF/MH:jc
(All w/att)
cc: Administrator Region 1
Senior NRC Resident Inspector
Oyster Creek NRC Project Manager
R. Gallo

Attachment 1

Listed below are the pros and cons of various alternatives for meeting 10 CFR 55.59 operator requalification requirements in lieu of using a certified plant referenced simulator.

1. Nine Mile Point Unit 1 (NMP-1) Simulator before May 26, 1991

Pros:

° Annual operating test requirement satisfied for 1991.

Cons:

° Outage impact. It is estimated that the cost of the outage will increase by approximately 10 million dollars due to disruption in planning and work caused by key managers, engineers, and operators leaving the plant for extended periods of time when the plant is in abnormal and unusual lineups.

° Not an Oyster Creek plant referenced simulator.

2. NMP-1 Simulator after May 26, 1991

Pros:

° Minimal outage impact.

° Annual/biennial training schedule and cycles not perturbed.

Cons:

° Does not satisfy 10 CFR 55.45(b)(2)(iv) requirement to use certified plant referenced simulator.

General Comments Regarding the NMP-1 Simulator:

° The simulator has an Oyster Creek specific software platter which helps make the time and transient response of the NMP-1 simulator closely match that of Oyster Creek. Over 900 hours of effort has been devoted to development of this software platter.

° The NMP-1 simulator has been successfully used for training and evaluation of our operators since 1985.

° The NMP-1 simulator is presently the best tool available for dynamic real time training and evaluation of our operators - especially in the area of implementation of emergency operating procedures (EOPs), team response, and operator command and control.

° simulator can be used to conduct an operating test that requires the erator to demonstrate an understanding of and the ability to perform the actions necessary to accomplish a comprehensive sample of items specified in 10 CFR 55.45(a)(2) through (13).

3. Oyster Creek Simulator at the Westinghouse Facility in Monroeville, PA.

Pros:

- The panels of this simulator exactly duplicate the Oyster Creek control room (fidelity is greater than that of NMP-1 simulator).

- Since the capabilities of the machine will be steadily improving over the year, most effective utilization of this machine for training and evaluation will occur late in 1991 concurrent with factory acceptance testing (FAT).

Cons:

- The training and evaluation potential of this machine will not be effective until later in 1991.

- Since use of this machine would occur during FAT, exact machine status and response may at times be very unpredictable. Additionally, using the machine for training and evaluation during FAT will have some impact on the conduct and duration of FAT.

- Lack of emergency plan communication facilities.

- Difficult to write/validate scenarios when machine not operating in a routine mode with ready access by instructors.

- Due to space constraints, the arrangement of some of the major back panels is not identical to the control room, and access to these panels is restricted.

- Due to the varying condition of the simulator, the exact training value of this one week of support is difficult to quantify. However, there clearly is a benefit to the operations personnel and it certainly will lead to improved understanding of plant operations.

- Uncertainties associated with the machine preclude its use for pass/fail type of exams (anticipated machine failures, deficiencies, consistency of exam environment, and modeling fixes). Additionally, it cannot be assured that each crew would receive the same training/evaluation.

4. Basic Principles Trainer (BPT)

Pros:

- Allows real time exercise of selected EOPs and plant procedures.
- Located on site. Schedule is flexible.
- The software of the BPT has been modeled specifically to simulate Oyster Creek systems.

Cons:

- Not a plant referenced simulator. Simulation of several systems not possible (e.g. standby gas treatment, primary containment, and most balance of plant systems).
- The limited alarm board and indications of the BPT hinder the operators and STA from fully analyzing transients/problems on a real-time basis with all information normally at their disposal. This, in addition to physical space constraints, impacts the effectiveness of team oriented training efforts.

5. Photographic Control Room Mock-Up

Pros:

- Fairly accurate reproduction of Oyster Creek control room.
- Located on site. Schedule is flexible.

Cons:

- Not dynamic.
- Requires extensive verbal cueing to adequately provide information relative to scenario at hand.
- Not viable as a means of evaluating team interaction on a real-time basis.
- Not viable as a means of accurately evaluating operator control of facility.

6. Plant Walk-Throughs

Pros:

- Schedule is flexible.
- Training setting fidelity is high.

Cons:

- Not dynamic.
- Requires extensive verbal cueing to adequately provide information relative to scenario at hand.
- Not viable as a means of evaluating team interaction on a real-time basis.

7. Plant Evolutions, Plant Events, Critiques

Pros:

- Allows first hand/real time observation of performance.
- Training fidelity issue is moot.
- Most valid assessment tool for characterizing operator performance.

Cons:

- Cannot be used for pass/fail criteria.

Attachment 2

Proposed Operator Requalification, Additional Evaluation and Assessment

1. Pass/fail exams

   - Written exams in accordance with NUREG 1021.

   - JPM exams in accordance with NUREG 1021. As previously discussed with NRC Region 1, these JPM's will compensate for the key differences between Oyster Creek and NMP-1 control rooms.

   - Operating exams using NMP-1 simulator in accordance with NUREG 1021.

2. Additional evaluation

   - Six operating crews and STAs will participate in factory acceptance testing of the plant referenced simulator at the Westinghouse simulator production facility in Monroeville, Pennsylvania. Procedure utilization, command and control, teamwork and communication will be emphasized by our on-site operations department manager for each operating crew. A simulator training instructor will also evaluate and document individual operator and crew performance. Depending upon operability status of the plant referenced simulator, this evaluation will include dynamic simulator exercises, static walk-throughs of transients, or selected control room tasks.

3. On-going assessment

   - Utilize the basic principles trainer (BPT) to assess operator skills in the areas of EOP usage, communication, and command and control.

   - Utilize plant evolutions as an input to characterize and improve operator performance.

   - Utilize plant experience (LERs, critiques) as an input to enhance operator performance via correction on-the-spot or more globally via training.