



## POLICY ISSUE

SECY-91-034

(Information)

February 8, 1991

For:

The Commissioners

From:

James M. Taylor  
Executive Director for Operations

Subject:

FINAL QUARTERLY STATUS REPORT ON THE  
NRC REQUALIFICATION PROGRAM

Purpose:

To provide the final quarterly status and an expanded summary of the NRC licensed operator requalification program. The revised NRC Requalification Program as described in Examiner Standard ES-601, "Administration of the NRC Requalification Program Evaluations," was implemented on October 1, 1988. In a memorandum of June 9, 1988, Chairman Zech requested the Executive Director for Operations (EDO) to provide a quarterly status report. In a September 13, 1989, memorandum to the other Commissioners, Commissioner Curtiss proposed continuing these reports until a full cycle of requalification examinations was completed.

Discussion:

The NRC-administered requalification examination consists of two parts: an operating test and a written examination. The operating test is comprehensive in scope, consisting of crew and individual evaluations on a dynamic simulator and individual evaluations using job performance measures. The written examination consists of a static simulator portion administered in the simulator and an open reference portion administered in the classroom. The examinations are developed by a team of NRC examiners and facility representatives and are based upon the facility's examination material and learning objectives. The NRC also implemented an alternate approach, "Alternative B," for the administration of operating examinations for those facilities that have achieved a satisfactory program evaluation. This methodology, which allows for one examiner to evaluate two operators during the operating test, was described to the Commission in SECY-89-055.

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The NRC has administered requalification examinations at all of the facilities that are regulated under this program except for Shoreham, Fort St. Vrain, and Rancho Seco. The NRC does not plan to administer a requalification program evaluation at these facilities in the future.

The requalification program evaluation of one facility, H. B. Robinson, will not be finalized until it meets the minimum sample size requirement of 12 operators stipulated by the guidance in the Examiner Standard ES-601. The NRC conducted a pilot requalification examination at H. B. Robinson in October 1987, and has scheduled their next NRC-administered requalification examination for April 1991.

Enclosure 1 provides the results of the requalification program from October 1, 1988 to November 30, 1990. A summary of these results is given below.

#### Requalification Program Results Summary

<u>Programs</u> <u>SAT/UNSAT</u>	<u>Operators</u> <u>Examined</u>	<u>Operators</u> <u>Pass/Fail</u>
89/11	1795	1558/237
<u>Written Exam</u> <u>Failures</u>	<u>Dynamic</u> <u>Simulator</u> <u>Failures</u>	<u>Job Performance</u> <u>Measure Failures</u> <u>(Task/Questions)</u>
102	130	38/11

Note: Some operators failed more than one part of the examination.

Approximately 65 percent of those operators who failed the dynamic simulator examination were members of operating crews that failed.

The results indicate that the dynamic simulator and written examinations are providing a discriminatory testing method for evaluating operators. Though the job performance measures and their associated questions have not been as discriminatory, they have been effective in identifying weak operating procedures, confirming operator deficiencies noted in the dynamic simulator and written examinations and verifying operator familiarity with procedures utilizing remote plant equipment.

During the first full year (October 1988 through September 1989) using the current method of requalification program evaluation, the NRC evaluated 574 operators and completed 36 program evaluations. Of the 574 operators evaluated, 100 failed, a rate of 17 percent, and of the 36 requalification programs evaluated, 7 were determined to be unsatisfactory, a rate of 19 percent.

During the second year (October 1989 through September 1990), the NRC evaluated 1063 operators and completed 57 program evaluations. Of the 1063 operators, 123 failed, a rate of 12 percent, and of the 57 requalification programs evaluated, 3 were determined to be unsatisfactory, a rate of 5 percent.

The NRC has completed 7 requalification program evaluations during the current fiscal year (through November 1990). One program (Wolf Creek) has been evaluated as unsatisfactory.

Currently, the requalification programs at four facilities have unsatisfactory ratings by the NRC. Those facilities are Limerick, Brunswick, Duane Arnold, and Wolf Creek. Each of these facilities is conducting specific measures to correct the deficiencies in its program. The NRC will reevaluate these facilities during fiscal year 1991. Enclosure 1 provides the specific dates for the reevaluations.

As discussed above, the staff has implemented the "Alternative B" process for conducting operating tests for those facilities that have a current satisfactory requalification program evaluation. Although the direct NRC evaluation of an individual operator is reduced, there still exists sufficient basis to determine the operator's proficiency and make a decision regarding license renewal. The staff concludes that this method is a desirable alternative because it involves fewer NRC and facility resources and reduces both the stress on the operators and the regulatory impact on the facility.

Both the summary results and feedback from the NRC examiners indicate that the program has proven to be an effective method to assess operator competence and to accurately evaluate facility requalification training programs. The staff has noted that many facility licensees underestimated the level of effort necessary to develop and maintain a performance-based requalification program. This conclusion is based upon the number of unsatisfactory programs (7) and the number of weaknesses identified during the first year of NRC-administered evaluations. At many sites, the staff identified marginal or non-discriminatory testing materials,



unprepared facility evaluators, nonexistent or marginal requalification sample plans for selecting and developing test items, and a weak interface in communication between the facilities training and operating departments. The NRC staff noted general improvement in these areas during the second year of NRC-administered evaluations. The staff believes that the NRC should continue to focus on these areas during program evaluations.

The staff is currently assessing several areas of concern that have been identified by facility licensees, NRC staff and NRC examiners regarding the requalification process and its effect on operators. These concerns have been categorized into three main topics: operator stress, dynamic simulator scenario content and individual simulator critical tasks.

With respect to the operator stress issue, the Human Factors Assessment Branch of the Division of Licensee Performance and Quality Evaluation has initiated a four month program in which human factors specialists will conduct interviews with licensee evaluators and operators, solicit operator feedback on the requalification process via questionnaires and observe both NRC and facility requalification examinations being administered. This independent assessment will look at the examination structure and process, consequences of failing a requalification examination and current initiatives by both the industry and the NRC to reduce stress. The result of this study is intended to address the sources of stress, and strategies to reduce and manage stress during the examination process. It is anticipated that this study will be complete by the end of June 1991.

The Operator Licensing Branch is evaluating simulator examinations administered over the last 6 months for content, adherence to the examiner standards and consistency across the regions. The intent of this study is to determine if there are significant differences in the simulator examinations that are being administered in each region and whether additional guidance from the program office related to the construction and administration of these examinations is required.

The staff is also considering a pilot program to eliminate Individual Simulator Critical Tasks and to evaluate crew performance during the dynamic simulator portion of the NRC-administered requalification examination. The staff believes evaluation of crew performance rather than individual performance will emphasize the importance of teamwork,

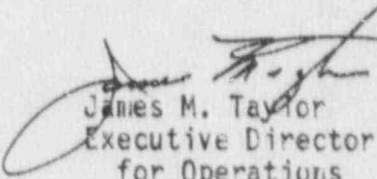
will reduce stress and will have a positive impact on crew training. This pilot would be conducted at up to eight facilities. The results of the pilot program would be used, if appropriate, to amend 10 CFR 55. As noted earlier, approximately 65 percent of all operators who failed a dynamic simulator examination were also part of operating crews that failed, and many operators failed multiple portions of the examination. Thus, the staff believes the examination taken as a whole without individual pass/fail decisions for the dynamic simulator portion of the operating test will discriminate unsatisfactory performance by individuals.

The staff has recently promulgated new guidance in Revision 6 to NUREG-1021, "Operator Licensing Examiner Standards," that clarifies the process by which critical tasks used to determine an individual operator's performance are to be identified. Though it was intended that this new guidance would raise the threshold for determining whether an individual operator failed or not, some concerns exist that some individual operators may be subject to too many critical tasks. The pilot study would evaluate the substitution of crew critical tasks for individual critical tasks on the dynamic simulator examination.

The staff has recently issued NRR Office Letter No. 1500, "Procedure for Revision of NUREG-1021, the Operator Licensing Examiner Standards." The staff will implement refinements to the program through revisions to NUREG-1021, utilizing the procedures outlined in this office letter. The focus of this review process is to determine if any changes made to NUREG-1021 are of a backfit nature and if so, submit the proposed revision to the Committee to Review Generic Requirements (CRGR) for their review.

In summary, the staff concludes that the NRC requalification program has proven to be an effective method to assess operator competence and to accurately evaluate facility requalification training programs. The staff will continue to identify areas for improvement in the program as the staff gains experience in administering requalification examinations. To help maintain this program as an effective and valid method of evaluating the performance of operators, the staff will continue to have discussions with industry organizations including the Nuclear Management Resources Council (NUMARC), the Institute of Nuclear Power Operations (INPO), and the Professional Reactor Operator Society (PROS).

The Commission requested quarterly status reports on the NRC requalification program until the program was fully implemented and all facilities had received at least one NRC-administered requalification examination. The requalification program is now fully implemented and is operating in accordance with NUREG-1021. Except as noted above, all facilities regulated under this program have now participated in at least one evaluation. The staff intends to provide the Commission the results of the ongoing studies noted earlier on operator stress and the consistency and content of dynamic simulator examinations. It is anticipated that these reports will be issued by the end of FY 1991.

  
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Executive Director  
for Operations

Enclosure:  
Requalification Program Results

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REQUALIFICATION EXAMINATION RESULTS  
(October 1988 - November 1990)

<u>Facility Evaluated</u>	<u>Candidates Examined</u>	<u>Candidates Passed/Failed</u>	<u>Failed Written/Operating</u>	<u>Program SAT/UNSAT</u>	<u>Date</u>
Palo Verde	16	15/1	0/1	SAT	10-88
Limerick 1	13	12/1	0/1	SAT	11-88
Beaver Valley 1	12	11/1	1/1	SAT	12-88
Susquehanna	16	15/1	0/1	SAT	2-89
Indian Pt. 2	12	10/2	1/2	SAT	2-89
Monticello	15	12/3	2/1	SAT	2-89
Point Beach	12	7/5	5,	UNSAT	2-89
Turkey Pt.	24	12/12	6/11	UNSAT	3-89
Sumner	24	21/3	3/1	SAT	5-89
Braidwood	12	11/1	0/1	SAT	4-89
Palisades	8	8/0	0/0	(Note 1)	4-89
Ft. Calhoun	5	4/1	1/0	SAT (Note 3)	4-89
Diablo Canyon	36	34/2	1/1	SAT	5-89
ANO 1	12	10/2	2/0	SAT	5-89
Quad Cities	12	11/1	1/0	SAT	5-89
Kewaunee	12	11/1	0/1	SAT	5-89
Maine Yankee	12	12/0	0/0	SAT	5-89
Haddam Neck	12	11/1	1/0	SAT	5-89
Fitzpatrick	12	12/0	0/0	SAT	5-89
Hope Creek	14	12/2	1/1	SAT	6-89
Ginna	12	6/6	2/5	UNSAT	6-89



<u>Facility Evaluated</u>	<u>Candidates Examined</u>	<u>Candidates Passed/Failed</u>	<u>Failed Writer/Operating</u>	<u>Program SAT/UNSAT</u>	<u>Date</u>
Yankee Rowe	12	9/3	1/3	SAT	6-89
Farley	22	17/5	4/2	SAT	6-89
Perry	12	11/1	1/0	SAT	6-89
Comanche Peak	12	12/0	0/0	SAT	7-89
Browns Ferry	24	15/9	6/4	UNSAT	7-89
Nine Mile Pt. 2	29	19/10	8/8	UNSAT	7-89
LaSalle	15	14/1	0/1	SAT	8-89
SONGS 2/3	20	19/1	1/0	SAT	8-89
Waterford	12	11/1	1/0	SAT	9-89
Cooper	12	11/1	1/0	SAT	9-89
Zion	12	7/5	2/5	UNSAT	9-89
Clinton	16	12/4	3/1	SAT	9-89
Hatch	24	23/1	0/1	SAT	9-89
Catawba	24	18/6	5/3	SAT	9-89
Millstone 3	12	6/6	0/6	UNSAT	9-89
Indian Pt. 3	13	13/0	0/0	SAT	9-89
Millstone 1	20	19/1	0/1	SAT	10-89
S. Harris 1	24	20/4	1/4	SAT	10-89
Prairie Island	16	16/0	0/0	SAT	10-89
Palo Verde	35	34/1	0/1	SAT	11-89
Big Rock Pt.	12	11/1	1/0	SAT	11-89
Vermont Yankee	12	12/0	0/0	SAT	11-89
TMI-1	20	19/1	0/1	SAT	11-89



<u>Facility Evaluated</u>	<u>Candidates Examined</u>	<u>Candidates Passed/Failed</u>	<u>Failed Written/Operating</u>	<u>Program SAT/UNSAT</u>	<u>Date</u>
Pilgrim	20	17/3	1/2	SAT	12-89
Grand Gulf	20	17/3	0/3	SAT	12-89
St. Lucie	20	17/3	1/2	SAT	12-89
D.C. Cook	20	16/4	2/3	SAT	12-89
Limerick	13	9/4	1/3	UNSAT	1-90
Susquehanna	20	18/2	0/2	SAT	1-90
River Bend	20	19/1	0/1	SAT	2-90
Millstone 3	17	15/2	0/2	SAT (Note 2)	2-90
McGuire	24	21/3	0/3	SAT	2-90
Browns Ferry	20	20/0	0/0	SAT (Note 2)	2-90
Callaway	16	16/0	0/0	SAT	3-90
Palisades	8	6/2	2/1	SAT (Note 3)	3-90
Peach Bottom	22	20/2	2/0	SAT	3-90
Maine Yankee	7	6/1	0/1	(Note 4)	3-90
WNP-2	24	22/2	1/1	SAT	3-90
South Texas	28	24/4	4/0	SAT	3-90
Monticello	15	15/0	0/0	SAT	3-90
Point Beach	15	14/1	0/1	SAT (Note 2)	3-90
Salem	12	12/0	0/0	SAT	4-90
Turkey Point	16	14/2	0/2	SAT (Note 2)	4-90
Trojan	20	17/3	2/2	SAT	4-90
Calvert Cliffs	13	13/0	0/0	SAT	4-90
LaSalle	30	29/1	0/1	SAT	4-90
Braidwood	21	16/5	0/5	SAT	4-90

<u>Facility Evaluated</u>	<u>Candidates Examined</u>	<u>Candidates Passed/Failed</u>	<u>Failed Written/Operating</u>	<u>Program SAT/UNSAT</u>	<u>Date</u>
Nine Mile Pt. 2	15	15/0	0/0	SAT (Note 2)	5-90
Davis-Besse	20	16/4	3/1	SAT	5-90
Oyster Creek	23	18/5	3/2	SAT	5-90
Brunswick	20	7/13	3/12	UNSAT	5-90
Perry	12	12/0	0/0	SAT	5-90
Ferri	12	9/3	2/2	SAT	5-90
Byron	23	22/1	0/1	SAT	5-90
Haddam Neck	12	12/0	0/0	SAT	6-90
Beaver Valley 2	16	15/1	0/1	SAT	6-90
Millstone 2	13	13/0	0/0	SAT	6-90
Clinton	16	12/4	0/4	SAT	6-90
Duane Arnold	16	12/4	0/4	UNSAT	6-90
Oconee	24	18/6	0/6	SAT	7-90
Dresden	24	21/3	0/3	SAT	7-90
AND-2	16	15/1	1/0	SAT	7-90
Indian Pt 3	10	10/0	0/0	(Note 4)	7-90
Nine Mile Pt 1	15	15/0	0/0	SAT	7-90
Beaver Valley 1	16	16/0	0/0	SAT	7-90
Vogtle	17	16/1	0/1	SAT	8-90
North Anna	18	16/2	1/1	SAT	8-90
Kewaunee	12	11/1	0/1	SAT	8-90

<u>Facility Evaluated</u>	<u>Candidates Examined</u>	<u>Candidates Passed/Failed</u>	<u>Failed Written/Operating</u>	<u>Program SAT/UNSAT</u>	<u>Date</u>
Surry	24	22/2	0/2	SAT	9-90
Sequoyah	24	19/5	0/5	SAT	9-90
Quad Cities	20	17/3	0/3	SAT	9-90
Zion	23	20/3	3/0	SAT (Note 2)	9-90
Crystal River	12	12/0	0/0	SAT	9-90
Ginna	12	10/2	2/0	SAT (Note 2)	9-90
Indian Point 2	18	15/3	2/1	SAT	9-90
Palo Verde	35	34/1	0/1	SAT	10-90
Wolf Creek	22	14/8	3/5	UNSAT	10-90
Seabrook	16	15/1	0/1	SAT	10-90
Calvert Cliffs	11	11/0	0/0	(Note 4)	10-90
Prairie Island	16	14/2	0/2	SAT	10-90
Millstone 3	13	13/0	0/0	SAT	10-90
SONGS 1	15	15/0	0/0	SAT	10-90
St. Lucie	24	22/2	1/1	SAT	11-90
Big Rock Point	6	6/0	0/0	(Note 4)	11-90

- Note 1: First program evaluation was deferred until at least 12 operators were sampled.
- Note 2: Program rating has been upgraded from UNSAT to SAT based on the most recent examination results.
- Note 3: Program evaluation is based upon the combined results of two examinations. The combined population of operators from the two examinations meets or exceeds the minimum of 12 required to make a program evaluation.
- Note 4: Current program evaluation is deferred until a minimum of 12 operators can be sampled. The program was previously rated as satisfactory.



\*\* The following facilities have requalification programs rated UNSATISFACTORY as of November 1990. The date of their next scheduled requalification examination is indicated in parentheses: Limerick (1/91); Brunswick (6/91); Duane Arnold (6/91); Wolf Creek (8/91).