

February 22, 1999

SECY-99-056

FOR: The Commissioners

FROM: William D. Travers /s/
Executive Director for Operations

SUBJECT: ANNUAL STATUS REPORT ON THE ADMINISTRATION OF NRC'S
REQUALIFICATION PROGRAM AND THE INITIAL OPERATOR
LICENSING EXAMINATIONS (WITS 8800098)

PURPOSE:

To inform the Commission of the status of the NRC's licensed operator requalification program and the results of NRC's initial licensing examinations for reactor operator (RO) and senior reactor operator (SRO) applicants.

BACKGROUND:

Since August 1989, the staff has submitted periodic reports on the status of NRC's licensed operator requalification program which also combined results of NRC's initial RO and SRO licensing examinations and requalification program oversight activities. The staff's most recent report to the Commission on the NRC's requalification program and the initial licensed operator examinations is SECY-98-043 (dated March 6, 1998). Other staff reports issued to the Commission on the NRC's operator licensing program are SECY-95-075 (dated March 24, 1995), SECY-96-123 (dated June 10, 1996), SECY-96-206 (dated September 25, 1996), SECY-97-079 (dated April 8, 1997), and SECY-98-266 (dated November 13, 1998).

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DISCUSSION:

NRC Qualification Program and Inspection Summary for Fiscal Year 1998

During fiscal year (FY) 1998, the staff continued to monitor the facility licensees' licensed operator requalification training and examination programs. The staff inspected the licensed operator requalification programs at 32 power reactor facilities during FY 1998 to (1) verify that the facility licensee's requalification program ensures safe power plant operation by adequately evaluating how well the individual operators and crews have mastered the training objectives; (2) assess the facility licensee's effectiveness in evaluating and revising the requalification program for licensed operators based on their operational performance, including requalification examinations; (3) assess the facility licensee's effectiveness in ensuring that the individuals who are licensed to operate the facility satisfy the conditions of their licenses as specified in 10 CFR 55.53; and (4) supply regional management with the information it needs to assess the performance of the facility licensee's licensed operator requalification program and to determine the need for additional inspections or NRC-conducted examinations. Each of the programs was evaluated using the process described in NRC Inspection Procedure (IP) 71001, "Licensed Operator Requalification Program Evaluation." The staff employs the core inspection procedure to evaluate each licensed operator requalification program at 24-month intervals, consistent with each facility licensee's requalification examination cycle. Although the staff did not conduct any requalification examinations during FY 1998, the staff may, as needed, conduct requalification examinations when it loses confidence in a facility licensee's ability to conduct its own examinations or when it believes that the inspection process will not produce the necessary insight.

SECY-98-266 acknowledges that there has been general improvement in the performance level of training programs at power reactor facilities. Licensees have demonstrated their ability to develop and administer licensed operator requalification examinations with very little oversight or minimum intervention from the NRC. The attachment contains the individual results of the requalification program inspections at each facility inspected during FY 1998. A staff rating of SAT (satisfactory) for the requalification program inspections indicates that the licensee's requalification program exhibited no major facility licensee requalification program failures contrary to safety and that the staff did not elect to conduct NRC for-cause requalification examinations as a result of any weaknesses that were noted. The following table summarizes the results of requalification program inspections:

Requalification Program (Examination and/or Inspection) Results for Fiscal Year 1998			
Element	Number Evaluated	SAT/UNSAT	Percent SAT
NRC Program Examinations (NUREG-1021)	None	N/A	N/A
NRC Program Inspections (IP-71001)	32	32/0	100
Total	32	32/0	100

The next table depicts the success with the NRC's requalification program in which no major facility licensee requalification program failures contrary to safety have occurred, since FY 1993.

NRC Requalification Program Evaluation Results for Fiscal Years 1993 through 1998						
Element	1993	1994	1995	1996	1997	1998
Number of Requalification Programs Evaluated	43	43	58	41	41	32
Number of Satisfactory/Number of Unsatisfactory	43/0	43/0	58/0	41/0	41/0	32/0
Percent Satisfactory	100	100	100	100	100	100

Inspections of the licensed operator requalification program continues to identify site-specific strengths and weaknesses. Among the strengths noted by the inspectors were the ability of the licensees to develop and administer the simulator portion of the operating test, the impartiality and completeness of the licensees' evaluators in identifying licensed operator deficiencies, and the usefulness of the licensees' training feedback system in providing input to improve licensed operator requalification training. Examples of those strengths include training evaluators who are particularly good at determining how well licensed operators and crews master training objectives and the continual involvement of operations department and plant management representatives in examination observation and evaluation.

Examples of the weaknesses noted by the inspectors were minimally adequate requalification written examinations and examination administration, repetitive use of test items during the requalification cycle, use of poorly validated job performance measures (JPMs) for the plant walkthrough portion of the operating test, and the inability to conduct annual operating tests of all licensed operators.

Regional staff inspectors follow up on each of the site-specific weaknesses in subsequent requalification program inspections and other inspections. As a follow-up from the previous report (SECY-98-043) to the Commission, the staff conducted subsequent special inspections at D.C. Cook. The facility licensee's corrective actions adequately addressed the licensed operator requalification training program weaknesses. The licensed operators who previously had not completed comprehensive annual requalification operating examinations were reexamined in accordance with the revised licensed operator requalification training program.

Human Factors Information System

Licensed operator performance data contained in the Human Factors Information System (HFIS) (<http://www.nrc.gov/NRR/HFIS/index.htm>) was evaluated to determine if site-specific weaknesses were an indication of programmatic weaknesses at the national level.

The staff evaluated three areas: "Individual Knowledge Less Than Adequate" (i.e., operator completed appropriate training but was unable to successfully perform when called upon); "Training Less Than Adequate" (i.e., operator received incomplete or incorrect training); and "Training Process Systems Approach to Training Problems" (i.e., training program was not in accordance with the systems approach to training). The evaluation determined that "Individual Knowledge Less Than Adequate" was the single largest contributor to licensed operator training-related issues. The number of items in that area resulted in an overall review of the systems approach to training process issues. The HFIS data together with the inspection

findings throughout the reporting period indicated the systems approach to training, the process required by 10 CFR Part 55 for developing and maintaining the licensed operator training content, was being effectively implemented for the facility licensee requalification programs. Further, no potential generic issues applicable to the licensed operator requalification program at the national level were identified. Therefore, the staff concludes that the operator performance issues and underlying operator knowledge issues identified in the requalification inspection process are not due to overall programmatic deficiencies in the implementation of the systems approach to training. Individual operator weaknesses are evaluated by the facility licensee as a routine part of the licensed operator program evaluation.

Summary of Initial Examination Results

The staff is continuing to administer initial licensing examinations to applicants for RO and SRO licenses at power and non-power reactor facilities. The following table gives results of the power reactor initial operator licensing examination over a period of 5 years from FY 1994 through FY 1998. During FY 1998, the staff administered approximately 56 site-specific initial licensing examinations to RO and SRO applicants at power reactor facilities. This number includes 50 site-specific licensing examinations that had been prepared by facility licensees in accordance with the NRC's revised examination guidance. The table separates NRC-prepared and facility-prepared examination results for FYs 1996, 1997, and 1998. In addition, the staff administered 393 generic fundamentals examinations during FY 1998 to prospective license applicants at power reactor facilities.

Power Reactor Initial Examination Results									
Examination		Percentage of Applicants Who Passed During the Fiscal Year							
		1994	1995	1996		1997		1998	
				NRC Prepared	Facility Prepared	NRC Prepared	Facility Prepared	NRC Prepared	Facility Prepared
RO	Written	95	94	98	93	96	89	N/A	89
	Operating	98	98	94	94	93	94	N/A	99
SRO	Written	98	96	96	94	91	93	100	96
	Operating	95	95	92	95	84	92	94	96

These results indicate that operator training programs at power reactors continue to produce applicants who pass the operator licensing examinations at a relatively high rate, regardless of whether the examinations were prepared by the NRC or by the licensees (with NRC review and approval). In SECY-98-266, "Final Rule-Requirements for Initial Operator Licensing Examinations," the staff analyzed the facility-prepared examination results according to the proposed final rule to amend 10 CFR Part 55 allowing, rather than requiring power reactor facility licensees to prepare the initial operator licensing examinations. In the SECY paper, the staff also discusses other important issues, such as the effectiveness and efficiency of the revised examination process, the question of backfit, the resources to implement the rule

change, and the examination security concerns. In summary, the NRC staff has concluded that the revised initial examination process is both effective, efficient, and more consistent with the NRC's other oversight programs. On February 9, 1999, the Commission issued a staff requirement memorandum (SRM) directing actions relative to the recommendations for action made in SECY-98-266.

The following table gives the results of the non-power reactor initial operator licensing examinations over a period of 5 years from FY 1994 through FY 1998. During FY 1998, the staff administered approximately 24 site-specific initial licensing examinations to RO and SRO applicants at non-power reactor facilities in accordance with the current examination guidance in NUREG-1478, "Non-Power Reactor Operator Licensing Examiner Standards."

Non-Power Reactor Initial Examination Results						
Examination		Percentage of Applicants Who Passed During the Fiscal Year				
		1994	1995	1996	1997	1998
RO	Written	79	73	74	70	87
	Operating	79	90	97	93	100
SRO	Written	88	76	75	100	94
	Operating	97	98	96	95	100

These results indicate that training programs for non-power reactor facility operators generally produce applicants who pass the NRC's licensing examinations at a lower percentage rate on the written examination and a higher percentage rate on the operating test. These results are consistent with those of previous years.

Operator Licensing Program Initiatives

During FYs 1998 and 1999 to date, the NRC continued its efforts to strengthen oversight of the operator licensing program. Examples of the staff's initiatives include the following:

- (1) Revised in its entirety inspection procedure IP-71001, "Licensed Operator Requalification Program Evaluation," to capture experience gained in the performance of the licensed operator requalification program evaluations since the last revision on February 25, 1995. This inspection procedure determines if a facility licensee's requalification program meets elements 4 and 5 of a systems approach to training based program as defined in 10 CFR 55.4. The revised inspection procedure ensures that inspection

requirements associated with reviewing the facility licensee's operating history, requalification examinations, and administration of requalification examinations are to be completed first. Inspection guidance associated with reviewing the facility licensee's training feedback system, remedial training program, and conformance with operator license conditions are to be considered and performed to the extent necessary to conclude that the objectives of the inspection procedure have been met. In addition, specific guidance has been incorporated regarding observing one or more operating crews in the control room and comparing such performance with performance observed in the simulator on requalification annual operating tests.

- (2) In connection with the transition to facility administered examinations, the staff eliminated the use of contractors to support NRC's regional operator licensing activities on requalification program inspections and initial examinations.
- (3) Planned for the next training conference for operator licensing examiners in the third quarter of FY 1999 to ensure that NRC examiners continue to receive appropriate training and policy direction from senior managers, to discuss pertinent topics, and to provide feedback to the Office of Nuclear Reactor Regulation (NRR). The conference remains an effective tool for promoting consistency in the operator licensing program.
- (4) Developed Final Revision 8 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," to be released following publication of the final rule. The final revision contains updated examination criteria and lessons learned since the advent of the pilot initial examination program.
- (5) Continued utilizing Interim Revision 8 of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," whereby facility licensees voluntarily participated in the development of initial operator licensing examinations.
- (6) Continued to be proactive with staff participation in NRC regional and industry-sponsored workshops for facility licensees who are planning to develop initial operator licensing examinations.

CONCLUSION:

As discussed above, the NRC's initial operator licensing examination program continues to provide reasonable assurance that only those applicants who have mastered the knowledge, skills, and abilities required to safely operate and supervise the reactor controls are being licensed to do so. The NRC's licensed operator requalification inspection program continues to effectively and efficiently ensure that those individuals who are licensed to operate or supervise the reactor controls are maintaining the required level of competence to safely perform their licensed duties.

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Attachment: Status Report on the NRC Requalification
Program - Fiscal Year 1998

DOCUMENT NAME: a:\rql\secy.98

*See previous concurrence

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OFFICE	ADT/NRR		DIR/NRR		EDO					
NAME	BSheron		SCollins		WTravers					
DATE	02/10/99*		02/ /99		02/ /99					

STATUS REPORT ON THE NRC REQUALIFICATION PROGRAM
FISCAL YEAR 1998

Facility Evaluated -----	Inspection Procedure Performed -----	Program SAT*/UNSAT -----	Date -----
Pilgrim	IP-71001 - Requal Program Inspection	SAT	10-97
GINNA	IP-71001 - Requal Program Inspection	SAT	10-97
Nine Mile 2	IP-71001 - Requal Program Inspection	SAT	10-97
Calvert Cliffs	IP-71001 - Requal Program Inspection	SAT	10-97
Prairie Island	IP-71001 - Requal Program Inspection	SAT	10-97
Limerick	IP-71001 - Requal Program Inspection	SAT	11-97
Seabrook	IP-71001 - Requal Program Inspection	SAT	11-97
Salem	IP-71001 - Requal Program Inspection	SAT	11-97
St. Lucie	IP-71001 - Requal Program Inspection	SAT	11-97
Zion	IP-71001 - Requal Program Inspection	SAT	11-97
Clinton	IP-71001 - Requal Program Inspection	SAT	11-97
Cooper	IP-71001 - Requal Program Inspection	SAT	12-97
Quad Cities	IP-71001 - Requal Program Inspection	SAT	12-97
Fermi	IP-71001 - Requal Program Inspection	SAT	12-97
River Bend	IP-71001 - Requal Program Inspection	SAT	12-97
Susquehanna	IP-71001 - Requal Program Inspection	SAT	1-98
Three Mile Island 1	IP-71001 - Requal Program Inspection	SAT	1-98
Farley	IP-71001 - Requal Program Inspection	SAT	1-98
Turkey Point	IP-71001 - Requal Program Inspection	SAT	1-98
DC Cook	IP-71001 - Requal Program Inspection	SAT	1-98

Facility Evaluated	Inspection Procedure Performed	Program SAT*/UNSAT	Date
Dresden	IP-71001 - Requal Program Inspection	SAT	2-98
LaSalle	IP-71001 - Requal Program Inspection	SAT	2-98
Peach Bottom	IP-71001 - Requal Program Inspection	SAT	3-98
Browns Ferry	IP-71001 - Requal Program Inspection	SAT	3-98
Palisades	IP-71001 - Requal Program Inspection	SAT	3-98
FitzPatrick	IP-71001 - Requal Program Inspection	SAT	4-98
Kewaunee	IP-71001 - Requal Program Inspection	SAT	4-98
North Anna	IP-71001 - Requal Program Inspection	SAT	7-98
Hatch	IP-71001 - Requal Program Inspection	SAT	8-98
Vermont Yankee	IP-71001 - Requal Program Inspection		SAT
	8-98		
McGuire	IP-71001 - Requal Program Inspection		SAT
	9-98		
Fort Calhoun	IP-71001 - Requal Program Inspection		SAT
	9-98		

* A program rating of SAT (satisfactory) indicates that the licensee's requalification program complied with the requirements of 10 CFR 55.53 and 55.59 for the areas inspected and that the NRC staff did not elect to conduct NRC-administered requalification examinations for cause as a result of any weaknesses that may have been noted.