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NRC REVIEW OF LICENSED OPERATOR REQUALIFICATION PROGRAMS FOR NUCLEAR POWER PLANTS

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For presentation at 8th Biennial Topical Conference On Reactor Operating Experience, Co-sponsored by the Reactor Operations Division of the American Nuclear Society and the Chattanooga Section of the American Nuclear Society, Chattanooga, Tennessee, August 7-10, 1977.

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INTRODUCTION

The purpose of my presentation today is to discuss the results of NRC audits of the Licensed Operator Requalification Programs at the nuclear power plants. The Requalification Programs have been in effect now for a little over three years. In my presentation I will review the development and requirements of the Requalification Programs. Then, discuss the results of the audits conducted by the Operator Licensing Branch (OLB) and the Office of Inspection and Enforcement (IE). Finally, I will review our findings on how the programs have improved during this three year period, and the impact we believe the programs are having on the nuclear industry.

BACKGROUND

In the late 1960's we became aware that the power reactors were spending increased time base-loaded, with the concurrent problem of minimum opportunity for the operating staff to participate in plant evolutions. Recognizing that extended periods of steady state operation could lead to stagnation in the operating crews, the AEC sent out inquiries to the utilities with operating reactors requesting information regarding their programs to ensure the operators maintain a high proficiency. The survey results indicated that there were few formal programs and virtually no documentation of participation.

Consequently, in September 1973 the AEC published regulations which required all facility licensees to submit for approval and concurrently implement requalification programs for licensed operators. An Appendix was added to 10 CFR Part 55 that described the minimum requalification program requirements for nuclear power plants.

OPERATOR LICENSING REQUIREMENTS

The requirement that reactor operators must demonstrate their qualifications and receive licenses from the Nuclear Regulatory Commission (NRC) to perform their functions was established as a statutory requirement by the U.S. Atomic Energy Act of 1954.

Operator and senior operator licenses are issued for a two year period. In order to renew a license prior to September 1973, an operator had to submit an application which included the following information. The following findings had to be made in order to renew the license without reexamination:

1. That he had been actively engaged in a licensed capacity at the facility and has discharged his responsibilities competently and safely, and is capable of continuing to do so.

2. The physical condition and the general health of the licensee was such as not to cause operational errors which might endanger public health and safety.

3. There was continued need for a license to operate or direct operators at the facility designated in the application.

Since September 1973, in addition to the above, we also have to determine that he has successfully completed the requalification program, or is presently enrolled in a requalification program if the completion of the requalification program will occur after the expiration of his license.

If we can not make the findings that he is actively engaged and has successfully participated in the requalification program, we may require the individual to be reexamined prior to renewing his license.

LICENSED OPERATOR REQUALIFICATION PROGRAM REQUIREMENTS

In September of 1973, Amendments to the Atomic Energy Commission regulations became effective which required the establishment of requalification programs for licensed operators and senior operators at production and utilization facilities. Specifically, 10 CFR Part 50, "LICENSING OF PRODUCTION AND UTILIZATION FACILITIES," was amended to include the following requirements:

a. All operating facilities were to submit operator requalification programs for Commission approval and concurrently implement these programs within 90 days of the effective date of the amendment.

b. An application for a license to operate a facility must include a description and plans for implementation of an operator requalification program. Each facility licensee must have such a program in operation within three months after issuance of an operating license.

c. As a minimum, operator requalification programs must meet the requirements of Appendix A to 10 CFR Part 55, in which the scope of such programs is outlined.

10 CFR Part 55, "OPERATORS' LICENSES," was amended to include the following requirements:

a. In an application for renewal of a license, there must be included a statement, that during the effective term of his current license, the applicant has satisfactorily completed the qualification program for the facility for which the operator or senior operator license renewal is sought.

b. As one condition for license renewal, the Commission must find that the licensee has completed a requalification program or is presently enrolled in a requalification program if the completion of the requalification program will occur after the expiration of his license.

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c. Appendix A was added to specify the requirements of an operator requalification program. Appendix A addresses:

1. the schedule of such a program
2. the lectures to be included
3. the on-the-job training which should be administered
4. the evaluation which should be performed
5. the records that should be kept
6. the provision for the use of alternative training programs
7. the applicability to research and test reactors and non-reactor facilities.

In addition, Section 55.31(e) was added that requires each licensee who has not, for any reason, been actively engaged in the functions of an operator or senior operator for a period of four months or longer, to demonstrate to the Commission that his knowledge and understanding of facility operation and administration are satisfactory before resuming his licensed duties as an operator or senior operator. The Commission may accept as evidence, a certification by an authorized representative of the facility licensee by which the licensee has been employed.

With respect to this latter change, there has been some confusion as to what is meant by "actively engaged". Indeed, there has been some confusion between actively engaged and participation in the requalification

programs. We have been applying the "actively engaged" provision in the following manner:

> A licensed operator or senior operator who reports to the facility on a day-to-day basis is deemed to be actively engaged, even though he may not normally be performing the functions authorized by his license, as long as the functions he performs are associated with operation of the facility. We do not require that each licensee report to the control room every day to be considered "actively engaged." If these individuals successfully complete the requirements of the requalification program, they need not be reexamined for license renewal.

However, some facility licensees believe it is necessary for the purpose of providing staffing depth that some individuals maintain their licenses in effect even though they no longer report to the facility on a day-to-day basis. We do not consider these individuals to be "actively engaged." Consequently, to avoid the need for reexamination for licensee renewal, they must participate in special programs in addition to the approved requalification programs. The four month provision in Section 55.31(e) was intended to address individuals who may have been temporarily unable to report to the facility.

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AUDIT OF THE REQUALIFICATION PROGRAMS

At the 1974 ANS Annual Meeting in Philadelphia, Mr. Holman, NRC, presented a paper on the criteria used by the NRC to approve the programs. I would like to review the implementation of the approved programs, based on audits performed by NRC. The audits of the Requalification Programs by NRC consists of two segments. The Office of Inspection and Enforcement reviews the records of accomplishment to determine that the facility is conducting their program in accordance with the approved program. The Operator Licensin Branch audits the annual examinations to assure that the examinations are comparable to the NRC examinations in depth and content, and to assure that the grading is comparable. In general, the results of the audits by both IE and OLB have been favorable. The audits indicate the quality of retraining to be satisfactory.

However, problem areas were found in the initial audits of several programs. Typical of these are the following:

1. The annual written examinations at two facilities were woefully inadequate. The questions were simple yes or no type of questions that did not adequately explore the individual's knowledge and understanding.

2. Several facilities equated "actively engaged" with participation in the requalification program. This problem was addressed earlier.

3. Several facilities failed to conduct the required lecture series as indicated in their program. One conducted no lectures for one year.

OLB audits of the contents of the annual written examinations indicate that the operator examinations are more comparable to the contents of the NRC examinations than are the contents of the senior written examinations. Our audits also indicate that the individuals who grade the examinations are more generous in the credit they give to partial answers than are the NRC examiners. Perhaps, since they know the men better than we do, they have the ability to know "what he really meant." Or perhaps we are less reluctant to "tell it like it is."

There have been a number of citations issued by IE to facilities who failed to adequately implement their requalification programs. We informed various individuals at these facilities that reexamination by NRC would be required for license renewal since participation in the requalification program was inadequate. In some instances renewal applications were withdrawn. Of the renewal examinations administered by NRC, there were some failures. Remedial actions by NRC also included requiring several facilities to submit their annual examination for NRC approval prior to their administration.

The most glaring deficiency in program implementation was the facility that failed to conduct lectures during an entire year. In this instance NRC administered nineteen reexaminations at the facility; all licensees passed.

The following table shows the results of the first year OLB audits to the end of May 1976:

OLB AUDITS OF THE REQUALIFICATION EXAMINATION
AUDIT RESULTS THRU MAY 1976

OPERATOR EXAMINATIONS

	QUALITY		GRADING	
	No.	%	No.	%
SATISFACTORY	34	91.9	31	83.8
MARGINAL	1	2.7	1	2.7
UNSATISFACTORY	2	5.4	5	13.5
TOTAL	37	100.0	37	100.0

SENIOR OPERATOR EXAMINATIONS

	QUALITY		GRADING	
	No.	%	No.	%
SATISFACTORY	31	81.6	31	81.6
MARGINAL	1	2.6	2	5.3
UNSATISFACTORY	6	15.8	5	13.1
TOTAL	38	100.0	38	100.0

The majority of the requalification examinations are in accordance with NRC guidelines relative to quality. Out of 37 operator exams audited, 4 were satisfactory, 1 was marginal and 2 were unsatisfactory. The grading on these same exams indicate: 31 satisfactory, 1 marginal and 5 unsatisfactory. The biggest problem with grading was that the facility's grading, in almost every case, was higher than the grading by the NRC examiner doing the audit. Too much credit was given for inadequate or incomplete answers. Out of 38 Senior Operator exams, the quality was satisfactory on 31, marginal on 1 and unsatisfactory on 5. This indicates that the exam quality and grading are about the same on both operator and senior operator.

The next table indicates the results of the second year audits from June 1976 to June 1977. As can be seen from the table, there has been a big improvement during the last year. Only one exam was marginal. Everything else was satisfactory. We would like to see this trend continue.

OLB AUDITS OF REQUALIFICATION EXAMINATION
AUDIT RESULTS JUNE 1976 TO JUNE 1977

OPERATOR EXAMINATIONS

	QUALITY		GRADING	
	No.	%	No.	%
SATISFACTORY	21	95.5	22	100
MARGINAL	1	4.5	0	0
UNSATISFACTORY	0	0	0	0
TOTAL	22	100.0	22	100.0

SENIOR OPERATOR EXAMINATIONS

	QUALITY		GRADING	
	No.	%	No.	%
SATISFACTORY	21	100	21	100
MARGINAL	0	0	0	0
UNSATISFACTORY	0	0	0	0
TOTAL	21	100	21	100

The I&E audits showed the following thru May 1976:

I&E AUDIT OF REQUALIFICATION PROGRAM IMPLEMENTATION
INSPECTION AND ENFORCEMENT AUDITS
THRU MAY 1976

81 Audits

47 No Violation, Infractions or Deficiencies (55%)

13 Infractions

11 Deficiencies

4 Comments

BREAKDOWN ON INFRACTIONS, DEFICIENCIES AND COMMENTS*

4 Failure to Attend Lectures

8 Failure to Review Procedures and Changes

3 Failure to Manipulate Controls

7 Failure to Administer Examinations (Quiz)

4 Failure to Administer Oral Evaluation

7 Failure to Document for Easy Audit

*Breakdown numbers do not agree with totals above, because some occured more than once.

During the period from June 1975 thru May 1977 I&E conducted 26 audits. Thirteen of these indicated no violations, infractions or deficiencies, which was 50%. The remaining thirteen audits indicate three infractions, five deficiencies and five comments. All the failure items from the first table showed up again except for one, failure to administer oral evaluation, plus a new one-failure of a staff member to assume Shift Supervisor Duties for four hours, a facility program requirement, in the allotted time period. The table is shown below for the period June 1976 to May 1977:

I&E AUDIT OF REQUALIFICATION PROGRAM IMPLEMENTATION
INSPECTION AND ENFORCEMENT AUDITS
JUNE 1976 TO MAY 1977

26 Audits

13 No Violations, Infractions or Deficiencies (50%)

3 Infractions

5 Deficiencies

5 Comments

BREAKDOWN ON INFRACTIONS, DEFICIENCIES AND COMMENTS

2 Failure to Attend Lectures

2 Failure to Review Procedures and Changes

3 Failure to Manipulate Controls

2 Failure to Administer Examinations (Quiz)

3 Failure to Document for Easy Audit

1 Failure of Staff Member to Assume Shift Supervisor Duties as Required By His Facility Program

Program Revisions

A number of the violations found by IE in their audit resulted from the facilities committing to a program that turned out to be too difficult to administer. Accordingly, a large number of revisions have been submitted and approved by NRC which simplified the facility requalification programs and made them easier to administer without decreasing their worth.

IMPACT OF THE REQUALIFICATION PROGRAM ON INDUSTRY

You may have assumed from the presentation so far that with all the retraining and audits by NRC, that the licensed operators would be infallible. Unfortunately, this is not the case. Operating personnel are human beings and subject to the same frailties as you and I. A review of the Licensee Event Reports since the programs have been in effect indicates "Personnel Errors" are decreasing slightly. Since "Personnel Errors" is used in the LERs regardless of the position occupied (operator, welder, truck driver) we do not have a quantitative value on the effectiveness of the requalification programs. We plan to change the Licensee Event Report coding so licensed operator errors can be readily identified. When that occurs, we will have quantitative information for licensed operator errors, and can make better use of this information.

Do the nuclear plants have better operators now, than they did before? In our opinion, "Yes." We believe that the requalification programs have raised the knowledge level of the operators. We say this because our audit results have been very good at most of the facilities, and because

of information from the facilities. This is a direct quote from one of the facilities regarding their program. "After 3 tests, I find that the "old timers" are getting very good. I must confess that the operators are paying more attention to the details of their jobs with less operating problems. They keep up-to-date on changes, knowing that they are the source of questions."

Conversations with many individuals, and our evaluations, indicate that the programs are necessary and have benefited the industry with increased production and have contributed significantly to our having reasonable assurance that operators and senior operators will perform their licensed duties competently and safely.

Advantages, that we in NRC have observed, following the implementation of the requalification program include:

1. Assisting the operators to enhance their knowledge of the plant.
2. Assisting management in identifying weak areas in their training program.
3. Assisting NRC to determine if the operators are keeping up with changes at their facility.
4. Assisting NRC at license renewal time, in determining an operator's continued qualification.
5. Giving NRC reasonable assurance that the licensee is maintaining his competency and will continue to operate in a safe and competent manner.

6. Improvement in the results of NRC initial examinations, due in part, to the development of material for the requalification programs.

SUMMARY

All the plants have been audited by OLB and IE at least once and in many cases several times. The results have been encouraging. The majority of the plants that had problems on their first audit, corrected them by the time a second audit was made. A decrease in the number of operating errors has been observed. Acceptance and a desire to do a good job by facilities is apparent. In general, the requalification program appears to be having a favorable impact on the Nuclear Industry.