

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

REQUALIFICATION PROGRAM EVALUATION

REPORT NO.: 91-09
FACILITY DOCKET NO.: 50-333
FACILITY LICENSE NO.: DPR-59
LICENSEE: New York Power Authority
James A. FitzPatrick Nuclear Power Station
P. O. Box 41
Lycoming, New York 13093
FACILITY: James A. FitzPatrick Nuclear Power Station
EXAMINATION DATES: June 10 - June 14, 1991
NRC EXAMINERS: D. Florek, Senior Operations Engineer
T. Walker, Senior Operations Engineer

CHIEF EXAMINER:

C. Cisco
C. Cisco, Operations Engineer

7/12/91
Date

REVIEWED BY:

Richard J. Coote
Richard J. Coote, Chief
BWR Section
Operations Branch, DRS

7/12/91
Date

APPROVED BY:

Lee H. Bettenhausen
Lee H. Bettenhausen, Chief
Operations Branch, DRS

7/23/91
Date

SUMMARY: SEE NEXT PAGE

REQUALIFICATION EXAMINATION REPORT No. 50-333/91-09 (OL)

EXECUTIVE SUMMARY

The NRC administered special requalification written examinations to 12 licensed operators (8 SROs and 4 ROs). Retake written and operational examinations were included for those who failed the NRC Administered Requalification examination in April 1991. One purpose of the written examination was to permit the NRC staff to reevaluate the licensee's written examination process and, thereby, independently: (1) distinguish between written examination process weaknesses and operator knowledge/ability weaknesses, and (2) better understand the unsatisfactory results during the April 29, 1991, requalification examinations.

All twelve individuals passed the written examination. As a result, the NRC concluded that the licensee met and satisfied the first five commitments in the Confirmatory Action Letter, dated May 15, 1991. The remaining two (one short term and one long term) commitments remain to be completed.

The NRC staff determined that the unsatisfactory operator performance on the written examinations conducted the week of April 29, 1991, was due to weaknesses in the examination development process, although some knowledge and ability weaknesses were exhibited by plant operating personnel. For the April 1991 examination, the facility bank of examination questions required extensive use of reference material to answer the questions, and the facility-prepared examinations were not adequately time validated. Additional weaknesses of the written examination process were poorly written questions. Some questions contained excessive verbiage that made comprehension of the question difficult. Also, some questions were not grammatically correct. These weaknesses were not prevalent in the June 1991 written examination.

During the dynamic simulator examination, the NRC staff determined that two individuals and the crew failed the examination. The NRC staff concluded that the crew failed on unsatisfactory diagnosis of events and plant conditions based on signals and readings. A lack of knowledge and abilities regarding the Standby Liquid Control (SLC) system operation and control rod insertion operations was observed during an Anticipated Transient Without Scram (ATWS) scenario.

Strengths of the program were noted. The ability of facility evaluators to identify licensed operators who require remedial training was noteworthy. Further, the bank of Job Performance Measures (JPMs) were comprehensive, and the training staff had fully incorporated the "Critical Task" concept into the dynamic simulator scenarios.

DETAILS

1.0 Introduction and Background

The NRC administered special requalification examinations described in detail in this report. The examinations consisted of: (1) Written examinations administered to twelve operators; (2) Job Performance Measures (JPMs) administered to 1 SRO (retake), and (3) a retake simulator examination administered to one operating crew composed of 2 SROs and 2 ROs. One of these SROs and one of the ROs had passed the April examination on an individual basis. The operating crew had failed the April examination. The twelve operators who took the written examination were composed of the following groups: four who failed the NRC administered examination during the week of April 29, 1991 (also retake examinations); four who failed the facility administered written examination during the week of May 6, 1991, and four selected by the licensee. The examinations were conducted in accordance with NUREG-1021, "Operator Licensing Examiner Standards," Revision 6.

The licensee, in their letter of May 10, 1991, provided a basis for continued operation in response to the unsatisfactory requalification program results for examination administered during the week of April 29, 1991. The licensee also provided a preliminary explanation for the unsatisfactory results as an examination process problem in distinction to an operator knowledge/ability problem.

The purpose of this examination was to permit the NRC staff to reevaluate the licensee's written examination process to: (1) distinguish between written examination process weaknesses and operator knowledge/ability weaknesses, and (2) understand better the unsatisfactory results during the week of the April 29, 1991, requalification examinations.

2.0 Requalification Examination Results

2.1 Individual Examination Results

NRC Grading	SRO Pass/Fail	RO Pass/Fail	TOTAL Pass/Fail
Written	8/0	4/0	12/0
Simulator	1/1	1/1	2/2
JPM	1/0	N/A	1/0
Overall	7/1	3/1	10/2

The SRO who retook the simulator and JPM (job performance measure) portion of the examination passed.

The other SRO on the crew who failed the simulator portion of this examination had failed the April 1991 written examination. This individual passed the retake on the written portion of the examination. Although he failed a different portion of the examination, this SRO is considered to have failed a second examination. The RO who retook the simulator examination failed again; this RO is also considered to have failed a second examination.

2.2 Generic Weaknesses

The following is a summary of the generic weaknesses noted during the administration of the written examinations:

- The ability (of the ROs) to determine when 125V battery equalizing charging is to be performed.
- The knowledge (of the ROs) of drywell spray initiation verifications.
- The ability (of the SROs) to determine E-Plan classifications based on plant conditions.
- The rationale to make required reports to the NRC within 1 hour is a weakness of the SROs.
- The ability (of the SROs) to apply Technical Specification requirements based on equipment availability.

Because of the small sample size, no particular generic strengths and weaknesses were identified from the JPM and simulator portions of the retake examinations.

3.0 Requalification Program Review

3.1 Status of Confirmatory Action Letter No. 50-333/1-91-010

Confirmatory Action Letter (CAL) No. 1-91-010, dated May 15, 1991 (Attachment 1), contains the corrective action commitments made by the facility in response to the unsatisfactory requalification program evaluation by NRC staff during the week of April 29, 1991. As a result of the conduct of the retake examinations and evaluation of the written examination process as noted in this report, CAL Commitment Nos. 1 through 5 are met. These items do not require additional NRC staff review.

CAL Commitment Nos. 6 (short term training actions) and 7 (long term corrective actions) remain open issues. With respect to the

short term training commitments (No. 6), the examiners noted that the training provided to correctly implement EOP-3, "Failure to Scram," may not be fully effective. The unsatisfactory crew performance (described below) during the dynamic simulator examination was due, in part, to the crew's unsatisfactory implementation of EOP-3.

As noted in the CAL, the licensed operator requalification program will be considered "Provisionally Satisfactory" when short term corrective actions (as embodied in CAL No. 6) are completed, certified in writing to NRC Region 1 Administrator, and verified by NRC staff. The examiners noted that the first condition of the CAL for provisionally satisfactory status (75% pass rate on the written retake examinations) was met.

It is expected that the long term corrective action (Commitment No. 7) will be completed by April 1992.

Since the effectiveness of the short term training of Commitment 6 has not been demonstrated, the requalification program remains unsatisfactory.

3.2 Examination Preparation

The written and retake examinations were prepared by the facility and submitted for NRC staff review and approval. The NRC staff review of the examination resulted in several questions being placed in different sections of the written examination. In addition, editorial and technical changes were made to several questions for clarity and two questions were replaced entirely.

The JPMs selected by the facility did not require any modifications. However, the JPM questions needed editorial changes for clarity. To broaden the sample size, five JPM questions were added by NRC.

The dynamic simulator scenarios were enhanced by NRC so that multiple and concurrent mitigation strategies would be used by the operating crew.

The NRC staff also identified that an Abnormal Operating Procedure (AOP-25) did not clearly state the method to terminate/prevent injection of the HPCI system due to low water level in the torus. The licensee took prompt corrective action to revise the procedure.

Overall, with NRC staff changes as discussed above, the licensee prepared adequate examinations for the above noted objectives.

3.3 Examination Time Validation/Administration and Grading

The written examinations were administered, using NUREG-1021, "Operator Licensing Examiner Standards," Rev. 6. Examiner Standard

(ES) 602, "Requalification Written Examination," specifies a two hour time limit for each section of the written examination. The facility time-validated the proposed examination with eleven individuals not associated with this examination. The individuals signed security agreements ensuring examination integrity. The amount of time to complete the examinations, as observed by the NRC, was in agreement with the facility time validation estimate.

The facility graded the NRC staff-approved examination. All operators passed the examination. The NRC staff also graded the examination and concurred that all operators passed the written examination.

The JPM examination was administered by the facility and observed by an NRC examiner. The examination was conducted in accordance with ES-603, "Requalification Walk-through Examination." The NRC examiner determined that the licensed operator successfully passed the JPM examination. The facility did not grade the performance of the operator. Facility program evaluator capabilities had been found satisfactory during the April Program Evaluation.

The dynamic simulator examinations were conducted in accordance with ES-604, "Requalification Dynamic Simulator Examination," for one operating crew. The NRC staff determined that two individuals (one SRO and one RO as noted in Section 2.1 of this report) and the crew failed the simulator examination. The facility evaluators agreed that both individuals failed the examination, but did not agree that the crew failed. They acknowledged that the crew was weak, but passed. The NRC staff considered that the crew failed on the basis of unsatisfactory diagnosis of events and plant conditions based on signals and readings. There was a demonstrated lack of knowledge and abilities regarding the Standby Liquid Control (SLC) system operation and control rod insertion operations observed during an ATWS scenario.

The disagreement on the crew failure was due to limited involvement by facility evaluators since this examination was a retake examination administered by the NRC staff for two individuals who failed the simulator portion of the April examination. The licensee representatives stated that this crew was being disbanded. Licensee representatives committed that the crew would not return to shift duties as substantially (more than two) the same crew.

3.4 Post-Written Examination Interviews with Licensed Operator

Interviews were conducted with six operators (four SROs and two ROs) that were administered written examinations. The purposes of the interviews were to aid the NRC staff in: (1) distinguishing between written examination process weaknesses and operator knowledge and ability weaknesses, and (2) better understanding the unsatisfactory results during the April 29, 1991, requalification examinations.

These operator opinions and views with respect to a comparison of the June and April written examinations were obtained:

- 1) The questions asked on the June examination were more clearly written and more easily understood.
- 2) The operators had more time to review the June examination within the allotted time.
- 3) Operators were able to use references to answer and/or verify their answers to a substantial majority of the questions in the June examination, in comparison to having very little time to review questions in the earlier April examination.
- 4) Overall, the operators considered both examinations to be a challenge and relevant to their licensed duties.
- 5) The operators gave a fair estimation (without undue influence) of the time required to complete the June examination.

3.5 Written Examination Comparison

During the week of April 29, 1991, four of twelve licensed operators failed the written examination. The NRC staff determined that the unsatisfactory operator performance was due primarily to weaknesses in the examination development process. Facility questions requiring the use of reference materials met the objectives of testing higher cognitive skills, but the examination produced was composed of questions with an unknown time validation. The poorly time-validated examination had to be compensated for with an "in-total" time validation. The NRC staff observed that the operators hurried to finish the written examination within the allotted time. Additional weaknesses in the written examination process were poorly written questions. Some questions contain excessive verbiage that made comprehension of the question asked difficult. Some questions are not grammatically correct; this made those questions difficult to understand. The NRC staff concluded that knowledge and ability weaknesses existed for some operators. The root cause for the unsatisfactory operator performance on the written examination was an inadequately time validated examination. Poorly written questions lengthened the time it took to understand and answer questions.

During the week of June 10, 1991, twelve of twelve licensed operators passed a written examination. With NRC staff changes, the facility provided an examination and estimated time validation. The amount of time to complete the examinations, as observed by the NRC staff, was in good agreement with the time validation estimate. Based on the results of interviews conducted with six of the twelve licensed operators who took the examination, the NRC staff determined that the operators were not hurried to complete the examination. In addition, the NRC staff observed that:

- 1) The questions asked on the June examination were clearly written and easily understood.
- 2) Operators were able to use references to answer or verify their answers to a substantial majority of the questions, unlike the examination conducted April 1991.
- 3) The operators gave a fair estimation (without undue influence) of the time required to complete the examination.
- 4) Some knowledge and ability weaknesses existed among the operators based on test item analysis of the written examination.

The NRC staff concluded that both examinations were challenging and relevant to the operators licensed duties. The June 1991 examination questions were more clearly written and easily understood than the April 1991 examination questions. The time validation conducted by the facility prior to the June examination was accurate and met the time goals of the Examiner Standards.

The NRC staff concluded that some knowledge and ability weaknesses existed for some operators. These weaknesses are not the root cause for the unsatisfactory requalification program evaluation determination of April 29, 1991. Instead, the NRC staff concluded the facility's examination development process had been weak. This process produced examination questions that required the excessive use of reference materials to answer. In addition, the questions were sometimes difficult to understand, due in part to poor grammar and excessive verbiage.

3.6 Summary

NRC staff review of the June examination, the observations and results of this examination, discussions held with various training staff members, and interviews conducted with licensed operator, the NRC confirmed that the major weakness was in the written examination process in April 1991. Corrective action to successfully improve the written exam process is complete.

4.0 Exit Meetings

An exit meeting was conducted at the training facility on June 14, 1991. Those in attendance are listed below:

New York Power Authority

W. Fernandez	Resident Manager
R. Locy	Operations Superintendent
R. Liseno	Superintendent of Power
W. Berzins	Manager of Public Relations

New York Power Authority (Cont'd.)

D. Simpson	Training Superintendent
F. Catella	Manager of Nuclear Training
J. Romanowski	Simulator Manager
R. Schilling	Nuclear Training Specialist
J. Morris	Nuclear Training Specialist

U. S. Nuclear Regulatory Commission

R. Conte	Chief, BWR Section, DRS
C. Sisco	Operations Engineer (Chief Examiner)
D. Florek	Senior Operations Engineer
R. Plasse	Resident Inspector

The NRC staff presented the results of the examinations. The results were:

- 1) All twelve operators passed the written examination.
- 2) The one operator examined passed the JPM examination.
- 3) One SRO, one RO, and the operating crew failed the dynamic simulator examination.

The NRC staff described the individual operator failures as Individual Simulator Critical Task failures and demonstrated knowledge deficiencies. The crew failure was attributed to unsatisfactory diagnosis of events and plant conditions. This was a demonstrated lack of knowledge and abilities regarding SLC system operation and control rod insertion operations observed during an ATWS scenario.

The changes made to the written examination, JPM questions and dynamic simulator scenarios were discussed.

The results of the operator interviews were discussed. The results of these interviews indicate that some knowledge and ability weaknesses exist, but they appeared to not be the reason for the unsatisfactory operator performance during the April 29, 1991, examinations.

Attachment 1



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406

May 15, 1991

Docket No. 50-333
CAL No. 1-91-010

New York Power Authority
ATTN: Mr. William Fernandez
Resident Manager
P.O. Box 41
Lycoming, New York 13093

Dear Mr. Fernandez:

SUBJECT: CONFIRMATORY ACTION LETTER (CAL) 1-91-010
UNSATISFACTORY LICENSED OPERATOR REQUALIFICATION TRAINING PROGRAM

The purpose of this letter is to confirm our understanding of those actions which you have taken or will take to ensure that the deficiencies identified in your licensed operator requalification program are promptly corrected and that adequate proficiency of licensed operators is maintained at the James A. Fitzpatrick Nuclear Power Plant. These deficiencies were identified during the week of April 29, 1991, in which four individuals failed the written portion of the NRC administered Requalification Examination. Based on these results, the NRC has determined that the James A. Fitzpatrick Requalification Program is unsatisfactory. Further, two of the four individuals failed other portions of the examination, and one of the three crews demonstrated unsatisfactory performance during the operating test.

The examination deficiencies were discussed with you during an exit meeting held with the Deputy Regional Administrator on May 7, 1991, in Region I. Your Basis for Continued Operation forwarded by letter dated May 10, 1991, is acceptable pending the results of NRC staff evaluation of your written examination process to be conducted during the week of June 10, 1991.

From the commitments contained in your May 10, 1991 letter and discussions held with you on May 7, 1991, it is our understanding that you have or will:

1. Restrict from licensed duties operators who have failed the NRC administered examination during the week of April 29, 1991, or who fail subsequent examinations consistent with your requalification program during the period in which the program is deemed to be unsatisfactory. They will remain restricted until they have been successfully retested as described below.

~~90-290110~~

2. Prepare another written requalification examination for NRC staff review and approval and submit it two weeks prior to the administration during the week of June 10, 1991.
3. Administer and grade the NRC staff-approved examination in item No. 2 above to: (a) all operators who failed the NRC administered written examination (as determined by NRC staff) during the week of April 29, 1991; (b) all operators who failed the facility administered written examination during the week of May 6, 1991; and (c) other operators randomly selected to assure that at least twelve operators are tested during that week. (This examination will be evaluated by NRC staff.)
4. Prepare another simulator portion of the requalification operating test consisting of three scenarios for NRC staff review and approval and submit it one week prior to the administration during the week of June 10, 1991.
5. Administer and grade the NRC staff-approved examination in Item No. 4 above to the operators who failed individually during the week of April 29, 1991. (This examination will be evaluated by NRC staff.)
6. Provide additional training during the next training cycle to all licensed operators as described by your May 10 letter short term corrective action Nos. 2, 3, and 4 in the areas of: use of facility prints and drawings; use of the "Failure to Scram" emergency operating procedure (EOP-3); and any other training areas you found to be weaknesses from the facility administered examination during the week of May 6, 1991.
7. Complete your May 10 letter long term corrective action Nos. 1 through 3 prior to the next NRC administered examination (approximately one year from the latest examination) in the areas of examination time validation, static simulator evaluations, and examination question bank improvements.

Your program will be considered "Provisionally Satisfactory" when all of the items listed below are completed and verified:

1. Individual pass rate as determined by the NRC written examination evaluation (Item No. 3 above) is at least 75% in accordance with the Examiner's Standards (NUREG 1021).
2. All of the above corrective actions are completed, except for the long term actions (No. 7 herein); certified in writing to the Region I Administrator; and verified by NRC staff.

Once your program is determined to be "Provisionally Satisfactory," you may remediate and retest operators who fail subsequent facility or NRC administered requalification examinations for the purposes of return to licensed duties. Until then, retesting for return to licensed duties must be completed by NRC staff until such time as your program is found to be provisionally or fully satisfactory.

Issuance of this Confirmatory Action Letter does not preclude the issuance of an order formalizing the above commitments. If your understanding differs from that set forth above, please call me immediately. The responses directed by this letter are not subject to the clearance procedures of the Office of Management and Budget, as required by the Paperwork Reduction Act of 1980, Pub. L. 86-511.

Thank you for your cooperation.

Sincerely,



Thomas T. Martin
Regional Administrator

cc:

J. Brons, President
R. Beedle, Executive Vice President - Nuclear Generation
A. Klausmann, Senior Vice President - Appraisal and Compliance Services
G. Tasick, Quality Assurance Superintendent
G. Wilverding, Manager-Nuclear Safety Evaluation
G. Goldstein, Assistant General Counsel
Vice President-Nuclear Support
S. Zulla, Vice President Nuclear Engineering
W. Josiger, Vice President Nuclear Operations & Maintenance
J. Gray, Director, Nuclear Licensing - BWR
Dept. of Public Service, State of New York
State of New York, Department of Law
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
K. Abraham, PAO (2)
NRC Resident Inspector
State of New York, SLO Designee

bcc:

Region I Docket Room (with concurrences)

Management Assistant, DRMA

T. Martin, RA

W. Kane, DRA

W. Hehl, DRP

M. Hodge, DRS

J. Joyner, DRSS

W. Lanning, DRS

L. Bettenhausen, DRS

R. Corts, DRS

J. Linville, DRP

D. Vito, DRP

D. Haverkamp, DRP

T. Vogel, DRP

B. McCabe, NRR

K. Brockman, EDO

R. Capra, NRR

R. Gallo, OLB, NRR

K. Smith, RC

J. Lieberman, OE

J. Goldberg, OGC

J. Partlow, NRR

C. Holroy, CO

C. Sisco, DRS

OL Facility File

DRS Files (3)