

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-346/OL-91-02

Docket No. 50-346

License No. NPF-3

License: Centerior Service Company
c/o Toledo Edison Company
300 Madison Avenue
Toledo, Ohio, 43652

Facility Name: Davis-Besse Nuclear Power Plant

Examination Administered At: Davis-Besse Nuclear Power Plant

Examination Conducted: Weeks of December 9 and 16, 1991

Chief Examiner:

T. Reidinger
T. Reidinger

1/24/92
Date

Approved By:

T. Burdick
T. Burdick, Chief
Operator Licensing Section 2

1/27/92
Date

Examination Summary

Examination administered on the weeks of December 9 and 16, 1991 (Report No. 50-346/OL-91-01) Consisted of written and operating requalification examinations administered to seven reactor operators and 13 senior reactor operators using the Alternative B methodology (two operators per one NRC evaluator) as defined in NUREG 1021, ES-603.

Results: All operators passed the examination. All crews passed the examination. The licensee's requalification program is evaluated to be satisfactory in accordance with the program performance criteria in NUREG-1021, ES-601.

The following generic weaknesses were observed during the operating examinations.

1. The operators exhibited difficulties in the correct application of the "If-Then" statements in the abnormal procedures, and also in the implementation of the correct sequence of steps in the Emergency Procedures.
 - With an SFAS Level 3 actuation caused by high containment pressure, the operator initially elected to follow the action steps of SFAS Level 3 for low reactor system pressure. The operator recognized later in

these steps that he should not stop the make-up pumps during MU/HPI/PORV cooling.

- Two Reactor Operators failed to promptly take manual actions to trip the reactor during two ATWS events. Specifically, the reactor operators allowed the plant to exceed the reactor protection system setpoint on RCS pressure by a significant margin before executing the immediate action to trip the reactor in accordance with Emergency Procedure (DB-OP-02000).
2. The operators either responded with obscure replies to requests for precise information or failed to respond to requests when solicited. This was noted across all crews.
 - For example, Shift Supervisor requested RCS pressure parameters and the reactor operator responded by stating "It was way high".
 3. Most operators exhibited considerable difficulty in executing the appropriate steps in the DROPPED ROD RECOVERY procedure both in the simulator and as a Job Performance Measure.

REPORT DETAILS

1. Examiners

*Timothy Reidinger, NRC
Gene Benjamin, PNL
Mark Lintz, PNL
James Nickolaus, Esq, PNL

*Chief Examiner

2. Exit Meeting

a. On December 20, 1991, an exit meeting was held. The following personnel were present at this meeting.

L. Storz, Plant Manager
T. Meyers, Tech Services Director
J. Wood, Operations Manager
M. Bezilla, Operation Superintendent
G. Gibbs, QA Director
G. Bradley, Licensing
G. Home, Compliance Supervisor
M. Stewart, Manager, Nuclear Training
R. Simpkins, General Supervisor, Training
T. Bergner, Simulator Supervisor
T. Reidinger, NRC
B. Lewis, NRC, (Senior) Resident

b. The following generic weaknesses were observed during the operating examinations.

1. The operators exhibited difficulties in the correct application of the "If-Then" statements in the abnormal procedures, and also in the implementation of the correct sequence of steps in the Emergency Procedures.

- With an SFAS Level 3 actuation caused by high containment pressure, the operator initially elected to follow the action steps of SFAS Level 3 for low reactor system pressure. The operator recognized later in those steps that he should not stop the make-up pumps during MU/HPI/PORV cooling.

- Two Reactor Operators failed to promptly take manual actions to trip the reactor with an ATWS. Specifically, the reactor operators allowed the plant to exceed the reactor protection system setpoint on RCS pressure by

a significant margin before executing the immediate action to trip the reactor in accordance with Emergency Procedure (DB-OP-02000).

2. The operators either responded with obscure replies to requests for precise information or failed to respond to requests when solicited. This was noted across all crews.
 - For example, the shift supervisor requested RCS pressure parameters and the reactor operator responded by stating "It was way high".
3. Most operators exhibited considerable difficulty in executing the appropriate steps in the DROPPED ROD RECOVERY procedure both in the simulator and as a Job Performance Measure.

3. Examination Development

a. Written Examination

Overall, the Davis-Besse Regualification Examination Bank satisfied the requirements of NUREG-1021. The proposed examination contained some weaknesses, such as Part A questions located in the Part B section of the examination, look-up questions, and misapplied knowledge and ability task numbers on the questions. All deficiencies were corrected. The scope and content of the written examination were satisfactory.

b. Dynamic Simulator Scenarios

The following are observations made by the NRC concerning the dynamic simulator scenarios validated for use during the requalification examinations.

- Generally the scenarios lacked sufficient complexity initially in regards, to challenging the operators' ability to assess, prioritize and mitigate plant transients. Scenarios were modified with additional malfunctions.
- The scenario individual simulator critical tasks (ISCT's) successful completion criteria initially needed to be incorporated to ensure consistent evaluation of the operators.

c. Job Performance Measures (JPM)

The following strengths were identified:

- The JPM's used covered a variety of systems and types of procedures (normal, abnormal and emergency procedures).
- The times assigned to the JPM's and questions were within plant management expectations.

3. Examination Administration

The licensee was responsible for examination administration while the NRC observed and coevaluated the examination. This allowed the NRC to evaluate the licensee's requalification program as well as the individual operators.

The following observations were made by the NRC concerning examination administration:

- The facility scheduled the written examination and the JPM's to minimize the waiting time which reduced stress on the operators.
- Examination security between the various crews was maintained at all times by the facility.

4. Evaluation of Facility Evaluators

In addition to evaluating the operators' performance, the NRC evaluated the licensee's evaluators' ability to conduct a consistent and objective examinations and their ability to provide unbiased evaluations of the operators.

The following observations were made by the NRC concerning the facility evaluators:

- All evaluators provided objective evaluations of the operators. All evaluators were satisfactory with respect to the criteria of NUREG-1021.
- The evaluators were prepared to give cues when the operator took an unexpected action or requested additional information. Probing was conducted when an incomplete or vague answer was given to a JPM follow-up question. When additional probing was conducted, the evaluators documented the question and response.

2n Evaluations

evaluation by the NRC examiners and the licensee evaluators of the operators' performance on the examination was performed. Coevaluations provided the NRC with the necessary information to assess the individual operator's performance as well as the licensee's requalification program performance.

a. Dynamic Simulator Examination

The dynamic simulator evaluations were performed on the Davis Besse simulator and included 20 individuals and five crews. Each evaluation involved at least two scenarios. One failure was identified during the simulator examination by the facility.

b. Written Examinations

Parallel grading of the written examination by the NRC and the licensee resulted in consistent overall evaluations regarding pass/fail decisions for all operators. One individual failed the written examination as graded by the facility.

The following areas showed weaknesses on the written examinations and are included to be factored into the facility's SAT requalification program:

- ICS cross limit effects on the RCS.
- Emergency Sump/Loss of BWST inventory with all safety injection systems in operation.
- Cooldown method with a steam generator tube rupture.

6. Requalification Failure

During the dynamic simulator portion of the examination, the facility identified as a failure one reactor operator. Prior to required remediation and retesting, this operator assumed licensed duties, as a reactor operator shift relief, for approximately 64 minutes. During this time he performed miscellaneous Instrument Shift checks per DB-OP-03006, and Shift Channel Check of the Radiation Monitoring System per DB-SC-3200. This situation will be addressed further in Inspection Report 92002-01.

7. Program Evaluation

The NRC administered examination results meet the criteria of NUREG-1021, ES-601 for a satisfactory programs. Therefore, the licensee's requalification program is evaluated as satisfactory.

REQUALIFICATION PROGRAM EVALUATION REPORT

Facility: Davis-Besse Nuclear Power Station

Examiners: T. Reidinger, J. Nickolaus, E. Benjamin, M. Lintz

Date of Evaluation: Weeks of December 9 at : 16, 1991

Areas Evaluated: X Written X Oral X Simulator

Examination Results:

	<u>RO</u> <u>Pass/Fail</u>	<u>SRO</u> <u>Pass/Fail</u>	<u>Total</u> <u>Pass/Fail</u>	<u>Evaluation</u> <u>(S or U)</u>
Written Examination	7/0	13/0	20/0	S
Operating Examination				
Oral	7/0	13/0	20/0	S
Simulator	7/0	13/0	20/0	S
Evaluation of facility written examination grading				S

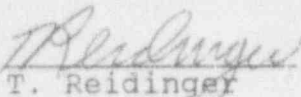
Crew Examination Results:

	<u>Crew A</u>	<u>Crew B</u>	<u>Crew C</u>	<u>Crew D</u>	<u>Crew E</u>	<u>Evaluation</u>
Operating Examination	Pass	Pass	Pass	Pass	Pass	S

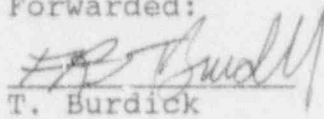
Overall Program Evaluation

Satisfactory

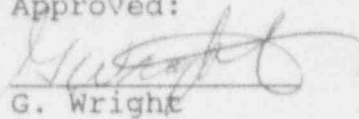
Submitted:


T. Reidinger
Examiner

Forwarded:


T. Burdick
Section Chief

Approved:


G. Wright
Branch Chief

SIMULATION FACILITY REPORT

Facility Licensee: NPF-3

Facility Licensee Docket No. 50-346

Operating Tests Administered On: Weeks of December
9 and 16, 1991

During the conduct of the simulator portion of the operating tests, the following items were observed:

ITEM

DESCRIPTION

This form is to be used only to report observations. These observations do not constitute, in and of themselves, audit or inspection findings and are not, without further verification or review, indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification for approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required solely in response to these observations.

Issue 1: High pressure injection flow. Originally, on the simulator, a square root extractor was not designed on the flow element instrument line for the high pressure train that contained the flow from high pressure injection pumps 2C and 2D. When this problem was identified, interim values, based on old data, were assigned to the square root extractor that was added to that train, as final values were not available (the simulator is still under warranty, and all such final values have not yet been made available to the facility; they are scheduled to begin to be made available to the facility in January 1992). The facility is aware of the software code location where the correct value needs to be inserted, when it becomes available.

Issue 2: Motor driven feedwater pump. This is a simulator problem that was masked until this examination. Until this examination, when the facility failed a motor driven feedwater pump, two failures were inserted: one to fail the power supply, and the second to fail the breaker open. For this examination, to lessen the chance for a simulator operator error, only the power supply failure was inserted. However, the simulator logic does not look at the breakers, but only whether control power is available. Therefore, during this examination, because the operator left the motor driven feedwater pump hand switch in the run position, as soon as the simulated problem was corrected, and power was restored to the pump, it began to operate. When this scenario was run subsequently, the simulator operator resumed his previous method of also failing the breakers open. The facility is aware of the location in the software code to correct this problem.