

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-255/OL-91-01(DRS)

Docket No. 50-255

License No. DRP-20

Licensee: Consumer Power Company
1945 West Parnall Road
Jackson, MI 49201

Facility Name: Palisades Nuclear Plant

Examination Administered At: Midland Training Center; Palisades Nuclear Plant

Examination Conducted: Week of March 25, 1991

RIII Examiner: *John Walker*
John Walker

4/26/91
Date

Chief Examiner: *Jay Kohnert*
Jay Kohnert

4/25/91
Date

Approved By: *Thomas M. Burdick*
Thomas Burdick, Chief
Operator Licensing Section 2

4/26/91
Date

Examination Summary

Requalification examination administered on the week of March 25, 1991 (Report No. 50-255/OL-91-01(DRS)) to four Senior Reactor Operators (SRO) and four Reactor Operators (RO)

Crew Performance as well as individual performance were evaluated on the dynamic portion of the operating examination. In addition, an initial written retake examination was administered to two Reactor Operator candidates and one Senior Reactor Operator candidate who had failed the written examination which was administered on the week of August 6, 1990 (Report Number 50-255/OL-90-02(DRS)).

Results: All of the operators that were administered the requalification examination passed the examination. In addition, all crews received satisfactory evaluations for their performance on the dynamic simulator examination. The requalification program evaluation criteria contained in NUREG 1021, "Operator Licensing Examiner Standards," ES-601 Rev. 6, "Administration of NRC Requalification Program Evaluations," Section C.1.b.4

states that a program evaluation will be based on a sample of at least 12 examinees. Therefore, an evaluation of the licensees' requalification program will be deferred until inclusion of the next annual requalification examination.

Concerning the initial written retake examinations, all candidates passed the examination.

REPORT DETAILS

1. Examiners

*J. Lennartz, NRC
J. Walker, NRC
I. Kingsley, Sonalyst, Inc.

*Chief Examiner

2. Exit Meeting

An exit meeting was held on March 29, 1991 between the NRC and licensee representatives to discuss the requalification program and the examiner observations as discussed in this report.

NRC representatives in attendance were:

J. Lennartz, Examiner
J. Walker, Examiner
J. Heller, Resident Inspector
R. Rotom, Resident Inspector

Licensee representatives in attendance were:

R. Rice, Acting Plant Manager/Operations Manager
D. Rogers, Training Administrator
R. Smedley, Staff Licensing Engineer
R. Frigo, Operations, Staff Support Supervisor
B. Dusterhoft, Simulator Instructor
R. Stanton, Operations COI
R. Massa, Operations, Shift Supervisor
T. Horan, Nuclear Training, Senior Nuclear Instructor
R. Heimsath, Nuclear Training, Supervisor Instructor
P. Schmidt, Nuclear Training, Supervisor Instructor
B. Bauer, Nuclear Training, Requalification Program
P. Rewa, Nuclear Training Instructor
R. Tucker, Nuclear Training Instructor

The licensee representatives acknowledged the examiner observations discussed in section 3 - 8 of this report as well as the items identified in the Simulation Facility Fidelity Report.

3. Examination Development

The NRC and licensee members of the examination team validated the proposed examination developed by the licensee during the examination preparation week of March 11, 1991. The examination validation was accomplished by comparing the proposed examinations with the applicable guidance of NUREG 1021, "Operator Licensing Examiner Standards," Revision 6.

a. Reference Material

The referenced material sent to the NRC for use during examination development of the initial retake written examination was adequate. However, the development of clear, easy to read system descriptions or the enhancement of existing lesson plans with in depth information regarding system component design and operation would greatly improve the process of developing a content valid, discriminatory, and diverse examination. The following are examples of reference material deficiencies that were identified by the NRC:

- ° Main Feedwater System Material (LP-ASLC) did not contain all of the transparencies that were referenced by the lesson plans.
- ° The Instrument and Service Air System lesson plan (LP-ASBC.5-TN01) states that the containment isolation valve is a fail open valve (pg. 17) while the Off Normal Procedure for Instrument Air System (ONP-7.1, Attachment 4) states that the instrument air containment isolation valve has a nitrogen backup.
- ° The Emergency Procedure (EP) basis document submitted was not the same revision as the EPs. Therefore, several EPs did not correlate to the appropriate sections of the basis document making it difficult to reference EP steps to its applicable basis.

All specific comments regarding the reference material were given to the licensee representatives.

b. Requalification Written Examination

The licensees' proposed written examination generally met the guidance as stated in ES-602. The following are a few specific observations that were made by the NRC examiners regarding the written examination:

- ° The licensees' examination bank has improved since the last examination regarding content and style of examination questions.
- ° Some deficiencies that were identified have been identified on previous examinations such as: 1) non-discriminating distractors; and 2) the use of the terms "best" or "most correct" in the stem of multiple choice questions.
- ° One question in both the Part A and the Part B sections of the proposed examinations had to be deleted due to the fact that they would have provided the answer to another question contained in each particular section.

c. Job Performance Measures (JPM)

The following observations were made by the NRC when the proposed JPMs were compared with the guidance as stated in ES-603:

- ° One JPM (SRO-001), "Calculate Shutdown Boron Concentration Required for Cooldown," was written based on Cycle 8 data. The JPM had to be revised to utilize current core data (Cycle 9).
- ° One of the JPM related questions page, that was to be handed to the operator, had the reference listed that the answer could be found in.
- ° Typographical errors such as wrong valve numbers, incorrect spelling and incorrect equipment switch nomenclature were identified on numerous JPMs (RO-012, RO-023, SRO-001, and RO-088).
- ° A few JPMs contained inappropriate cues in that the actual system/equipment parameters/indications the operator would observe during operation were not provided as the cue.
- ° A few JPMs combined multiple procedure steps into one JPM step which resulted in a lengthy and confusing standard that would be used to evaluate operator performance.
- ° One JPM (RO-088) had task conditions listed on the page that was handed to the operator that differed from the page that the facility evaluator read to the operator to initiate performance of the JPM.
- ° One JPM question that was handed to the operator did not match verbatim with the related question that was read by the evaluator to the operator.

All of the deficiencies that were identified by the NRC were provided to the facility, and all required changes were made prior to examination administration. The relatively large number of deficiencies indicates an apparent weakness regarding attention to detail in the facility's review of their examination material.

d. Dynamic Simulator

In general, the proposed simulator scenarios met the guidance as stated in ES-604. However, some of the identified simulator critical tasks (ISCTs) were deleted by the examination team because they did not contain "measurable performance criteria" which is required by ES-604 for ISCTs.

4. Examination Administration

The licensee was responsible for examination administration while NRC observed the process which 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 licensee did a good job of scheduling the examination which reduced the amount of "dead time" associated with the examination. This was a positive attribute at reducing operator stress during the examination process.
- ° During the dynamic simulator examinations, the events were well timed, and all of the facility and NRC evaluators were kept informed of each specific event initiation.
- ° The use of three ring binder notebooks for JPM administration provided the evaluators with a concise and easily managed evaluation package for each individual operator.
- ° The use of "extra" training staff personnel at the simulator to answer phones and role play as auxiliary operators and other plant personnel, enhanced the JPM examination process by adding realism to the task being performed.

5. Evaluation of Facility Evaluators

During examination administration, the NRC assessed the licensee evaluator's ability to conduct consistent and objective examinations as well as their ability to provide unbiased evaluations of the operators. The following observations were made by the NRC examiners regarding the facility evaluators:

- ° During JPM administration, the facility evaluators should provide the operators a copy of the required procedure after the operator has demonstrated the ability to locate the procedure. In a couple of cases, the facility evaluator provided the operator a copy of the required procedure even though the operator failed to demonstrate the ability to locate the procedure.

Regarding the cases discussed above, the failure to locate the procedures did not affect the evaluation for that particular JPM. However, the inability of the operators to locate procedures during an emergency could preclude completion of required local operator actions and therefore, the facility should ensure that the operators have the ability to locate required procedures.

- ° The following are examples of inappropriate cues provided to the operator during JPM administration:

- (1) During manual trip of the Main Turbine Generator JPM (RO-049), the facility evaluator cued the operator that the red lights were lit for the turbine stop and governor valves position indications prior to the operator checking these indications.
- (2) When restoring power to a dead electrical bus (RO-088), the facility evaluator cued the operator that the breaker was closed after the operator explained that he would "push down" on the breaker to close it. In this particular example, the breaker should have been pushed up to close it and the operators actions would not have closed the breaker as cued by the evaluator.
- ° The facility evaluators did a good job of identifying individual operator and crew performance deficiencies and strengths during the dynamic simulator examinations.

6. Examination Evaluations

Co-evaluation of the operators performance was performed by the NRC and the facility. This provided the NRC with the necessary information to assess the individual operator's performance, as well as the licensees' requalification program performance.

In general, the overall evaluation on all phases of the examination were consistent between the NRC and the facility. The following are two examples where the NRC and facility evaluations differed:

- ° Due to an administration error on one JPM for one operator, which was identified after the JPM was completed, the NRC deleted the JPM from the evaluation package due to the inability to conclusively evaluate the operators performance as satisfactory or unsatisfactory. The facility originally evaluated the operators performance as unsatisfactory and then changed the evaluation to satisfactory after the administration error was identified by the examination team. The performance evaluation on this particular JPM did not affect the overall evaluation of the operator's performance.
- ° One Part A question (I14) on one operators examination was given full credit (1 point) by the facility and only one quarter (.25 point) credit by the NRC.

The facility is urged to not give credit for operators performance based on what they "think" the operator knows by virtue of the training received. Full credit or satisfactory evaluations should be given only when the operator has positively demonstrated satisfactory performance by actions or written responses.

Two out of four SROs failed to correctly predict how calculated power would differ from true power if primary coolant system temperature increased by 4 degrees Fahrenheit after the heat balance was performed (Part B written question 24). This demonstrates an apparent weakness in the SROs knowledge of how changing plant parameters would affect calculated power.

7. Requalification Program Evaluation

NUREG 1021, ES-601 Revision 6, Section C.1.b.4 states that a program evaluation will be based on a sample of at least 12 examinees. For this evaluation, only eight licensed operators were administered the examination and therefore, an evaluation of the requalification program will be deferred until inclusion of the next annual requalification examination.

8. Additional Examiner Observations

The following are additional observations made by the NRC examiners during the examination administration:

- ° The wording of the corrective action for procedure ARP-21 (K-06, Rack C, Window 1) was confusing which resulted in an incorrect reactor trip being bypassed for a pressurizer safety pressure instrument failure during the dynamic simulator examination.
- ° Communications between crew members during the dynamic simulator examinations were often poor as evidenced by the following examples:
 - (1) Plant PA announcements were not made for starting and/or stopping major plant system components.
 - (2) Plant PA announcement was not made by one Shift Engineer (SE) after declaration of an emergency event.
 - (3) Many "open ended" communications wherein crew members receiving information frequently responded with "OK" or "yes" and no effort was made by the operator providing the information to ensure it was fully understood.
- ° There is no apparent mechanism in place to ensure that the operators are kept informed of changes to locations of procedures and dedicated tools located outside of the control room as evidenced by the following:
 - (1) One operator stated that the wrench in the Auxiliary Feedwater Pump room had to be installed within the past two months and that he did not know it was there.
 - (2) One operator did not know that the procedures used for local start of the Emergency Diesel Generator (EDG) were moved from a cabinet in the EDG room to a hallway just outside the EDG room.

If the facility had a method in place to keep plant personnel informed of procedure and dedicated plant equipment locations outside of the Control Room the potential delay in performance of required local operator actions during an emergency could be precluded.

- ° Dedicated equipment (i.e. wrench, ladder) was not available to perform the actions required to locally start an Auxiliary Feedwater Pump (JMP RO-012, Step 3).

9. Initial Written Retake Examination

The post-exam review of the written examinations by the NRC identified the following deficiencies in the candidates' knowledge as evidenced by the majority of the candidates failing to provide the correct response for each particular knowledge area examined. This information is being provided as input to the licensee's system approach to training (SAT) process:

- ° Quarterly whole body radiation exposure limits as stated in 10 CFR 20, "Standard For Protection Against Radiation." (RO question 030; SRO question 038).
- ° Technical Specification limits regarding quarterly surveillances. (RO question 035; SRO question 043).
- ° Predict how calculated reactor power would differ from actual reactor power if steam generator blowdown flow rate used during the calculation was incorrect. (RO question 041; SRO question 51; Note: this knowledge weakness was also demonstrated by the operators who were administered the requalification examination as discussed in Section 6 of this report).
- ° Technical Specification operability limits regarding the Low Temperature Overpressure Protection (LTOP) system (RO question 082).
- ° Predict how various plant parameters would be affected if a 30 second continuous rod withdrawal would occur during a reactor power startup with reactor power less than one percent (RO questions 092; SRO question 93).

10. Initial Written Retake Examination Review

Licensee representatives were allowed to review the written examinations prior to administration and any accepted comments were incorporated into the examinations at that time. Additionally, following the conclusion of the written examinations, the licensee was given a copy of the RO and SRO examinations and answer keys. The licensee then had until the end of the examination administration week to provide any additional comments in writing to the NRC along with justification references.

The following are the facility comments concerning the examinations followed by the NRC response.

Facility Comments:

SRO Exam Question 44; RO Exam Question 35

The quarterly surveillances on the SIAS actuation relays have been performed as follows during the past year:

1. Completed satisfactorily today
2. Completed satisfactorily 89 days ago
3. Completed satisfactorily 189 days ago
4. Completed satisfactorily 303 days ago

During the above time period, how many days were the SIAS actuation relays inoperable due to improper surveillance interval(s)?

- a. 0
- b. 4
- c. 10.5
- d. 42

Key Answer: b

Comments:

We do not hold our operators responsible for the review of computerized PPACs reports or the scheduling of quarterly surveillance tests. Palisades Admin. Procedure 9.22.4.1.b & 9.22.6.1 (attached) clearly identify the Technical Specifications Surveillance Program Coordinator and the Surveillance Scheduler as the persons who perform this function at Palisades.

Recommendation:

Delete this question from the exam.

NRC Response:

Comment not accepted. Administrative Procedure 4.0 "Operations Organization, Responsibilities and Conduct," states in part: 1) The Shift Supervisor (SS) is responsible for maintaining a detailed up-to-date knowledge of the conditions and limitations in Technical Specifications (Section 4.4.1.q); 2) The Shift Engineer (SE) is authorized to assume the SS responsibilities when the onshift SS is absent from the Control Room (Section 4.5.1.a); and 3) Control Operator 1 (CO1) and Control Operator 2 (CO2) are responsible to perform

surveillance testing in accordance with the limitations and precautions contained in the Technical Specifications (Section 4.8.1.c and 4.9.1.d). This question solicited knowledge regarding Technical Specification limitations for surveillance testing which the operators are responsible for and therefore the question will not be deleted from the examination.

Facility Comments:

SRO Exam Question 83; RO Exam Question 80

For each component in column A, select the applicable component response from column B for a loss of instrument air (IA) header pressure. Assume each component was in operation when IA was lost.

(Note: Numbers in column B may be used once, more than once or not at all, but only a single number may occupy each answer space.)

	Column A (COMPONENTS)		Column B (RESPONSES)
_____ a.	PCP Bleedoff Relief Stop Valve (CV-2191)	1.	Fails open/maximum flow.
_____ b.	Turbine Bypass Valve (CV-0511)	2.	Fails closed/no flow
_____ c.	Shutdown Cooling Heat Exchanger Bypass/Flow Control Valve (CV-3006)	3.	Fails as is/no change in flow
_____ d.	Feedwater Reg Valve Bypass Valve (CV-0734)	4.	Nitrogen Backup prevents valve failure.
		5.	Accumulator backup prevents valve failure

Answer: a. 5
 b. 2
 c. 1
 d. 3

Comment:

Component "b" (Turbine Bypass Valve CV-0511) does have an air accumulator (see P&ID M-205-sh-1 attached) and therefore answer "5" might reasonably be selected.

Recommendation:

Accept both response "2" and "5" for part "b" of this question.

NRC Response:

Comment partially accepted. After review of reference that was submitted with this comment (P&ID M-205-sh-1), the NRC has agreed to accept column B (Responses) Choice 5 as a correct response to column A (Components) part b. However, since an air accumulator is associated with the turbine bypass valve (CV-0511) to prevent valve failure, column B choice 2 is not a correct response. Therefore, the answer key has been modified to accept choice 5 as the only correct response for column A (Components) part b.

The NRC utilized ONP 7.1 "Loss of Instrument Air," attachment 1, "Valves Which Fail Closed," as well as Lesson Plan ASJB, "Main Steam," to develop this question. The actual response of CV-0511 during a loss of instrument air event contradicts what is described in the references that were used by the NRC during exam development. The facility should ensure that actual component/system responses for given events is accurately described in plant procedures and training material to preclude incorrect manipulation of plant components/systems by an operator due to a knowledge deficiency and/or incorrect descriptions of plant components/systems within plant procedures.

Facility Comments:

SRO Exam Question 87; RO Exam Question 86

For each of the column A combinations of illuminated LTOP status lights (on Panel C-12) and PORV 1042B position indicator lights (on Panel C-02), select the applicable PORV 1042B status from column B. Note: ONLY listed lights are illuminated; other lights are dark/deenergized; ALL light bulbs and circuits are functioning properly.

(Note: Numbers in column B may be used once, more than once or not at all, but only a single number may occupy each answer space.)

	Column A (ILLUMINATED LIGHT COMBINATION)	Column B (PORV 1042B STATUS)
_____ a.	C-12 White, Amber C-02 Green	1. Armed, but inoperable
_____ b.	C-12 White; C-02 Green	2. Actuated open; relieving
_____ c.	C-12 White, Amber, Red, C-02 Green	3. Automatic Operation intentionally defeated
_____ d.	C-12 White	4. Armed
		5. In Shutdown Cooling mode
		6. Was open; now closed

Answer: a. 5
b. 4
c. 6
d. 1

Comment:

This system has been reconfigured and relabeled since the development of the lesson plan material covering this objective from which the exam question was constructed. Even the simulator (checked by the examiner during the administration of the exam) does not yet reflect the current Control Room labeling of the applicable indicators (see attached photograph). We feel that the examinees should have been provided with additional information providing labeling, positioning, or a print where the functioning/labeling could be obtained. Further, arguably there could be more than one legitimate answer for part "a" since the status is both "armed" (4) and "shutdown cooling mode" (5).

Recommendation:

Delete this question. If this question is not deleted, then both of the correct answers for part "a" (4 & 5) need to be accepted.

NRC Response:

Comment partially accepted. This question will not be deleted from the examination since the question was developed to solicit information regarding a major modification to the low temperature overpressure protection (LTOP) system. However, column B (PORV 1042B status) numbers 4 or 5 will be accepted for full credit for column A (Illuminated Light Combination) Part a. The answer key has been modified to reflect this change.

SIMULATION FACILITY REPORT

Facility Licensee: Palisades

Facility Licensee Docket No. 50-255

Operating Tests Administered On: Week of March 25, 1991

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

ITEM

DESCRIPTION

1. Condenser vacuum did not decrease when a cooling tower pump was lost with the plant at 50% power. This was observed during simulator performance exam #5. This item had been previously identified by the facility (SDR-91-031).
2. The main steam line radiation monitors increased only slightly during a steam generator tube rupture event. The affected steam generator steamed for approximately 10 minutes with little or no change in main steam line radiation monitor readings during simulator performance exam #8. This item had been previously identified by the facility (SDR-90-046).
3. The Component Cooling Water (CCW) containment isolation valve switches require a key to operate the valves in the plant, but are not modeled like this at the simulator. This item had been previously identified by the facility (VIP-88-217, VIP-89-384, VIP-89-394).
4. The phone system used in the simulator to make offsite calls is not modeled like the phone system that is used in the plant. The modeling difference resulted in a few reactor operators having difficulty making calls to the load dispatcher during the simulator examinations.

ITEM

DESCRIPTION

5.

The status light nomenclature for the pressurizer power operated relief valves in the low temperature overpressure (LTOP) mode of operation are not modeled as the status light nomenclature in the plant.

REQUALIFICATION PROGRAM EVALUATION REPORT

Facility: Palisades

Examiners: J. Lennartz, J. Walker, I. Kingslay

Date(s) of Evaluation: Week of March 25, 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	<u> 4/0 </u>	<u> 4/0 </u>	<u> 8/0 </u>	<u> S </u>
Operating Examination				
Oral	<u> 4/0 </u>	<u> 4/0 </u>	<u> 8/0 </u>	<u> S </u>
Simulator	<u> 4/0 </u>	<u> 4/0 </u>	<u> 8/0 </u>	<u> S </u>
Evaluation of facility written examination grading				<u> S </u>

Crew Examination Results:

	<u>Crew 1</u> <u>Pass/Fail</u>	<u>Crew 2</u> <u>Pass/Fail</u>	<u>Evaluation</u> <u>(S or U)</u>
Operating Examination	<u> Pass </u>	<u> Pass </u>	<u> S </u>

Overall Program Evaluation

Not evaluated

NUREG 1021, "Operating Licensing Examiner Standards," ES-601, Rev. 6, "Administration of NRC Requalification Program Evaluations, Section C.1.b.4 states that a program evaluation will be based on a sample of at least 12 examinees. Contrary to this, only eight licensed operators were administered the requalification examination, and therefore an overall program evaluation will be deferred until inclusion of the next annual requalification examinations.

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