

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No(s). 50-266/OL-84-01

Docket No(s). 50-266/34

License No(s). DPR-24/27

Licensee: Wisconsin Electric Power Company  
231 W. Michigan  
Box 2046  
Milwaukee, Wisconsin 53201

Facility Name: Point Beach, Units 1 and 2

Examination Administered At: Two Rivers, Wisconsin

Examination Conducted: 2 Instructor Certification and 4 RO initial  
examinations; 4 SRO and 3 RO requalification  
examinations

Examiner(s): *J. I. McMillen*  
T. Burdick *for*

1/14/85  
Date

*J. I. McMillen*  
W. Eldridge *for*

1/14/85  
Date

Approved By: *J. I. McMillen*  
J. I. McMillen  
Operating Licensing Section

1/14/85  
Date

Examination Summary

Examination administered on 12/4-6/84 (Report No(s). 50-266/OL-84-01)

Results: All initial candidates passed the oral and written examinations.  
One Senior Operator and one Reactor Operator failed the written requali-  
fication examination.

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## REPORT DETAILS

### 1. Examiners

T. Burdick  
W. Eldridge

### 2. Examination Review Meeting

The examiners met with members of the plant staff on December 4, 1984, following the written examination. The reviewers were T. Ross, R. Mulheron, J. Bauer, G. Maxfield. The comments and their resolution are as follows:

#### RO Examination Comments

##### Question 1-1b

This question refers to operation in "Mode 3." PBNP does not use this terminology, rather "hot shutdown" or "cold shutdown" should be referenced. Parameters affecting "shutdown margin" are requested. PBNP does not use "shutdown margin" and "amount shut down" synonymously. This question intended a response with regard to "amount shut down."

The examination required no changes in this regard.

##### Question 1-4

This is an application of pure thermodynamic theory. Since the operator will never perform a calculation similar to this while performing his job, it is not a good indication of his operator capabilities. Questions such as this should be eliminated from future exams.

The examiner disagrees. The concept presented in this question is required knowledge.

##### Question 1-7

Two sets of data are supplied as assemblies are loaded: One with rods in the assemblies and one with rods out of the assemblies. PBNP always performs the core reload with control rods already inserted into the assemblies and will extrapolate this 1/M plot to predict criticality. The answer key allows using only the 1/M plot from the "rod out" data. Extrapolation of either 1/M plot to the number of assemblies for criticality should be acceptable. An alternate acceptable way of doing the problem is observing the count rate. With 8 assemblies loaded, the

count rate doubled, therefore, by inspection, if 8 more were loaded (16 total assemblies), the reactor would be critical.

The second part of this question requested the determination of rod worth. The key gave total rod worth derived from the offset of the 1/M plots. Rod worth is never determined that way at PBNP. In addition, total rod worth is not requested, therefore, rod worth at some intermediate number of assemblies should be acceptable. This rod worth can be arrived at analytically using appropriate equations.

In summary, this question was very confusing and contrary to normal PBNP procedure.

The examiner disagrees. The answer key allows full credit for either approach used for determining critical conditions. The basic concept of rod worth is required knowledge.

#### Question 1-8

This question is an application of pure fluid flow theory. Since the operator will never perform a calculation similar to this while performing his job, it is not a good indicator of his operator capabilities. Questions such as this should be eliminated from future exams.

The examiner disagrees. The basic concepts are required knowledge.

#### Question 1-11b

Unusual units are used in this problem. PBNP doesn't measure power in unit of  $10^{-8}$  %. Normal units of amps or counts per second are more appropriate in this power range. As reactor power approaches the point of adding heat, doppler feedback reduces the startup rate, therefore, answers reflecting this insight are also acceptable.

The examiner disagrees. Candidates must demonstrate understanding of reactor behavior below the point of adding heat. The units of power are commonly used.

#### Question 2-10

PBNP does not require the memorization of the names and functions of the 7 manipulator bypass switches. Operators are required to know they are available and under what condition they may be used, i.e., direct authorization of the Core Loading Supervisor. Full credit should be given for listing 4 of 7 bypass switches.

The examiner disagrees. 70% is the minimum acceptable knowledge level.

Question 3-1b

PBNP operators never perform hand calculations for delta flux. If both computers are out of service, the delta flux recorder is initiated periodically to assure compliance with Technical Specifications.

PBNP only has limitations on quarter core tilts; therefore, when referring to a quadrant tilt, quarter core tilts are implied. An acceptable answer should, therefore, be the one largest quarter core tilt or the listing of the 4 quarter core tilts.

The examiner agrees. The candidates' answers were graded accordingly.

Question 3-2c

Additions to the key should be made. Pressurizer cold calibrated indication is located at:

1. C04
2. Auxiliary feedwater pump local control station
3. Charging pump local control station

The examiner agrees and the answer key was changed accordingly.

Question 3-5a

Full credit should be given for:

1. Safety injection
2. Undervoltage on A05 or A06

The question asked for starting signals to "the Diesel." PBNP has 2 Diesels which receive different starting signals. The key is in error as undervoltage on A05 or safety injection Train "A" starts 3D and undervoltage on A06 or safety injection Train "B" starts AD.

The examiner agrees and the answer key was changed accordingly.

Question 3-5b

Acceptable answers should also include Diesel generator breaker trips as the question did not specify "diesel engine" trips, but only "diesel" trips. PBNP refers to

the Diesels as the "emergency Diesels" which we interpret as the engine and generator. Therefore, any 2 of the following should be acceptable.

1. Overspeed
2. Low lube oil pressure
3. Loss of field
4. Reverse power
5. Overcurrent
6. Exercise mode engine stop
7. Generator breaker fault
8. Bus fault

The examiner disagrees. No credit was awarded for generator or breaker trips.

#### Question 3-6

The key is incorrect. The setpoint for  $\Delta T$  SPI is variable, the logic is 2/4 and there is no permissive associated with it.

An acceptable setpoint for total loss of flow is 93%.

The examiner agrees. The answer key was changed accordingly.

#### Question 3-9

The turbine trip controller and load rejection controller do not have to be listed separately. A single entry such as "steam dump system" should be adequate since each controller, by itself, is not a separate control system.

The examiner agrees. The answer key was changed accordingly.

#### Question 4-2

PBNP operators will never perform a calculation such as this as part of their normal job duties. The reference for this question came from a source which was not supplied by PBNP. Even though the problem was simple and the necessary equation was supplied, questions of this nature should be eliminated in the future.

No change was required in this regard.

### SRO Examination Comments

#### Question 5.2

The answer should also include "permits operation with all rods withdrawn at any power level."

The examiner disagrees since this would provide credit for redundant answers.

#### Question 5.5

- (a) The answer states that an increase in steam generator level will cause reactor coolant system temperature to decrease thereby lowering critical rod height (this is true), therefore, Part (b) should be considered to have the same affect.
- (b) The answer states that securing a reactor coolant pump has no change on critical rod height.

However, because this is a heat source to the reactor coolant system by securing the pump, temperature could decrease and, therefore, critical rod height would be lower... This should be an acceptable answer.

The examiner disagrees. Stopping one reactor coolant pump would result in a reduced heat up rate not a cooldown.

#### Question 5.8

The answer reflected much detail in the explanation of minimum NPSH which is not required for answering the question.

An adequate answer to this question should be: "The discharge orifice limits flow rate such that suction head flow losses are limited to maintain net suction head available to greater than NPSH required."

The examiner agrees and examination answers were graded accordingly.

#### Question 5.10

The question asked to identify 6 different points on the DNBR curve, but the answer key reflected answers to (7) different points. Therefore, the seventh point on the answer key should be deleted.

The examiner agrees. The answer key was changed accordingly.

#### Question 6.1a & 6.1b

This question is asking too much detail of an event which was not addressed as a Licensee Event Report and should be eliminated from the exam as written.

The answer should not reflect the rote memory as indicated by the answer key, but should reflect on the event as to the reasons for not plugging in equipment to instrument buses as it may have adverse effects on control and protection systems.

The examiner allowed credit if the answer stated overpower symptoms for part 6.1b. No other changes were made.

#### Question 6.3

This question should better describe the plant conditions; just saying "undergoing an incore flux thimble cleaning operation" is insufficient for a question relying on rote memory of a specific plant incident. The question should be reworded if used in the future.

The first sentence of the answer has no bearing on what is solicited by the question and should be eliminated.

The examiner disagrees. Candidates should be knowledgeable in plant conditions required for this evaluation. The candidate's answer must include low RCS pressure for full credit.

#### Question 6.6a

The answer should say, "outside primary sample room."

The examiner agrees and the answer key was changed accordingly.

#### Question 6.7

This matching question has typing errors which will not allow correct matching to answers.

Part (c) should say Y204 or intermediate bus Y204, not T204

Part (4) matching answer, should say, "Battery Equipment Room A" not battery room "A."

The matching answers should be rewritten so as not to reflect the exact area in a room for location. To memorize exact location as southeast, northwest, etc., is not appropriate. The question has been rewritten at PBNP to remove such detailed memory.

The examiner agrees. Every effort was made during the exam to correct this error to avoid confusion.

Question 6.9b

The answer to this question should reflect discharge MOVs (in the plural) as there are a total of 4 valves, not 2 as the answer indicates.

The examiner agrees and the answer key was changed accordingly.

Question 6.12

This is not a good question as the question does not address or reflect the answer solicited on the answer key and should be deleted from the question bank.

The answer key references a PBNP lesson plan as the source for this question; however, there is no reference to this in the lesson plan presentation or in the performance objectives (Fundamentals of Control Systems - Lesson Plan, Training Cycle 84-2a).

The answer key was changed to accept additional possible correct answers. This question referenced a PBNP requalification lesson plan "Fundamentals of Control," 5.2.3.c, 5.2.4, 5.4.12 and 13, 4.1.6, 4.11.

Question 6.13

The answer should allow credit for a recent modification completed on Unit 2 which updates the reactor protection actuation for automatic trip of both the undervoltage coil and the shunt trip coil.

The examiner agrees and the answer key was changed accordingly.

Question 7.2

This is not a good question and should be deleted from the question bank.

The question asks rote memorization of a number "15 minutes" from a procedure. The operator would be using the procedure and, therefore, in following the procedure would note the requirement of 15 minutes for notification.

The examiner disagrees. Any action required within 15 minutes must be known by the candidate without reference to procedure. This question was a followup to inspection report 266/84-13 and 301/84-11.



#### Question 7.4

The answer key reflects an incorrect number of 1750 psig. The correct number should be 1735 psig.

The examiner agrees and changed the answer key accordingly.

#### Question 7.6

Part (f) asks about a temperature requirement: "When must the low temperature overpressurization system be disabled?"

This part of the question is not acceptable and should be deleted from the question.

It is not an acceptable practice to ask rote memorization of steps within a procedure. This step is the fifteenth step on Page 7 of a procedure. (Reference OP-1A, Step 4.15)

The examiner disagrees. The candidates were given all information to match required actions with temperature setpoints. No memorization was required.

#### Question 7.9a

The question wording "leak paths" is too broad and vague to solicit correct answers. With this wording, the examinee might simply name 4 different leak possibilities.

The question wording should be changed to reflect the words "leaks to different areas of the plant" in order to solicit the correct answers.

The examiner agrees and the answer key was changed accordingly.

#### Question 7.13a

The answer key is missing one of the most obvious components. The key should include reactor coolant pumps as part of the answer.

The examiner agrees and the answer key was changed accordingly.

#### Question 8.1

The answer key reflected much detail which required rote memorization. The operator would consult Technical Specifications for proper corrective action and not rely on memorizing.

The examiner disagrees. This is required knowledge.

### Question 8.2

The question should not be asked of operators, as this surveillance is performed by Reactor Engineering and not the operators.

In addition, the question also solicited an answer requiring rote memorization of a number from the Technical Specifications; again, not an area of surveillance performed by the operators.

The examiner disagrees. This is required knowledge.

### Question 8.3

The question uses the words "ICS pumps" to identify spray pumps. At PBNP, this nomenclature is not used. Questions should be changed to reference "containment spray pumps."

The examiner agrees.

### 3. Exit Meeting

The examiners met with members of the plant staff and the resident inspectors on December 6, 1984. Those candidates clearly passing the oral examination were identified. No generic problems were noted.