

20152

LBP-99-16
March 26, 1999

SERVED MAR 26 1999

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:
Peter B. Bloch, Presiding Officer
Dr. Richard F. Cole, Special Assistant

ADM
O
MAR 26
APR 52
DIRECTOR

In the matter of

SHAUN P. O'HERN
(Denial of Reactor Operator's License)

Docket No. 55-32442-SP

Appeal of Denial
of Operator's License

ASLBP No. 99-753-01-SP

INITIAL DECISION
(License Granted to Mr. Shaun P. O'Hern)

RE-SERVED MAR 30 1999

Shaun P. O'Hern contests the Nuclear Regulatory Commission Staff's (Staff's) decision that he failed the written portion of his license examination, administered on April 6, 1998.¹ He argues that he correctly answered questions 7, 54 and 87 and that question 59 was invalid and should be deleted from the examination. Mr. O'Hern states that an "Appeal Board" had previously determined that he should be granted an Operating License but that the result had been overruled by Region III, which concluded that his final score was 78.9%, which is below the passing score of 80.0%.

¹Mr. O'Hern's Written Presentation was filed December 7, 1998. The Staff of the Nuclear Regulatory Commission (Staff) responded on January 19, 1999. On February 11, 1999, Mr. O'Hern responded to an invitation to file further information.

9903310077 990326
PDR ADOCK 05000341
G PDR

D502

In this decision, each question will be reviewed separately.²

Question 7 (From Hearing File (HF) Tab 2, Examination):

From full power operation, a transient has occurred. The following annunciators were received:

3D73, Trip Actuators A1/A2 Tripped

3D74, Trip Actuators B1/B2 Tripped

3D99, APRM Upscale Neutron/Thermal Trip

Immediately after receipt of these annunciators, the following parameters were reported to the NASS:

Reactor Power 48% and stable

RPV Level 164 inches, decreasing slowly

Reactor Pressure 1085 psig, increasing slowly

With these plant conditions, what is the first action that must be performed, and which indication must be observed to verify proper response?

- a. Manually operate SRVs to stabilize pressure at less than 1050 psig; observe Div 1 and 2 post-accident recorders.
- b. Place the SVLCV Bypass Valve Mode Switch in STARTUP, and verify RPV level is not increasing.
- c. Initiate Alternate Rod Insertion; perform OD-7 option 2.
- d. Place the reactor Mode switch in SHUTDOWN; verify blue group scram lights are OFF.

answer: d.

To begin with, note that answer (d.) has two clauses. The question asks for an "action" *and* an "indication" that must be observed. Hence, for answer (d.) to be correct, both clauses in the answer (the action *and* the indication) must be correct.

²The Motion of the Staff to reply to Mr. O'Hern's last filing is denied, except to the extent addressed below at page 9. There have already been ample opportunities for the Staff to explain the examination that was given to Mr. O'Hern.

I have carefully considered the arguments of the parties, the specific wording of the question itself and the definition of "verify" found in ST-OP-802-7001-001 (Rev. 1), III.B.74 at 33 (HF Tab 39). My conclusion is that this question is not valid and should be struck from the examination.

Answer (d), which the Staff presents as the correct³ answer to this question, is misleading. Mr. O'Hern argues, on the first page of his discussion of this question, that:

The question stem states that annunciators 3D73, Trip Actuators A1/A2 Tripped and 3D74 Trip Actuators B1/B2 Tripped were received. The question also stated that in order to select a correct answer that I needed to determine the first action that MUST be performed and which indication MUST be observed to verify proper response of the action. Answer (d.) stated that I should verify that the blue group scram lights are off as the correct answer for the indication that MUST be observed to verify proper response of taking the Mode Switch to SHUTDOWN. In order to verify that an action provided the desired response there has to be a change in some indication. I will prove that if the 3D73 and 3D74 annunciators actuated as stated in the question, that the blue group scram lights also go off.

I do not travel the whole road with Mr. O'Hern in the explanation of his response to this question. However, I have noticed that the question stem does not state whether or not the blue group scram lights are already off. I agree with Mr. O'Hern that the blue scram lights should go off under these circumstances,⁴ so I understand his expectation that they are already off. Hence, checking the lights only after placing the Reactor Mode switch into SHUTDOWN, would not ascertain that there was any change in control board

³NUREG-1021, Appendix B at 8 of 26 states that: "The four-distractor multiple choice item with only one correct answer is the only style acceptable for NRC examinations." F 19 Tab 19 at 8 of 26.

⁴Mr. O'Hern demonstrates that if the 3D73 and 3D74 annunciators actuate, then the blue group scram lights should also go off. Written Presentation, Tab 2, throughout. Staff does not contradict this argument.

indication. The lights may already be off. If that is so, then noticing that they are still off will not verify shutdown.

Staff's answer concerning this question does not contradict Mr. O'Hern's concern. Staff states that, "With reactor power at 48% all control rods have not inserted due to a fault condition(s) in the RPS and/or control rod systems. Therefore, all of the blue group scram lights **may not be off.**" [Emphasis added.] While this is undoubtedly true, it is also true that the lights may be off. Hence, using the lights to verify SHUTDOWN may not properly verify the state of the reactor.⁵

I have concluded that the Staff's suggested answer is ambiguous and confusing. HF 14 at 4 of 39 (NUREG-1021, ES-401). I must now determine whether Mr. O'Hern's suggested answer is correct. It is close to being correct, but I have determined that his answer also falls short.

To follow Mr. O'Hern's answer, we begin at the top of RPV Control Sheet 1, 29.100.01 SH 1, Rev. 6 (HF Tab 33). This procedure applies because the reactor condition

⁵In addition, I note that the answer appears to make use of the word "verify" in a way that is semantically confusing and that fails to comply with standard plant usage. In the Plant Definitions, "verify" is defined as:

Verify: Use available indication (status lights, direct and indirect values of associated plant and system parameters, etc.) and/or physical observation to establish, that, as applicable, the specified action has occurred or conditions are as stated.

Had the correct answer used the word "verify" in this way, then it might have stated: "Place the reactor Mode switch in SHUTDOWN; verify all control rods are fully inserted." This is, in fact, the wording of the abnormal operating procedure on reactor scram. The purpose of "verifying" something, is to make sure that the *reactor* has reached an expected state. The word is intended to be applied to an "action" or to "conditions." It is not intended to be applied to an indicator, such as a set of lights. The lights are used in the process of verification. One does not apply the Plant Definition of "verify" and speak of verifying that "lights are OFF."

for this question is that there is a scram condition and reactor power cannot be determined to be less than 3%. Although no one has explained whether just one entry condition must be met or whether all must be met, it is clear that both Mr. O'Hern and the Staff believe that this procedure is applicable, and I accept that assumption.⁶ Following through the procedural schematic, we reach the decision step (diamond-shaped box): "are ALL rods full in"? That condition is *not* met, so we branch to the right. Mr. O'Hern then directs us to Sheet 1A. The Staff also directs us to Sheet 1A.

On Sheet 1A, we find that there are several "legs" of the procedure and that we are directed to "execute concurrently." Using Mr. O'Hern's diagram of this procedure, I can easily follow the pink highlight line he has added. That line shows that, since there is no SRV cycling, we are referred to step FSP-3. Pursuant to that step, we are referred to Table 4 and we find a direction to use the SRVs to control pressure providing that the torus level is greater than -112 in. Staff does not challenge that it is correct to use the SRVs, as permitted in Table 4. What the Staff does object to, in the following language, is that this step is not *required*:

Although the candidate's postulated action, to stabilize RPV pressure < 1093 psig, may be allowable as a concurrent action, it is not yet required, and therefore not a correct answer choice, since reactor pressure is 1085 psig and less than the threshold pressure value of Step PSP-3 -- 1093 PSIG -- where action must be taken. Moreover, compliance with this step is not limited to use of only the SRV system but allows for the use of other Table 4 systems to control pressure.

HF Tab at the page numbered "3."

While the Staff's comment is correct, it is not adequately sympathetic to the plight that the candidate faced due to the invalidity of alternative (d), which has already been

⁶Written Presentation of Mr. O'Hern, Tab 2 (Question 7) at 3 (unnumbered); Staff Response (Affidavit of Mr. Peterson at 14-15, ¶ 28; at 18, ¶ 30)..

determined, above. The question, which is multiple choice, says "what is the first action that must be performed." Looked at in that light, it is reasonable that Mr. O'Hern selected alternative a.

Based on Mr. O'Hern's responses, it is clear that he realized he was faced with an ATWS and also that he knew the procedures that were applicable. Despite the Staff's misgivings, there is no reason to fear from his answer to this question that as an operator he would take non-conservative action. He acknowledges that putting the reactor in shutdown is a correct response.

Looked at from the standpoint of a reactor operator, it is clear that if he were directed to control pressure using the SRV valve, then he should do so. The action is authorized, providing that the senior reactor operator makes the judgment that it is appropriate to control reactor pressure when the pressure is somewhat below the setpoint for action and the pressure is also increasing.

The problem with this analysis is that until the pressure reaches the setpoint, it is not authorized as a "concurrent action." Until the set point is reached, the procedure specifies that the reactor should *first* be put into shutdown. After that action is taken and confirmed, it might then also be appropriate to control reactor pressure under the circumstances set forth in the stem of this question.

Accordingly, I have determined that there is no correct answer and that the question should be considered invalid.

Question 54 (From HF Tab 5)

Question: Heavy thunderstorms just caused a load-reject from 100% power. The reactor conditions are:

- APRM Power stable at 20%
- No indications of control rod position
- Recirc pumps tripped
- All MSIV's are open
- Reactor Level being maintained by feedwater
- Reactor Pressure being maintained through Turbine Bypass Valves
- Mode switch in SHUTDOWN

The NSO's first actions should be:

- a. Initiate ADS
- b. Initiate ARI
- c. Inject SLC
- d. Drive control rods in

Correct answer: b.

Mr. O'Hern's first reason for not providing the suggested answer, "Initiate ARI," is that ARI may already have occurred. However, this answer is not adequate. Since APRM Power is stable at 20%, there is an indication that ARI has not been successfully accomplished. Staff correctly state that Step FSQ-7 of Procedure 29.100.01 SH 1A requires that an ARI be *confirmed*. HF Tab 10 at 7 (as numbered). Since it is not possible to confirm ARI with the data given, it is necessary to activate the ARI. While Mr. O'Hern objects to the use of FSQ-7 because the procedure was not made available to him during the examination, I think it reasonable to expect that the candidate would know that when an important operator action is taken that it would need to be confirmed. *Compare* Written Presentation Tab 3 (Question 54) at 1.

I am not persuaded that the Appeal Board ruled that Mr. O'Hern had passed question 54. See HF Tab 9 (Memorandum from John L. Pellet at 12). The NRC Analysis of Question 54 (Id. At 8) shows that Mr. O'Hern did not answer this question correctly. I am persuaded by Mr. John F. Munro, a Senior Reactor Engineer employed by the NRC's Operator Licensing and Human Performance Branch, that the Table found in the Appeal Board's memorandum was included by error and should not be relied on. Staff Response (Munro Affidavit at 4).

I conclude that Mr. O'Hern's answer to this question was not correct.

QUESTION: 59

If the Reactor Mode switch is in START/HOT STANDBY, which one of the following instruments is NOT required to be operable?

- a. Reactor Vessel Level 1 for ADS
- b. Reactor Vessel Pressure High for ARI
- c. Reactor Vessel Pressure for High Pressure Scram
- d. Reactor Vessel Level 2 RWCU System Isolation

ANSWER: b.

Mr. O'Hern contests this question on the ground that it goes beyond the responsibility of a Reactor Operator, as trained at Fermi. He says:

We were trained to recognize that a piece of equipment or an instrument was Tech Spec related and then, using the Fermi Technical Specifications, to determine the appropriate LCO. We were not expected to memorize each piece of equipment and each instrument and determine entry into an Action Statement. In fact, the use of references such as procedures and Technical Specifications, etc., for determining proper operations and regulatory requirements is required by Reactor Operators.

O'Hern Affidavit of February 11, 1999 at page 1 of RO Question 59.

As Mr. O'Hern points out, the written examination for a reactor operator is prepared pursuant to 10 C.F.R. § 55.41: **Written examination: Operators.** That section provides that the examination should be based on an understanding of "the knowledge, skills, and abilities needed to perform licensed operator duties." It then sets forth a variety of sources of information from which to identify the knowledge, skills and abilities. Among the sources to be examined are "the training program."

Mr. O'Hern also argues that he was improperly tested at the level of senior operator. He correctly states that 10 C.F.R. § 55.43(b)(2), which relates to *senior operators*, requires testing on "facility operating limitations in the technical specifications and their bases." He also is correct in stating that there is no item in the regulation governing the testing of *operators* that mentions technical specifications. See 10 C.F.R. § 55.41(b).

Staff responds by stating that the question was selected by the facility licensee, based on the Fermi lesson objective, 01-10, which states:

Given the conditions or parameters associated with the Reactor Pressure Vessel Instrumentation, determine if entry into action statements of Technical Specifications would be required.

Staff Response (Peterson Affidavit at 32-33, ¶ 49 and at 30, ¶ 47, citing Hearing File Item 41, page 7). Staff also asserts, without explanation, that "The question does not require detailed memorization of Technical Specifications or understanding of the bases, but rather requires general application of operational systems and procedural knowledge required to recognize system functions for applicable operational conditions." Staff Response (Peterson Affidavit at 33, ¶ 50).

Mr. O'Hern's assertion that he was not trained in this skill and that he needed to have the Technical Specifications for reference is not addressed by Staff. However, this

point appears to have been made initially in Mr. O'Hern's February 11, 1999 affidavit, to which Staff has not had an opportunity to respond. Under the circumstances, were this question necessary to determine whether Mr. O'Hern passed the examination, it would be appropriate to permit the Staff to respond to this new point. If it were determinative of the outcome of the case, I also would request the Staff to explain how Mr. O'Hern could have answered this question from general knowledge and without reference to the Technical Specifications. Then, I would permit Mr. O'Hern to respond to this new showing. However, since this information would not affect the result of this case, it is not appropriate to delay the decision of this case.

QUESTION: 87

The plant is operating at 96% power with the following indications on the A Recirculation Pump Seal:

Seal #1 Pressure 980 psig

Seal #2 Pressure 10 psig

Annunciator 3D123, RECIRC PMP A STAGING SEAL FLOW HIGH/LOW is alarming.

Flow indication indicates 0.4 gpm.

Which of the following seal conditions exist?

- a. Seal # 1 has failed
- b. Seal # 2 has failed
- c. # 1 Seal Labyrinth is plugged
- d. # 2 Seal Labyrinth is plugged

Answer: c.

According to the testimony of Mr. Peterson, this question was originally drafted so that it had two correct answers, a failed #2 seal or a plugged #1 labyrinth. The question as presented to Mr. O'Hern was modified to include a flow indication of 0.4 gpm which, according to Mr. Peterson, confirmed an actual low flow condition and allowed the candidates to differentiate between the two possible conditions (High/Low) identified by the annunciator alarm. Staff Response (Peterson Affidavit at 35, ¶ 54). Seal failures are associated with high seal flows while plugging of labyrinths are associated with low seal flow conditions.

According to ARP 3D123 Rev. 6 page 2 (Hearing File 44) low flow is less than 0.5 gpm and high flow is greater than 0.9 gpm. Id. The 0.4 gpm stated in the question stem therefor indicated a low flow condition. The indication that the #1 seal is plugged are: (1) #2 seal pressure decreasing, and (2) a #1 seal low flow alarm of 0.5 gpm decreasing. Indications for a #2 seal failure are: (1) #2 seal pressure decreasing, and (2) a high seal flow alarm of 0.9 gpm increasing. Peterson at 34 item 53.

Mr. O'Hern has demonstrated that his answer, b, is also correct. He stated that normal pressure for Seal # 2 is 500 psig (approximate) and normal flow past FSE N007 (input to 3D123) is between 0.5 and 0.9 gpm. Mr. O'Hern contends that if seal #2 is at 10 psig (as stated in the question), the reduced driving force will cause the flow past FSE N007 to be less than 0.5 gpm, causing 3D123 to alarm. Hearing File Tab 5.

Mr. O'Hern also stated that if Seal #2 failed, the pressure would decrease by venting at the point of failure to the primary containment, as this flow path would be the least restrictive. Thus, flow past FSE-N007 would be reduced to less than 0.5 gpm and 3D123 would alarm. Id. Additionally, technical information in the Hearing File shows that for

one scenario of a partial failure of the #2 seal, there is a seal leakage rate of 0.31 gpm, which would cause a low flow alarm. HF Tab 44 at 7. Staff agreed with these arguments. Staff Response (Peterson Affidavit at 36, ¶ 56).

Staff has two responses to Mr. O'Hern's argument and neither response is adequate. First, Mr. Peterson states that if the #2 seal failed, then annunciator 3D121 would be activated. However, the stem of the question is silent as to whether an additional annunciator was activated. In particular, it does *not* say that 3D123 is the *only* annunciator that is alarming and it would have taken very few words to say so. Consequently, a #2 seal failure can not be ruled out on the grounds that the stem of the question does not mention an additional annunciator. Second, Mr. Peterson notes that Mr. O'Hern "did not indicate any need for additional information," as he could have done at the time of taking the test (Peterson Affidavit at 35, ¶ 55). However, this examination is intended to be a multiple choice question with one correct answer. If Mr. O'Hern supplies a correct answer, there is no reason for him to seek clarification of the question.

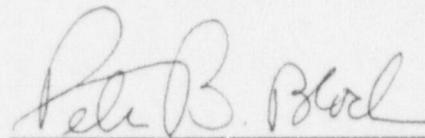
Accordingly, Mr. O'Hern's answer shall be marked correct.⁷

⁷Should it subsequently be determined that Mr. O'Hern's answer is *not* correct, then consideration should be given to whether or not to invalidate this question as being too difficult, based both on the complexity of the technical argument and the disagreement among the qualified people who have been struggling with Mr. O'Hern's appeal.

ORDER

For all the foregoing reasons and upon consideration of the entire record in this matter, it is this 26th day of March, 1999, ORDERED, that:

1. Question 7 is struck from Mr. Shaun P. O'Hern's examination as invalid.
2. Mr. O'Hern's answer to Question 54 shall continue to be marked incorrect.
3. A determination concerning Mr. O'Hern's contention that Question 59 should be struck from his examination shall be held in abeyance.
4. Mr. O'Hern's answer to Question 87 is marked correct rather than incorrect.
5. Accordingly, Mr. O'Hern's score shall be raised from 75/95 (78.9%) to 76/94 (80.85%) and he has passed his examination as a Reactor Operator.
6. Parties may petition for review of this Initial Decision pursuant to 10 C.F.R. § 2.1253.



Peter B. Bloch, Administrative Judge
Presiding Officer

Rockville Maryland

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

SHAUN P. O'HERN

(Denial of Reactor Operator's
License Application)

Docket No.(s) 55-32442-SP

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing LB ID--LIC. GRANT'D---LBP-99-16 have been served upon the following persons by U.S. mail, first class, except as otherwise noted and in accordance with the requirements of 10 CFR Sec. 2.712.

Office of Commission Appellate
Adjudication
U.S. Nuclear Regulatory Commission
Washington, DC 20555

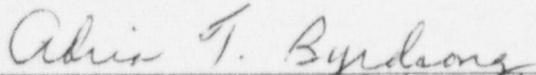
Administrative Judge
Peter B. Bloch
Presiding Officer
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Administrative Judge
Richard F. Cole
Special Assistant
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Susan L. Uttal, Esq.
Office of the General Counsel
Mail Stop - 0-15 B18
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Shaun P. O'Hern
3504 Iroquois
Monroe, MI 48162

Dated at Rockville, Md. this
26 day of March 1999


Office of the Secretary of the Commission

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

SHAUN P. O'HERN

(Denial of Reactor Operator's
License Application)

Docket No.(s) 55-32442-SP

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing LBP-99-16 (P. 13*) RE-SERVED have been served upon the following persons by U.S. mail, first class, except as otherwise noted and in accordance with the requirements of 10 CFR Sec. 2.712.

Office of Commission Appellate
Adjudication
U.S. Nuclear Regulatory Commission
Washington, DC 20555

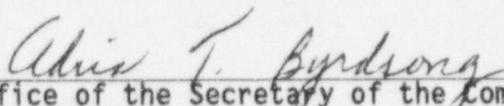
Administrative Judge
Peter B. Bloch
Presiding Officer
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Administrative Judge
Richard F. Cole
Special Assistant
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Susan L. Uttal, Esq.
Office of the General Counsel
Mail Stop - J-15 B18
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Shaun P. O'Hern
3504 Iroquois
Monroe, MI 48162

Dated at Rockville, Md. this
30 day of March 1999


Office of the Secretary of the Commission