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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:  
Peter B. Bloch, Presiding Officer  
(Dr. Peter Lam, Special Assistant)

In the Matter of	)	Docket No. 55-20726-SP
	)	
RALPH L. TETRICK	)	
	)	ASLBP No. 96-721-01-SP
(Denial of Application for Senior	)	
Reactor Operator License)	)	

WRITTEN PRESENTATION OF NRC STAFF

INTRODUCTION

This is a reactor operator licensing proceeding governed by the informal hearing procedures set forth in 10 C.F.R. Part 2, Subpart L. See 10 C.F.R. § 2.1201(a)(2). On September 25, 1996, Ralph L. Tetrick, a reactor operator at Turkey Point Nuclear Generating Plant, Units 3 and 4 ("Turkey Point"), operated by Florida Power & Light Company ("FP&L"), requested a hearing on the NRC Staff's denial of his application for a senior reactor operator's license. On October 21, 1996, the Presiding Officer granted Mr. Tetrick's hearing request; and by letter dated November 7, 1996, the NRC Staff ("Staff") submitted the Hearing File pursuant to 10 C.F.R. § 2.1231.<sup>1</sup>

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<sup>1</sup> The Hearing File contains copies of all correspondence between Mr. Tetrick and the Staff, and other relevant documents pertaining to the 1996 senior reactor operator tests taken by Mr. Tetrick.

By letter dated December 30, 1996, Mr. Tetrick filed his written presentation in this proceeding, pursuant to 10 C.F.R. § 2.1233; that presentation consists of a one-page letter, to which Mr. Tetrick attached (a) his letter to the Staff dated July 30, 1996, in which he had initially requested informal Staff review of his written examination answers, (b) his hearing request of September 25, 1996, and (c) a letter to the Secretary of the Commission, dated September 25, 1996, to which he attached his request for hearing. Mr. Tetrick provided no further discussion of his request for hearing or his answers to the written examination, apart from the statements contained in his previous letters of July 30 and September 25, 1996. In accordance with the schedule established by the Presiding Officer, as modified, the Staff herewith files its written presentation in this matter, pursuant to 10 C.F.R. § 2.1233.<sup>2</sup> This presentation responds to Mr. Tetrick's written presentation, and incorporates the "Affidavit of Brian Hughes and Thomas A. Peebles" ("Affidavit") attached hereto.<sup>3</sup>

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<sup>2</sup> By Order dated October 21, 1996, the Presiding Officer directed Mr. Tetrick to file his written presentation on or before November 25, 1996, with the Staff's response to be filed by December 13, 1996. By Order dated December 9, 1996, the Presiding Officer extended the times for filing by Mr. Tetrick and the Staff until January 3 and January 24, 1996, respectively, due to Mr. Tetrick's previous misunderstanding of the hearing requirements.

<sup>3</sup> As set forth in the attached Affidavit, Brian Hughes is a Reactor Engineer (Examiner Qualified) in the Operator Licensing Branch, Division of Reactor Controls and Human Factors, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission (NRC), in Washington, D.C. Thomas A. Peebles is Chief, Operator Licensing and Human Performance Branch, Division of Reactor Safety, NRC Region II, in Atlanta, Georgia. Affidavit ¶ 1.

## DISCUSSION

### A. Legal Background

Section 107 of the Atomic Energy Act, 42 U.S.C. § 2137, requires the NRC to determine the qualifications of individuals applying for a reactor operator license, and authorizes the NRC to promulgate such regulations as are necessary to establish uniform conditions for licensing such individuals. Part 55 of Title 10 of the Code of Federal Regulations (10 C.F.R. Part 55) contains the NRC regulations implementing Section 107 of the Atomic Energy Act. Pursuant to 10 C.F.R. § 55.4, a reactor "operator" is defined as "any individual licensed under this part to manipulate a control of a facility." A "senior operator," in turn, is defined by § 55.4 as "any individual licensed under this part to manipulate the controls of a facility and to direct the licensed activities of licensed operators" (emphasis added).

The Commission's regulations in 10 C.F.R. §§ 55.43 and 55.45 require that applicants for senior reactor operator licenses pass both a written examination and an operating test.<sup>4</sup> The content of NRC written examinations taken by applicants for senior reactor operator licenses is governed by 10 C.F.R. § 55.43, entitled "Written examination: Senior operators." Written examination questions are intended to test "the knowledge, skills, and abilities needed to perform licensed senior operator duties." 10 C.F.R. § 55.43(a). In addition to information contained in a facility's training program, knowledge of "information in the Final Safety Analysis Report, system

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<sup>4</sup> Similarly, written examinations and operating tests are required for operator license applicants, as set forth in 10 C.F.R. §§ 55.41 and 55.45.

description manuals and operating procedures, facility license and license amendments, [and] Licensee Event Reports" may properly be tested. *Id.* Written examinations for senior operators are to include a representative sample of questions from among the 14 subject areas specified for operator license applicants in 10 C.F.R. § 55.41(b)(1-14).<sup>5</sup>

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<sup>5</sup> The 14 areas specified in 10 C.F.R. § 55.41(b) are as follows:

- (1) Fundamentals of reactor theory, including fission process, neutron multiplication, source effects, control rod effects, criticality indications, reactivity coefficients, and poison effects.
- (2) General design features of the core, including core structure, fuel elements, control rods, core instrumentation, and coolant flow.
- (3) Mechanical components and design features of the reactor primary system.
- (4) Secondary coolant and auxiliary systems that affect the facility.
- (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.
- (6) Design, components, and functions of reactivity control mechanisms and instrumentation.
- (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.
- (8) Components, capacity, and functions of emergency systems.
- (9) Shielding, isolation, and containment design features, including access limitations.

(continued...)

In addition, written examinations for senior operators are to include a representative sample of questions from the seven areas specified in 10 C.F.R. § 55.43(b)(1)-(7).<sup>6</sup>

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<sup>5</sup>(...continued)

- (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.
- (11) Purpose and operation of radiation monitoring systems, including alarms and survey equipment.
- (12) Radiological safety principles and procedures.
- (13) Procedures and equipment available for handling and disposal of radioactive materials and effluents.
- (14) Principles of heat transfer thermodynamics and fluid mechanics.

<sup>6</sup> The additional subject areas specified in 10 C.F.R. § 55.43(b) are as follows:

- (1) Conditions and limitations in the facility license.
- (2) Facility operating limitations in the technical specifications and their bases.
- (3) Facility licensee procedures required to obtain authority for design and operating changes in the facility.
- (4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.
- (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.
- (6) Procedures and limitations involved in initial core loading, alterations in core configuration, control rod programming, and determination of various internal and external effects on core reactivity.
- (7) Fuel handling facilities and procedures.

Successful applicants for senior reactor operator licenses must take and pass an operating test, in addition to passing the written examination. The operating test involves a plant walkthrough and dynamic simulator evaluation during which various plant tasks, scenarios and questions are presented to the applicants, who are graded on the actions and answers they provide in response. *See* 10 C.F.R. § 55.45. The operating test requires applicants to demonstrate, to the extent applicable, an understanding of and the ability to perform the actions necessary to accomplish a representative sample of tasks drawn from the 13 items listed in § 55.45.

To promote uniformity in the content and grading of written examinations and operating tests taken at different nuclear facilities, the Staff has previously published NUREG-1021, "Operator Licensing Examiner Standards," which contains specific instructions and guidelines for developing, administering, and grading reactor operator examinations and tests. As set forth therein, in order to pass the written examination, at least 80% of the questions must be correctly answered. *See* NUREG-1021, "Operator Licensing Examiner Standards," section ES-402, page 5 of 6.

B. Mr. Tetrick's Written Examination

As set forth in the Affidavit of Brian Hughes and Thomas A. Peebles attached hereto, Mr. Tetrick holds an NRC operating license, License No. OP-20909, issued on December 3, 1991, which authorizes him to manipulate all controls at the Turkey Point Nuclear Plant, Units 3 and 4. That license expires on December 3, 1997, unless terminated, renewed or upgraded prior to that date (HF Item 2). Affidavit ¶ 5.

On February 16, 1996, the NRC Staff informed FP&L that licensing examinations for reactor operators (ROs) and senior reactor operators (SROs) would be conducted in June 1996 (HF Item 3). In May 1996, FP&L submitted an application for Mr. Tetrick to upgrade his license to senior reactor operator (HF Item 4). Affidavit ¶ 6.

On June 14, 1996, a written examination was administered to Mr. Tetrick and 18 other applicants for RO and SRO licenses at Turkey Point. Master copies of the Turkey Point written examinations, No. 96-300, for SRO and RO licenses administered on June 14, 1996 (NRC Forms ES-401), are included in the hearing file as HF Items 9 and 10, respectively. As an SRO applicant, Mr. Tetrick ("the Applicant") was administered the SRO written examination (HF Item 9). That examination consists of 100 multiple choice questions, the correct answer to each of which was to count as one point. If an applicant believed that the intent of a question was unclear, the applicant was directed to seek clarification from the examiner (HF Item 9, at 6). Applicants were informed that in order to pass the examination, they must achieve a grade of 80% or greater (HF Item 9, at 7). Affidavit ¶ 8.

Mr. Tetrick's written examination answer sheet is included in the hearing file as HF Item 17. As graded by the NRC Staff, Mr. Tetrick incorrectly answered a total of 22 of the 100 questions. Accordingly, on July 3, 1996, NRC Region II personnel recommended that Mr. Tetrick's application to upgrade his RO license to SRO status should be denied, notwithstanding the fact that he had successfully passed the operating test which had been administered as part of the licensure examination (HF Item 18). Affidavit ¶ 10.

In a letter dated July 19, 1996, Thomas A. Peebles of NRC Region II informed Mr. Tetrick that the Staff proposed to deny his application for a SRO license, due to his having failed the written examination (HF Item 19). Mr. Tetrick was advised that if he chose to accept the proposed denial, it would become final within 20 days and he could reapply for a SRO license after two months -- in connection with which he would be required to retake the written examination, but the operating test could be waived (*Id.*). Mr. Tetrick was also advised, on the other hand, that he could request an informal NRC staff review or a hearing within 20 days; if he requested an informal review, he was to indicate which answers he believed were incorrectly graded and to provide the basis with supporting documentation for his contentions. Upon receipt of that request and supporting information, the Staff would review his contentions, reconsider its grading and inform him of the results, and he could then request a hearing pursuant to 10 C.F.R. § 2.103(b)(2) (*Id.*). Affidavit ¶ 11.

Also on July 19, 1996, the Staff provided the results of the Turkey Point licensure examination to FP&L (HF Items 15 and 16). The Staff reported that Mr. Tetrick had received an examination score of 78 out of 100, and therefore failed the written examination; the other 18 applicants for RO and SRO licenses had passed the examination with a minimum score of 80 or above (HF Item 15, Enclosure 1; HF Item 16, Enclosure). Affidavit ¶ 12.

On July 30, 1996, Mr. Tetrick responded to the NRC Staff's letter of July 19, 1996, and requested an informal review of his written examination (HF Item 20). In particular, Mr. Tetrick requested review of his answers to four examination questions:



Questions 24, 63, 84, and 96 (*Id.*). An informal review of Mr. Tetrick's contentions was then undertaken by the NRC Staff in NRC Region II, as well as independently by the Office of Nuclear Reactor Regulation (*see* HF Items 22, 24, 25), in accordance with the procedures found in NUREG-1021, Operator Licensing Examiner Standards, Rev. 7, Supp. 1, § ES-502. During this review, information was also obtained from FP&L (HF Item 23). Affidavit ¶ 13.

On September 12, 1996, the Staff transmitted a letter to Mr. Tetrick, in which it informed him that it had reviewed the grading of his written examination in light of the information he supplied and concluded that he had not passed that examination (HF Item 26). In particular, the Staff concluded that no answers to Question 24 are completely correct, and the Staff determined that this question should be deleted from the examination. However, the Staff further found that Mr. Tetrick's answers to Questions 63, 84 and 96 were clearly incorrect and it sustained its grading of his answers to these questions. As a result, Mr. Tetrick was determined to have a final grade of 78.8%, which remained below the minimum passing grade of 80%, and the Staff therefore concluded that Mr. Tetrick had failed the written examination. Accordingly, the Staff determined that the proposed denial of Mr. Tetrick's SRO license application should be sustained, and advised him of his right to request a hearing in connection therewith (HF Item 26). Affidavit ¶ 14.

On September 25, 1996, Mr. Tetrick filed a request for hearing in connection with the proposed denial of his SRO license application. In that document, Mr. Tetrick

also replied to the Staff's analysis of his answers to Questions 63 and 84, and he included a request for reconsideration of his answer to Question 90.

As noted *supra* at 2, Mr. Tetrick's written presentation (submitted by letter of December 30, 1996) consists essentially of his request for informal Staff review dated July 30, 1996, and his subsequent letter and hearing request dated September 25, 1996. No further discussion of these matters is contained in his written presentation beyond the discussion contained in those two previous letters.

The Staff's response to Mr. Tetrick's written presentation is set forth in the attached Affidavit of Brian Hughes and Thomas A. Peebles, which is hereby incorporated by reference herein. Therein, the Staff sets out each of the written examination questions challenged by Mr. Tetrick (Questions 63, 84, 90, and 96), along with the correct answers and Mr. Tetrick's answers thereto. For each question, the Staff also addresses Mr. Tetrick's arguments concerning the answers he provided and the reasons why those answers are incorrect.

The following discussion presents a brief overview of the questions and answers challenged by Mr. Tetrick. A detailed analysis of these matters is set forth in the attached Affidavit, which is incorporated by reference herein.

Question 63. This question stated as follows:

*Plant conditions:*

- *Preparations are being made for refueling operations.*
- *The refueling cavity is filled with the transfer tube gate valve open.*

- Alarm annunciators H-1/1, SFP LO LEVEL and G-9/5, CNTMT SUMP HI LEVEL are in alarm.

Which ONE of the following is the required IMMEDIATE ACTION in response to these conditions?

- a. Verify alarms by checking containment sump level recorder and spent fuel level indication.
- b. Sound the containment evacuation alarm.
- c. Initiate containment ventilation isolation.
- d. Initiate control room ventilation isolation.

The correct answer to this question is "b" -- "Sound the containment evacuation alarm." Mr. Tetrick's answer was "a" -- "Verify alarms by checking containment sump level recorder and spent fuel level indication" (HF Item 17). The Staff's response to Mr. Tetrick's arguments concerning this question is set forth in the attached Affidavit, at ¶¶ 17-25.

Question 84. This question stated as follows:

Which ONE of the following is the basis for step 1, "Verify Reactor Trip", of FR-5.1, Response to Nuclear Power Generation/ATWS?

- a. To ensure that only decay heat and reactor coolant pumps are adding heat to the RCS.
- b. To ensure shutdown margin is within Technical Specifications limits for HOT STANDBY.
- c. To alert the operator to take further corrective action if the reactor is NOT tripped.

- d. *To verify that all automatic reactor protective features have functioned as designed.*

The correct answer to this question is "a" -- "To ensure that only decay heat and reactor coolant pumps are adding heat to the RCS." Mr. Tetrick's answer was "c" -- "To alert the operator to take further corrective action if the reactor is NOT tripped" (HF Item 17). The Staff's response to Mr. Tetrick's arguments concerning this question is set forth in the attached Affidavit, at ¶¶ 26-31.

Question 90. This question stated as follows:

*When draining the RCS using 3-OP-041.9, REDUCED INVENTORY OPERATIONS, the reactor vessel head and pressurizer are both vented to containment atmosphere.*

*Which one of the following describes the effects on reactor vessel indication if an adequate vent path is not provided? (Assume the reference leg remains full).*

- a. *A vacuum in the RCS loops will result in level indication being lower than actual levels.*
- b. *A vacuum in the RCS loops will result in level indication being higher than actual levels.*
- c. *A positive pressure in the RCS loops will result in level indication being lower than actual levels.*
- d. *The level instruments automatically compensate for positive or negative pressure.*

The correct answer to this question is "a" -- "A vacuum in the RCS loops will result in level indication being lower than actual levels." Mr. Tetrick's answer was "b"

-- "A vacuum in the RCS loops will result in level indication being higher than actual levels." (emphasis added) (HF Item 17). The Staff's response to Mr. Tetrick's arguments concerning this question is set forth in the attached Affidavit, at ¶¶ 32-40.

Question 96. This question stated as follows:

*Which ONE of the following is the lowest level position responsible for ensuring entries are made in the Technical Specification Related Equipment Out-Of-Service Index?*

- a. Nuclear Plant Supervisor*
- b. Assistant Nuclear Plant Supervisor*
- c. Senior Nuclear Plant Operator*
- d. Nuclear Watch Engineer*

The correct answer to this question is "b" -- "Assistant Nuclear Plant Supervisor." Mr. Tetrick's answer was "d" -- "Nuclear Watch Engineer" (HF Item 17). The Staff's response to Mr. Tetrick's arguments concerning this question is set forth in the attached Affidavit, at ¶¶ 41-44.

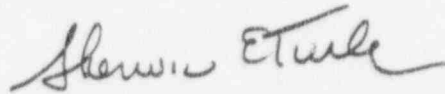
In summary, the Staff's review of Mr. Tetrick's assertions determined that Question 24 should be deleted, but that no change should be made to the grading of Questions 63, 84, 90, or 96. As set forth in the attached Affidavit, with the deletion of Question 24, the Staff has determined that Mr. Tetrick's original written examination grade of 78.0% (78 correct answers out of 100) should be revised to reflect a final written examination grade of 78.8% (78 correct answers out of 99). Affidavit ¶ 45, 46. Further, the Staff has concluded that Mr. Tetrick's written submittals do not establish

good cause to change the grading of these written examination questions. Mr. Tetrick's score of 78.8% is below the minimum passing grade of 80%, and the Staff has therefore determined that Mr. Tetrick failed the written examination. For these reasons, as more fully set forth in the attached Affidavit, the Staff properly denied Mr. Tetrick's SRO license application.

#### CONCLUSION

Based upon the analysis set forth herein and in the attached Affidavit, the Staff has concluded that Mr. Tetrick failed the written examination. Further, the Staff respectfully submits that Mr. Tetrick has not established sufficient cause to change the grading of his answers to written examination questions 63, 84, 90, and 96. Accordingly, the Staff's denial of Mr. Tetrick's application for a SRO license should be sustained.

Respectfully submitted,

A handwritten signature in cursive script, reading "Sherwin E. Turk".

Sherwin E. Turk  
Counsel for NRC Staff

Dated at Rockville, Maryland  
this 23rd day of January, 1997