



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

August 30, 2022

Mr. Q. Shane Lies
Senior VP and Chief Nuclear Officer
Indiana Michigan Power Company
Nuclear Generation Group
One Cook Place
Bridgman, MI 49106

SUBJECT: DONALD C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2—NRC INITIAL
LICENSE EXAMINATION REPORT 05000315/2022301; 05000316/2022301

Dear Mr. Lies:

On August 2, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed the initial operator licensing examination process for license applicants employed at your Donald C. Cook Nuclear Power Plant. The enclosed report documents the results of those examinations. Preliminary observations noted during the examination process were discussed on July 22, 2022, with you and other members of your staff. An exit meeting was conducted by telephone on August 10, 2022, between Ms. Kelly Ferneau of your staff and Mr. Ted Wingfield, Chief Operator Licensing Examiner, to review the proposed final grading of the written examination for the license applicants. During the telephone conversation, NRC resolutions of the facility's post-examination comments, initially received by the NRC on August 2, 2022, were discussed.

The NRC examiners administered an initial license examination operating test during the week of July 18, 2022. The written examination was administered by Donald C. Cook Nuclear Power Plant training department personnel on July 27, 2022. Four Senior Reactor Operator and nine Reactor Operator applicants were administered license examinations. The results of the examinations were finalized on August 16, 2022. Thirteen applicants passed all sections of their respective examinations. Four were issued senior operator licenses and nine were issued operator licenses.

The administered written examination and operating test, as well as documents related to the development and review (outlines, review comments and resolution, etc.) of the examination will be withheld from public disclosure until August 2, 2024.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations*, Part 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,



Signed by Orlikowski, Robert
on 08/30/22

Robert J. Orlikowski, Acting Branch Chief
Operations Branch
Division of Reactor Safety

Docket Nos. 50-315; 50-316
License Nos. DPR-58; DPR-74

Enclosures:

1. Examination Report 05000315/2022301;
05000316/2022301
2. Post-Examination Comments, Evaluation,
and Resolutions
3. Simulator Fidelity Report

cc: Distribution via LISTSERV®
D. Emery, Training Manager,
Donald C. Cook Nuclear Power Plant

Letter to Q. Shane Lies from Robert J. Orlikowski dated August 30, 2022.

SUBJECT: DONALD C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2—NRC INITIAL LICENSE EXAMINATION REPORT 05000315/2022301; 05000316/2022301

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-315; 50-316

License Nos: DPR-58; DPR-74

Report Nos: 05000315/2022301; 05000316/2022301

Enterprise Identifier L-2022-OLL-0023

Licensee: Indiana Michigan Power Company

Facility: Donald C. Cook Nuclear Power Plant, Units 1 and 2

Location: Bridgman, MI

Dates: July 18, 2022 to August 2, 2022

Examiners: T. Wingfield, Operations Engineer, Chief Examiner
G. Roach, Senior Operations Engineer, Examiner
B. Bartlett, Senior Operations Engineer, Examiner
J. Robbins, Operations Engineer, Examiner

Approved By: R. Orlikowski, Acting Branch Chief
Operations Branch
Division of Reactor Safety

SUMMARY OF FINDINGS

ER 05000315/2022301; 05000316/2022301; 07/18/2022-08/02/2022; Indiana Michigan Power Company, Donald C. Cook Nuclear Power Plant, Units 1 and 2. Initial License Examination Report.

The announced initial operator licensing examination was conducted by regional U.S. Nuclear Regulatory Commission examiners in accordance with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 12.

Examination Summary:

Thirteen applicants passed all sections of their respective examinations. Four applicants were issued senior operator licenses and nine applicants were issued operator licenses. (Section 40A5.1)

REPORT DETAILS

40A5 Other Activities

.1 Initial Licensing Examinations

a. Examination Scope

The U.S. Nuclear Regulatory Commission (NRC) examiners and members of the facility licensee's staff used the guidance prescribed in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 12, to develop, validate, administer, and grade the written examination and operating test. The written examination outlines were prepared by the NRC staff and were transmitted to the facility licensee's staff. Members of the facility licensee's staff developed the operating test outlines and developed the written examination and operating test. The NRC examiners validated the proposed examination during the week of June 13, 2022, with the assistance of members of the facility licensee's staff. During the on-site validation week, the examiners audited two reactor operator and two senior reactor operator license applications for accuracy. The NRC examiners, with the assistance of members of the facility licensee's staff, administered the operating test, consisting of job performance measures and dynamic simulator scenarios, during the period of July 18, 2022, through July 22, 2022. The facility licensee administered the written examination on July 27, 2022.

b. Findings

(1) Written Examination

The NRC examiners determined that the written examination, as proposed by the licensee, was within the range of acceptability expected for a proposed examination. Less than 20 percent of the proposed examination questions were determined to be unsatisfactory and required modification or replacement.

All changes made to the proposed written examination, were made in accordance with NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and documented on Form 2.3-5, "Written Examination Review Worksheet." The Form 2.3-5, the written examination outlines (Form 4.1-PWR Pressurized-Water Reactor Examination Outline and Form 4.1-COMMON Common Examination Outline), and both the proposed and final written examinations, will be available electronically in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS) on August 2, 2024, (ADAMS Accession Numbers ML21263A041, ML21263A038, ML21263A039, and ML21263A037 respectively).

On August 2, 2022, the licensee submitted documentation noting that there were two post-examination comments for consideration by the NRC examiners when grading the written examination. The post-examination comments and the NRC resolution for the post-examination comments, are provided in Enclosure 2 to this report.

The NRC examiners graded the written examination on August 8, 2022, and conducted a review of each missed question to determine the accuracy and validity of the examination questions.

(2) Operating Test

The NRC examiners determined that the operating test, as originally proposed by the licensee, was within the range of acceptability expected for a proposed examination. Less than 20 percent of the proposed operating test portion of the examination was determined to be unsatisfactory and required modification or replacement.

Changes made to the operating test portion of the examination, were made in accordance with NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and documented on Form 2.3-3, "Operating Test Review Worksheet." The Form 2.3-3, the operating test outlines (Form 3.2-1 Administrative Topics Outline, Form 3.2-2 Control Room and In-Plant Systems Outline, and Form 3.3-1 Scenario Outlines), and both the proposed and final as administered dynamic simulator scenarios and Job Performance Measures, will be available electronically in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS on August 2, 2024, (ADAMS Accession Numbers ML21263A041, ML21263A038, ML21263A039, and ML21263A037 respectively).

The NRC examiners completed operating test grading on August 10, 2022.

(3) Examination Results

Four applicants at the Senior Reactor Operator (SRO) level and nine applicants at the Reactor Operator (RO) level were administered written examinations and operating tests. Thirteen applicants passed all portions of their examinations and were issued their respective operating licenses on August 16, 2022.

.2 Examination Security

a. Scope

The NRC examiners reviewed and observed the licensee's implementation of examination security requirements during the examination validation and administration to assure compliance with Title 10 of the *Code of Federal Regulations*, Section 55.49, "Integrity of Examinations and Tests." The examiners used the guidelines provided in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," to determine acceptability of the licensee's examination security activities.

b. Findings

None.

4OA6 Meetings

.1 Debrief

The chief examiner presented the examination team's preliminary observations and findings on July 25, 2022, to Mr. S. Lies and other members of the Donald C. Cook Nuclear Plant Operations and Training Department staff.

.2 Exit Meeting

The chief examiner conducted an exit meeting on August 10, 2022, with Ms. Kelly Ferneau, Site Vice President by telephone. The NRC's final disposition of the station's grading of the written examination and post-examination comments were disclosed and discussed during the telephone discussion. The chief examiner asked the licensee whether any of the retained submitted material used to develop or administer the examination should be considered proprietary. Proprietary or sensitive information identified during the examination or debrief/exit meetings will be handled in accordance with the applicable requirements.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

S. Lies, Chief Nuclear Officer
K. Ferneau, Site Vice President
M. Scarpello, Regulatory Affairs Director
K. Harper, Regulatory Affairs
S. Schneider, Operations Director
D. Emery, Training Manager
T. Kasper, Operations Training Manager

U.S. Nuclear Regulatory Commission

P. Zurawski, Senior Resident Inspector
J. Mancuso, Resident Inspector
T. Wingfield, Chief Examiner
G. Roach, Senior Examiner
B. Bartlett, Senior Examiner
J. Robbins, Examiner

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened, Closed, and Discussed

None

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access and Management System
NRC	U.S. Nuclear Regulatory Commission

NRC Resolution to Donald C. Cook Nuclear Power Plant Post-Examination Comments

SRO Question 89

The Auxiliary Building AEO reports that the cable for the Unit 2 Train N Battery positive terminal shows signs of severe overheating and is disconnected. There are no other abnormal conditions reported by the AEO. The BOP reports there are no annunciators actuated in the Control Room.

Which of the following describes the effects on the capability of the Auxiliary Feedwater System and identifies Tech Spec implications for the AFW and DC electrical power systems?

Tech Spec 3.8.4 DC Sources - Operating
Tech Spec 3.7.5 Auxiliary Feed Water System

- A. The TDAFP will NOT automatically start if an auto start signal subsequently actuates.
Tech Spec 3.8.4 Condition D is entered.
Tech Spec 3.7.5 Condition B is entered.
- B. FMO-211, -221, -231, & -241, TDAFP to SG Isolation Valve(s), are failed in the open position.
Tech Spec 3.8.4 is not entered.
Tech Spec 3.7.5 Condition B is entered.
- C. The TDAFP will automatically start if an auto start signal subsequently actuates.
Tech Spec 3.8.4 Condition D is entered.
Tech Spec 3.7.5 Condition B is entered.
- D. FMO-211, -221, -231, & -241, TDAFP to SG Isolation Valve(s), are energized and in the open position.
Tech Spec 3.8.4 is not entered.
Tech Spec 3.7.5 Condition B is not entered.

Answer: C

References provided to NRC:

- Technical Specifications 3.8.4 and 3.7.5

NRC Resolution to Donald C. Cook Nuclear Power Plant Post-Examination Comments

Facility Comment:

The stem of the question is unclear in that it does not provide all the necessary information to allow the applicant to evaluate the validity of the answer choices.

Choices A and C contain statements regarding the impact of the scenario described in the stem on a subsequent TDAFP (Turbine Drive Auxiliary Feed Pump) auto start signal. The TDAFP starts automatically on 3 signals:

- SG (Steam Generator) Water Level Low-Low
- RCP (Reactor Coolant Pump) Bus undervoltage
- AMSAC (ATWS (Anticipated Transient Without Scram) Mitigating System Actuation Circuitry)

Given the conditions described in the stem, the TDAFP would only start on 2 of the 3 start signals for all scenarios that cause the auto start signal (SG Water Level Low-Low and AMSAC). The Unit 2 Train N Battery Charger is powered either from 4KV Bus T21A or T21D. If the RCP Bus undervoltage condition occurred on the RCP Bus which supplies the associated T21A or T21D bus which is supplying the Train N Battery Charger, a load shed signal would be generated which would result in loss of power to T21A/T21D. When the Load Shed occurs, the Train N Battery Charger would de-energize and not automatically restart when power is restored to the T21A/T21D bus by its associated EDG. With the Train N Battery and Train N Charger both inoperable, Train N voltage would be zero and the TDAFP will not start. Therefore, the statement in Choice A that "The TDAFP will NOT automatically start if an auto start signal subsequently actuates" is true if the TDAFP start is from RCP bus UV but is not true for the other two start signals. Conversely, the statement in Choice C that "The TDAFP will automatically start if an auto start signal subsequently actuates" is true if the TDAFP start is from SG Low-Low level or AMSAC but is not true if the start is from RCP Bus UV. Therefore, neither answer is correct for all three TDAFP start signals. The stem of the question did not provide the necessary information to discriminate between these two answers. Therefore, this question has no correct answer since neither A nor C is correct 100% of the time.

NRC Evaluation/Resolution:

Based on the information provided in the question stem that only the cable for the Unit 2 Train N Battery positive terminal is disconnected, the Battery Charger is still supplying DC power to the TDAFP control circuitry and TDAFP discharge valves. Therefore, the NRC staff concludes that the TDAFP will start upon receipt of either the SG water level low-low signal or the AMSAC signal. The NRC staff also concludes that the TDAFP would not auto start on a RCP Bus undervoltage signal if the undervoltage occurs on the bus supplying power to T21A/T21D since there would be no power to the TDAFP control circuitry and TDAFP discharge valves.

Therefore, the NRC staff concludes that neither Answer Option A nor C is correct in all cases. In addition, because Answer Options B and D are also incorrect (for other reasons) the NRC staff concludes that there is no correct answer for Question #89. As a result, Question #89 was removed from the examination answer key.

NRC Resolution to Donald C. Cook Nuclear Power Plant Post-Examination Comments

SRO Question 93

Which ONE of the following meets a TRM requirement for an operable Fire Suppression Water System (8.7.5)?

- A. Two Storage Tanks with 565,000 gal of water in each tank.
- B. One Motor Driven Fire Pump with an operable flow path to the Header.
- C. One Backup Diesel Fire Pump with an operable flow path from the intake structure.
- D. One Diesel Driven Fire Pump with a minimum of 160 gallons of Fuel Oil.

Answer: A

References provided to NRC:

- Technical Requirements Manual 8.7.5 and 8.7.4

Facility Comment:

The stem of the question is unclear in that it does not provide all the necessary information to allow the applicant to evaluate the validity of the answer choices.

The wording of the stem asks which answer choice “meets a TRM requirement for an operable Fire Suppression Water System.” The keyed correct answer (A) lists the items in the Technical Requirements for Operability (TRO) and thus is correct as the TRO is “a requirement for operability” in TRM 8.7.5. Choice D lists a Technical Requirement Surveillance (TRS) requirement, and thus is also correct as “a requirement for operability” in TRM 8.7.5. The stem of the question did not differentiate by asking specifically for the TRO requirements in TRM 8.7.5, therefore choice D is also correct.

NRC Evaluation/Resolution:

Technical Requirements Manual (TRM) 8.7.5 establishes three conditions which MUST be met for the Fire Suppression Water System (FSWS) to be considered operable. Those conditions are:

- a. Three Fire Suppression Water System pumps, each with a capacity of 2500 gpm, with their discharge aligned to the fire suppression header;
- b. Two fire water tanks, each with a minimum usable volume of 565,000 gallons; and
- c. An OPERABLE flow path capable of taking suction from either one of the fire water tanks and transferring the water through distribution piping (with OPERABLE sectionalizing valves) up to the yard hydrant curb control valves, to the hose station valves and Water Suppression System controlling valves.

From these requirements, Answer Option A is a valid answer as spelled out by Condition b. Regarding Distractors B and D, Condition a. requires *three* fire suppression water system pumps, each with the capacity of 2500 gm and aligned to the fire suppression header.

NRC Resolution to Donald C. Cook Nuclear Power Plant Post-Examination Comments

Distractor B focuses on only *one* specific fire suppression pump, and therefore, it does not meet the full requirement of Condition a. Distractor C is incorrect as the backup fire pumps were a part of original plant construction but are no longer a part of the fire suppression system as characterized by TRM 8.7.5. Lastly, Distractor D is a specific surveillance requirement necessary for continued OPERABILITY of the FSWS and not one of the three TRO conditions (requirements) for a FSWS that is stated to be operable as given in the stem of the question, “an operable Fire Suppression Water System (8.7.5).” Since the FSWS is currently OPERABLE, all the surveillances are satisfied, and Distractor D is not defined as a TRO condition (requirement) which must continue to be met for an operable FSWS.

Based on this assessment, NRC staff concludes that the statement “a TRM requirement for an operable Fire Suppression Water System” clearly and directly conveys that the question is asking specifically for the given TRO conditions which must be met for TRM 8.7.5. Therefore, the NRC staff concludes that Answer Option A is the ONLY correct answer, and no change to the answer key is required.

SIMULATOR FIDELITY REPORT

Facility Licensee: Donald C. Cook Nuclear Power Plant

Facility Docket No: 50-315; 50-316

Operating Tests Administered: July 18, 2022 through July 22, 2022

The following documents observations made by the U.S. Nuclear Regulatory Commission examination team during the initial operator license examination. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of non-compliance with Title 10 of the *Code of Federal Regulations*, Part 55.45(b). These observations do not affect U.S. Nuclear Regulatory Commission certification or approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required in response to these observations.

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

ITEM	DESCRIPTION
None	N/A