



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

May 31, 2016

Mr. Steven D. Capps
Site Vice President
Duke Energy Carolinas, LLC
McGuire Nuclear Station
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

SUBJECT: WILLIAM B. MCGUIRE NUCLEAR STATION – NRC EXAMINATION REPORT
05000369/2016301 AND 05000370/2016301

Dear Mr. Capps:

During the period April 4-8, 2016, the Nuclear Regulatory Commission (NRC) administered operating tests to employees of your company who had applied for licenses to operate the William B. McGuire Nuclear Station. At the conclusion of the tests, the examiners discussed preliminary findings related to the operating tests and the written examination submittal with those members of your staff identified in the enclosed report. The written examination was administered by your staff on April 14, 2016.

Six Reactor Operator (RO) and six Senior Reactor Operator (SRO) applicants passed both the operating test and written examination. There was one post-administration comment concerning the written examination. This comment and the NRC resolution of this comment are summarized in Enclosure 2. A Simulator Fidelity Report is included in this report as Enclosure 3.

The initial examination submittal was within the range of acceptability expected for a proposed examination. All examination changes agreed upon between the NRC and your staff were made according to NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm.adams.html> (the Public Electronic Reading Room).

If you have any questions concerning this letter, please contact me at (404) 997-4551.

Sincerely,

/RA/

Gerald J. McCoy, Chief
Operations Branch 1
Division of Reactor Safety

Docket Nos: 50-369 and 50-370
License Nos: NPF-9 and NPF-17

Enclosures:

1. Report Details
2. Facility Comments and NRC Resolution
3. Simulator Fidelity Report

cc: Distribution via Listserv

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PUBLICLY AVAILABLE
 NON-PUBLICLY AVAILABLE
 SENSITIVE
 NON-SENSITIVE
 ADAMS: Yes
 ACCESSION NUMBER: _____
 SUNSI REVIEW COMPLETE
 FORM 665 ATTACHED

OFFICE	RII:DRS	RII:DRS	HQS	RII:DRS			
SIGNATURE	DRL2 VIA EMAIL	JXV3 VIA EMAIL	TDB2 VIA EMAIL	GJM1			
NAME	LANYI	VIERA	BUCHANAN	MCCOY			
DATE	5/25/2016	5/31/2016	5/31/2016	5/31/2016			
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES	YES NO	YES NO

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 05000369, 05000370

License No.: NPF-9, NPF-17

Report No.: 05000369/2016301 and 05000370/2016301

Licensee: Duke Energy Carolinas, LLC

Facility: McGuire Nuclear Station, Units 1 & 2

Location: Huntersville, NC 28078-8985

Dates: Operating Test – April 4 – 8, 2016
Written Examination – April 14, 2016

Examiners: David R. Lanyi, Chief Examiner, Senior Operations Engineer
Joseph Viera, Operations Engineer
Theresa D. Buchanan, Reactor Engineer (Examiner)

Approved by: Gerald J. McCoy, Chief
Operations Branch 1
Division of Reactor Safety

SUMMARY

ER 05000369/2016301 and 05000370/2016301; operating test April 4-9, 2016 & written exam April 14, 2016; William B. McGuire Nuclear Station; Units 1 and 2 Operator License Examinations.

Nuclear Regulatory Commission (NRC) examiners conducted an initial examination in accordance with the guidelines in Revision 10, of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors." This examination implemented the operator licensing requirements identified in 10 CFR §55.41, §55.43, and §55.45, as applicable.

Members of the McGuire Nuclear Station staff developed both the operating tests and the written examination. The initial operating test, written Reactor Operator (RO) examination, and written Senior Reactor Operator (SRO) examination submittals met the quality guidelines contained in NUREG-1021.

The NRC administered the operating tests during the period April 4-9, 2016. Members of the McGuire Nuclear Station training staff administered the written examination on April 14, 2016. All six RO and six SRO applicants passed both the operating test and written examination. All twelve applicants were issued licenses commensurate with the level of examination administered.

There was one post-examination comment.

No findings were identified.

REPORT DETAILS

4. OTHER ACTIVITIES

4OA5 Operator Licensing Examinations

a. Inspection Scope

The NRC evaluated the submitted operating test by combining the scenario events and JPMs in order to determine the percentage of submitted test items that required replacement or significant modification. The NRC also evaluated the submitted written examination questions (Reactor Operator and Senior Reactor Operator questions considered separately) in order to determine the percentage of submitted questions that required replacement or significant modification, or that clearly did not conform with the intent of the approved knowledge and ability (K/A) statement. Any questions that were deleted during the grading process, or for which the answer key had to be changed, were also included in the count of unacceptable questions. The percentage of submitted test items that were unacceptable was compared to the acceptance criteria of NUREG-1021, "Operator Licensing Standards for Power Reactors."

The NRC reviewed the licensee's examination security measures while preparing and administering the examinations in order to ensure compliance with 10 CFR §55.49, "Integrity of examinations and tests."

The NRC administered the operating tests during the period April 4-9, 2016. The NRC examiners evaluated six Reactor Operator (RO) and six Senior Reactor Operator (SRO) applicants using the guidelines contained in NUREG-1021. Members of the McGuire Nuclear Station training staff administered the written examination on April 14, 2016. Evaluations of applicants and reviews of associated documentation were performed to determine if the applicants, who applied for licenses to operate the McGuire Nuclear Station, met the requirements specified in 10 CFR Part 55, "Operators' Licenses."

The NRC evaluated the performance or fidelity of the simulation facility during the preparation and conduct of the operating tests.

b. Findings

No findings were identified.

The NRC developed the written examination sample plan outline. Members of the McGuire Nuclear Station training staff developed both the operating tests and the written examination. All examination material was developed in accordance with the guidelines contained in Revision 10 of NUREG-1021. The NRC examination team reviewed the proposed examination. Examination changes agreed upon between the NRC and the licensee were made per NUREG-1021 and incorporated into the final version of the examination materials.

Using NUREG-1021, the NRC determined that the licensee's initial examination submittal was within the range of acceptability expected for a proposed examination.

All six RO applicants and six SRO applicants passed both the operating test and written examination. All applicants were issued licenses.

Copies of all individual examination reports were sent to the facility Training Manager for evaluation of weaknesses and determination of appropriate remedial training.

The licensee submitted one post-examination comment concerning the written examination. A copy of the final written examination and answer key, with all changes incorporated, and the licensee's post-examination comments may be accessed not earlier than April 14, 2018, in the ADAMS system (ADAMS Accession Numbers ML16119A426, ML16119A429, and ML16119A434).

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 9, 2016 the NRC examination team discussed generic issues associated with the operating test with Steven Capps, Site Vice-President, and members of the McGuire Nuclear Station staff. The examiners asked the licensee if any of the examination material was proprietary, or if any of the examination material received should be withheld from public disclosure. No proprietary information was identified. No information was identified that required withholding from public disclosure.

KEY POINTS OF CONTACT

Licensee personnel

B. Anderson	Operations Manager
S. Capps	Site Vice-President
V. Ford	Operations Training Manager
S. Helms	ILT Supervisor
G. Murphy	Regulatory Affairs
C. Morris	Plant Manager
P. Schuerger	Training Manager

NRC personnel

R. Cureton	Resident Inspector
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FACILITY POST-EXAMINATION COMMENTS AND NRC RESOLUTIONS

A complete text of the licensee's post-examination comment can be found in ADAMS under Accession Number ML 16119A434.

Item

SRO QUESTION #90:

Comment:

The licensee contends that answer "C" and "D" are correct.

The question stated that a Unit 1 load increase had been placed on hold due to a potentially stuck rod. The applicants were given an incore thermocouple map and asked two questions. First, they were asked to determine which rod was stuck. Second, they were asked which Technical Specification surveillances were required to allow continued operation in Mode 1. The applicants were asked to choose between a Rod Control Cluster Assembly (RCCA) Movement surveillance or a Heat Flux Hot Channel Factor ($F_{M_Q}(X,Y,Z)$) AND a Nuclear Enthalpy Rise Hot Channel Factor ($F_{\Delta H}(X,Y)$) surveillances. The first part of the question is not under contention by the licensee.

The licensee contends that insufficient information was provided in the stem of question to fully analyze the question. They believe that both of the second part answers could be correct depending on the assumptions made by the applicants.

Since it was not clearly stated in the stem of the question that the "potentially stuck" control rod was misaligned by greater than 12 steps, it is unclear as to whether Tech Spec 3.1.4 (ROD GROUP ALIGNMENT) Condition B applies. If the rod was misaligned by greater than 12 steps, Condition B would apply and Surveillances 3.2.1.1 ($F_{M_Q}(X,Y,Z)$) and 3.2.2.1 ($F_{\Delta H}(X,Y)$) would have to be performed to ensure that core peaking factors were within limits allowing continued operation. In addition to the surveillance requirements of SR 3.2.1.1 and 3.2.2.1, the requirements of SR 3.1.4.2 (RCCA Movement Test) would also have to be met for continued operation (i.e. that only one inoperable control rod exists).

If the "potentially stuck" control rod was NOT misaligned by greater than 12 steps, then Condition B did NOT apply and Surveillances 3.2.1.1 and 3.2.2.1 would NOT be required. However, continued operation would be allowed provided Shutdown Margin (SDM) requirements were met and the surveillance requirements of SR 3.1.4.2 (RCCA Movement Test) were met for all of the remaining control rods.

If the control rod was misaligned by less than 12 steps and it was due to a blown lift coil fuse, the control rod could be repaired and re-aligned by replacing the blown fuse. However, for continued operation, the operability (trippability) of the repaired control rod would have had to be verified. Control rod operability would be confirmed by performing Surveillance 3.1.4.2 (RCCA Movement Test).

The facility concluded that either course of action could potentially occur based on circumstances that are not specified in the stem of the question.

NRC Discussion:

The licensee's recommendation was partially accepted.

The NRC agreed that there was inadequate information provided in the stem of the question to allow the applicants to fully analyze the question. After further review, the NRC determined that there was not enough information presented in the stem to even allow the applicants to determine if there was a stuck rod. Based upon what was presented the rod could have become misaligned because it was slower than the other rods in the group. Therefore, there was no basis to make any decision about required Technical Specification surveillances.

The answer key will be changed to delete question 90.

SIMULATOR FIDELITY REPORT

Facility Licensee: McGuire Nuclear Station

Facility Docket No.: 05000369/2014301 and 05000370/2014301

Operating Test Administered: April 4-9, 2016.

This form is to be used only to report observations. These observations do not constitute audit or inspection findings and, without further verification and review in accordance with Inspection Procedure 71111.11 are not indicative of noncompliance with 10 CFR 55.46. No licensee action is required in response to these observations.

While conducting the simulator portion of the operating test, examiners observed the following:

<u>Item</u>	<u>Description</u>
SDR # 38	During a simulator scenario examination the Steam Dumps were supposed to fail closed, causing the Main Steam PORVs to open. When the PORVs opened, a transmitter failure was supposed to cause the 1B PORV to fail open. It appears that the program changed the state of one of the malfunctions and would not allow the operator to change it back in SCRATCHPAD. This failure was documented in SDR #38.