UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

May 17, 2021

Mr. John Dinelli, Site Vice President
Arkansas Nuclear One
Entergy Operations, Inc.
N-TSB-58
1448 S.R. 333
Russellville, AR 72802-0967

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 2 – NRC EXAMINATION REPORT 05000368/2021301

Dear Mr. Dinelli:

On May 5, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an initial operator license examination at Arkansas Nuclear One, Unit 2. The enclosed report documents the examination results and licensing decisions. The preliminary examination results were discussed on April 2, 2021, with you and other members of your staff. A telephonic exit meeting was conducted on May 5, 2021, with Mr. R. Martin, Operations Training Superintendent, who was provided the NRC licensing decisions.

The examination included the evaluation of nine applicants for reactor operator licenses, seven applicants for instant senior reactor operator licenses, and five applicants for upgrade senior reactor operator licenses. The license examiners determined that all of the applicants satisfied the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 55, and the appropriate licenses have been issued. There was one post-examination comment submitted by your staff. Enclosure 1 contains details of this report and Enclosure 2 summarizes post-examination comment resolution.

No findings were identified during this examination.

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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Heather J. Gepford, Acting Chief
Operations Branch
Division of Reactor Safety

Docket No. 05000368
License No. NPF-6

Enclosures:
1. Examination Report 05000368/2021301 w/attachment: Supplemental Information
2. NRC Post-Examination Comment Resolution

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ARKANSAS NUCLEAR ONE, UNIT 2 – NRC EXAMINATION REPORT 05000368/2021301
DATED MAY 17, 2021

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number:	05000368
License Number:	NPF-6
Report Number:	05000368/2021301
Enterprise Identifier:	L-2021-OLL-0012
Licensee:	Entergy Operations, Inc.
Facility:	Arkansas Nuclear One, Unit 2
Location:	Russellville, Arkansas
Inspection Dates:	March 29, 2021, to May 5, 2021
Inspectors:	T. Farina, Senior Operations Engineer (Chief Examiner) K. Clayton, Senior Operations Engineer J. Kirkland, Senior Operations Engineer C. Osterholtz, Senior Operations Engineer M. Hayes, Operations Engineer M. Doyle, Operations Engineer L. Nist, Senior Reactor Engineer
Approved By:	Heather Gepford, Acting Chief Operations Branch Division of Reactor Safety

SUMMARY

Examination Report 05000368/2021301; March 29, 2021, to May 5, 2021; Arkansas Nuclear One, Unit 2; Initial Operator Licensing Examination Report

The NRC examiners evaluated the competency of nine applicants for reactor operator licenses, seven applicants for instant senior reactor operator licenses, and five applicants for upgrade senior reactor operator licenses at Arkansas Nuclear One, Unit 2.

The licensee developed the examinations using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 11. The written examination was administered by the licensee on April 8, 2021. The NRC examiners administered the operating tests on March 29 to April 3, 2021.

The NRC examiners determined that all of the applicants satisfied the requirements of 10 CFR Part 55, and the appropriate licenses have been issued.

A. NRC-Identified and Self-Revealing Findings

None.

B. Licensee-Identified Violations

None.

REPORT DETAILS

OTHER ACTIVITIES – INITIAL LICENSE EXAM

1. License Applications

   a. Scope

   The NRC examiners reviewed all license applications submitted to ensure each applicant satisfied relevant license eligibility requirements. The NRC examiners also audited three of the license applications in detail to confirm that they accurately reflected the subject applicant's qualifications. This audit focused on the applicant's experience and on-the-job training, including control manipulations that provided significant reactivity changes.

   b. Findings

   No findings were identified.

2. Examination Development

   a. Scope

   The NRC examiners reviewed integrated examination outlines and draft examinations submitted by the licensee against the requirements of NUREG-1021. The NRC examiners conducted an onsite validation of the operating tests.

   b. Findings

   The NRC examiners provided outline, draft examination and post-validation comments to the licensee. The licensee satisfactorily completed comment resolution prior to examination administration.

   The NRC examiners determined the written examinations and operating tests initially submitted by the licensee were within the range of acceptability expected for a proposed examination.

3. Operator Knowledge and Performance

   a. Scope

   On April 8, 2021, the licensee proctored the administration of the written examinations to all 21 applicants. The licensee staff graded the written examinations, analyzed the results, and presented their analysis and post-examination comments to the NRC on April 16, 2021.

   The NRC examination team administered the various portions of the operating tests to all applicants from March 29 to April 3, 2021.

b. Findings

No findings were identified.

All applicants passed the written examination and all parts of the operating test. The final examinations and post-examination analysis and comments may be accessed in the ADAMS system under the accession numbers noted in the attachment.

The examination team noted three generic weaknesses associated with applicant performance on the job performance measure (JPM) section of the operating tests. The applicants displayed a weakness in:

- JPM A8: two applicants did not recognize that stopping a release to prevent escalation to a General Emergency qualified as "protecting large populations," and therefore allowed for exceeding 10 REM emergency exposure.
- JPM A9: two applicants failed to correctly identify an emergency action level (EAL) entry into Site Area Emergency due to two lost or potentially lost barriers, in accordance with EAL event code FS1.1.
- JPM S2: six applicants were unable to demonstrate the ability to restore steam dumps from manual to automatic mode of operation in a controlled manner, following a loss of power.

Post-examination analysis revealed three generic weaknesses associated with applicant performance on the written examination. Specifically:

- Question 12: 17/21 applicants answered incorrectly.
- Question 65: 12/21 applicants answered incorrectly.
- Question 68: 21/21 applicants answered incorrectly.

These weaknesses were captured in the licensee's corrective action program as WTANO-2020-00174, corrective actions 42-46. Copies of all individual examination reports were sent to the facility Training Manager for evaluation and determination of appropriate remedial training.

4. Simulation Facility Performance

a. Scope

The NRC examiners observed simulator performance with regard to plant fidelity during examination validation and administration.

b. Findings

No findings were identified.

During administration of the operating test, a loss of lube oil to an RCP did not perform as intended on the simulator. Specifically, on a loss of lube oil the RCP was expected to cause alarms which would alert the crew of the need to trip the pump manually, but the RCP was not expected to trip automatically. During the scenario however, the RCP did trip automatically on instantaneous overcurrent when lube oil reservoir fully emptied.

This caused a pre-determined critical task to be invalidated for one of four crews. Subsequent evaluation by the licensee identified that this particular malfunction had been modified to include an automatic motor trip on loss of lube oil in 1989, but that the station staff was no longer aware of this simulator feature. The unexpected RCP trip and loss of a critical task did not affect the NRC's ability to assess the competence of the affected operating crew, due to diverse opportunities to demonstrate operational ability. This issue was documented in CR-ANO-2-2021-00622.

5. Examination Security

a. Scope

The NRC examiners reviewed examination security for examination development during both the onsite preparation week and examination administration week for compliance with 10 CFR 55.49 and NUREG-1021. Plans for simulator security and applicant control were reviewed and discussed with licensee personnel.

b. Findings

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

Exit Meeting Summary

The chief examiner presented the preliminary examination results to Messrs. J. Dinelli, Site Vice President, and other members of the staff on April 2, 2021. A telephonic exit was conducted on May 5, 2021, between Mr. T. Farina, chief examiner, and Mr. R. Martin, Operations Training Superintendent.

The licensee did not identify any information or materials used during the examination as proprietary.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

R. Martin, Operations Training Superintendent
W. Coble, Exam Author

NRC Personnel

R. Bywater, Senior Resident Inspector

ADAMS DOCUMENTS REFERENCED

Accession No. ML21134A241 - FINAL WRITTEN EXAMS
Accession No. ML21134A242 - FINAL OPERATING TEST
Accession No. ML21134A243 - POST-EXAMINATION ANALYSIS-COMMENTS

NRC Resolution to the Arkansas Nuclear One, Unit 2 Post-Examination Comment

A complete text of the licensee's post-examination analysis and comments can be found in ADAMS under Accession Number ML21134A243.

SRO QUESTION #80

COMMENT: The facility requested to accept "A" as an additional correct answer for Question #80. The question as originally written expected the applicant to understand that emergency operating procedure (EOP) 2202.008 step 28 directs the Shift Manager (SM) /Control Room Supervisor (CRS) to contact technical support center (TSC) to coordinate a containment entry to isolate a flow path that is challenging the RCS Inventory safety function. The originally documented correct answer, "B," was chosen by 11 of 12 senior reactor operator (SRO) applicants.

One applicant chose answer "A" for the Shift Manager/Control Room Supervisor to personally approve and dispatch an operator into containment to isolate the flow path. During formal post-examination review, this applicant submitted a comment that he made the following considerations in answering this way: 1) only 40 minutes had elapsed since the start of the event; 2) the emergency response organization is allowed up to 60 to 90 minutes to achieve full staffing; and 3) there was no explicit statement that the emergency response organization was staffed up. Therefore, he considered that it was a valid choice that the Shift Manager/Control Room Supervisor would have to approve and dispatch an operator into containment himself, since there could not be assurance that TSC was available.

The facility provided documentation to support that it is within the Shift Manager's roles and responsibilities to direct and control Initial Response Staff efforts to an emergency until an Emergency Director can be stood up. The facility further provided documentation to support that the Shift Manager could approve a procedure deviation when necessary to mitigate the event and maintain the safety function, specifically, approval of containment entry to mitigate the challenge to the RCS inventory safety function, due to unavailability of TSC at that point. This would make answer "A" a procedurally-authorized course of action under some conditions, not explicitly ruled out by the stem of the question.

NRC RESOLUTION: The NRC agreed with the licensee's recommendation to accept both 'A' and 'B' as correct answers for Question #80. The original answer 'B' documents the verbatim procedural direction of 2202.008, step 28, and the facility and NRC expected that the applicants had enough information in the stem to choose this answer – 11 of 12 applicants did. It is not implausible that TSC could be staffed 40 minutes into the event and available to coordinate Containment entry, as originally proposed in the approved question. However, it is also not unreasonable to acknowledge that the TSC is not assured of being staffed up at this point in the emergency, leaving it to the SM/CRS to personally authorize the operational actions of 2202.008, step 28 under their own positional authority, as allowed by procedure deviation. This would support answer 'A.' These two answers are not conflicting, considering the gradient of emergency response and transitional activities taking place in the early stages of an emergency.