

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-413, 50-414
License Nos.: NPF-35, NPF-52

Report No.: 50-413/99-301, 50-414/99-301

Licensee: Duke Energy Corporation

Facility: Catawba Units 1 & 2

Location: 422 South Church Street
Charlotte, NC 28242

Dates: May 24-27, June 3, June 7-10, and June 16, 1999

Examiners: Ronald F. Aiello, Senior License Examiner (Chief)
Larry S. Mellen, Senior License Examiner
Paul M. Steiner, License Examiner
Marvin D. Sykes, License Examiner Trainee

Approved by: Harold O. Christensen, Chief
Operator Licensing and Human Performance Branch
Division of Reactor Safety

Enclosure 1

*EXECUTIVE SUMMARY

Catawba Nuclear Power Station Units 1 & 2 NRC Examination Report No. 50-413/99-301 and 50-414/99-301

During the periods of May 24-27, June 3, June 7-10, and June 16, 1999, NRC examiners conducted an announced operator licensing initial examination in accordance with the guidance of Examination Standards, (ES) NUREG-1021, Revision 8. This examination implemented the operator licensing requirements of 10 CFR §55.41, §55.43, and §55.45.

Seven Senior Reactor Operator (SRO) applicants and seven Reactor Operator (RO) applicants received written examinations and operating tests. The written examination was administered by the licensee and the NRC on June 3, 1999, and the operating tests were administered by the NRC the weeks of May 24 - 27, 1999, June 7 - 11, and June 16, 1999.

Operations

- The final submitted written examination and operating tests met the requirements of NUREG-1021, Revision 8. This was the licensee's second time at development of the NRC administered examination. The examination was developed in accordance with NUREG 1021, Revision 8. During discussions with the facility, test item modifications were made to question stems or distractors. The number and type of corrections to the examination were consistent for the facility's effort at examination development. (Section O5.1)
- Eight of fourteen applicants passed the examination. Two SRO and three RO applicants failed portions of the operating examination. One RO applicant failed the written examination and the operating examination. (Section O5.1)
- Weaknesses on the operating test were noted in the areas of starting reactor coolant pumps, diesel generator operations, using P&IDs to identify isolation boundaries and determining postings in radiation/high radiation areas. (Section O5.1)

Applicant Pass/Fail

	SRO	RO	Total	Percent
Pass	5	3	8	57.1
Fail	2	4	6	42.9

- A Severity Level IV non-cited violation in the area of examination security was identified by the licensee. During the NRC initial license examinations, the facility identified where an individual not on the security agreement entered a room where license applicants were being sequestered. (Section O8.1)

Report Details

Summary of Plant Status

During the period of the examination Unit 2 was off line for turbine generator rotor repairs. Unit 1 was at 12 percent power on May 24, 1999. Unit 1 continued to increase power and was at 100 percent on May 29, 1999. Unit 1 remained at 100 percent power through the remainder of the examination.

I. Operations

O5 Operator Training and Qualifications

O5.1 Initial Licensing Examinations

a. Scope

NRC examiners conducted regular, announced operator licensing initial examinations during the periods of May 24-27, June 3, June 7-10, and June 16, 1999. NRC examiners administered examinations developed by the licensee's training department, under the requirements of an NRC security agreement, in accordance with the guidelines of the Examination Standards (ES), NUREG-1021, Revision 8. Three Senior Reactor Operators (SRO) upgrade, four SRO instant and seven Reactor Operators (RO) applicants received written examinations and operating tests.

b. Observations and Findings

The licensee developed the SRO and RO written examinations, one Job Performance Measure (JPM) set, three dynamic simulator scenarios, and one spare scenario. All materials were submitted to the NRC on schedule. NRC examiners reviewed, modified as necessary, and approved the examination prior to administration. The NRC conducted an on-site preparation visit during the week of May 10, 1999, to validate examination materials and familiarize themselves with the details of the examination.

(1) Written Examination

The organization of the submitted examination materials expedited the examination review process. Relevant portions of the reference materials were attached to each test item allowing for fast retrieval of the associated reference.

This was the licensee's second time at development of the NRC administered examination. The examination was developed in accordance with NUREG 1021, Revision 8. The NRC noted that the quality of the licensee's final submittal was satisfactory. Through discussion, consensus was reached concerning the level of difficulty of all individual test questions. Aside from minor editorial changes to clarify or improve the language of the questions, the number of technical errors noted were minimal. Most requested changes were to assure clarity in the

question stem and to enhance the plausibility of distractors. The NRC recommended replacing four questions due to quality. The final written examination was satisfactory, in that, it could identify a less than competent applicant.

(2) Operating Test Development

The NRC reviewed two walkthrough examination sets submitted by the licensee. After Revision 8 of NUREG-1021 was finalized, the licensee elected to use this revision for their examination. Revision 8 removed the requirements for JPM questions. The examiners determined that only one set of JPMs was required and upon request, the licensee reduced the walkthrough examination to one set of JPMs. The examiners found that the as submitted set of JPMs met the guidelines of NUREG-1021. However, the JPM set was modified by the examiners to provide additional discriminatory value.

The NRC performed a regional review of the four simulator scenarios submitted by the licensee. The scenarios appeared to meet the guidelines of NUREG-1021 on paper. However, upon review in the simulator the scenarios lacked some of the required tools to evaluate all of the operator competencies. Of particular concern, were malfunctions which required no operator action. The examination team revised the scenarios to meet the standards of NUREG-1021 during the prep week.

The facility and an NRC examiner administered the written examination on June 3, 1999, in accordance with NUREG-1021, Revision 8. The examination took six hours. A one hour time limit extension was requested.

(3) Examination Results

The licensee submitted post-examination comments for four written examination questions, of which the NRC accepted three (see Enclosures 3 and 4). The acceptance of these comments changed the outcome of the grading for three applicants.

The examiners reviewed the results of the written examination and found that thirteen of fourteen applicants passed this examination. Overall SRO and RO applicant performance on the written examination was satisfactory. The licensee conducted a post-examination item analysis of the SRO and RO written examinations. This analysis identified three questions where both SRO and RO applicants exhibited knowledge deficiencies. The analysis also identified two other SRO specific knowledge weakness and two other RO specific knowledge weakness. The examiners concluded that no generic knowledge weaknesses existed. The table below lists the questions and subsequent miss rate. See Enclosure 5 for details.

Question #	Miss Rate (RO/SRO/Comb)	Topic
RO # 24	4/-/-	Exposure/ALARA Requirements
RO # 28/SRO # 24	4/4/8	Feedwater Isolation Calculation
RO # 32/SRO # 29	4/3/7	Steam Pressure Calc with Reactor Coolant Trip
SRO # 36	-/4/-	Notification of State & Local Authorities
RO # 43/SRO # 41	3/4/7	Decay Heat Removal following Completion of ECA-1.2
RO # 54	4/-/-	Dumping Steam while Cooling Down
SRO # 54	-/3/-	Loss of Offsite PowerTS Requirements

A review of the operating examination revealed that eight of the fourteen applicants passed that portion of the examination. The examiners identified several weaknesses in applicant performance during this portion of the examination. Details of the weaknesses are described in each individual's examination report, Form ES-303-1, "Operator Licensing Examination Report." Copies of the evaluations have been forwarded under separate cover to the Training Manager. The licensee should evaluate the weaknesses and provide appropriate remedial training for those operators, as necessary.

In general, these weaknesses included the following:

- Applicants had difficulty starting reactor coolant (NC) pumps. Several applicants were not able to adequately use the Revised Data Book Figure 26, NC Pump No. 1 Seal Normal Operating Range, Revision 0. These applicants also read Seal Differential Pressure from 1NVP 5220, which was pegged high, for determining NC Pump acceptable operation rather than calculating the difference between NC system and VCT pressure.
- Two applicants tripped the diesel generator (DG) vice tripping the DG output breaker following a severe leading power factor with the inability to pick up load on the DG as required by procedure OP/1/A/6350/02, Diesel Generator Operation, Enclosure 4.17. Several applicants were slow in separating the DG from the essential bus.
- During the conduct of the administrative JPMs, several applicants had performance weaknesses using P&IDs to identify isolation boundaries. The applicants were tasked with determining the valves required to isolate

a leak on the letdown system piping. They were required to identify eight critical valves. Failure to isolate the leak using these critical valves would result in the spread of contamination and increased exposure to personnel. Several applicants failed to identify one or more of these valves.

During the conduct of the administrative JPMs, several applicants had performance weaknesses identifying the proper postings given a survey map of the Decay Heat (ND) pump rooms.

c. Conclusion

The final submitted examination met the requirements of NUREG-1021, Revision 8. Eight of fourteen applicants passed the examination. Performance weaknesses were noted during NC pump start, DG operations, P&ID usage and radcon postings.

O8 **Procedures**

O8.1 Quality of Procedures and Procedure usage

The examiner identified three procedure discrepancies. One was in the area of DG operations, one was in the area of control rod misalignment and one was in the instructions for the use of boron/dilution tables. These discrepancies were discussed with the licensee and placed in the corrective action program for resolution. These three issues are being tracked in the Procedure Tracking System as OPS-9137, OPS-9138, and PIP 0-C99-2382 respectively.

During the NRC initial license examinations, the facility identified that an individual not on the security agreement entered a room where license applicants were being sequestered. No compromise to the license exam occurred. However, this incident was a violation of the Catawba Nuclear Station Initial License Examination Security Procedure, Section 7.1, General Requirements as governed by TS 5.4.1, Administrative Controls for Procedures. This Severity Level IV violation is being treated as a Non-Cited Violation (NCV), consistent with Appendix C of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as PIP 0-C99-2384 and is identified as NCV 50-414,414/99-301-01, Initial License Examination Security Procedure Violation.

V. Management Meetings

X1. **Exit Meeting Summary**

At the conclusion of the site visit, the examiners met with representatives of the plant staff listed on the following page to discuss the results of the examinations and other issues. No proprietary material provided was provided.

PARTIAL LIST OF PERSONS CONTACTED

Licensee:

- *D. Bradley, Shift Operations Manager
- *S. Bradshaw, Safety Assurance Manager
- *J. Brisson, Operations Human Performance Manager
- *R. Glover, Operations Superintendent
- *R. Jones, Station Manager
- *G. Petterson, CNS Vice President
- *J. Teofilak, Operations Training Manager

NRC:

- *D. Roberts, Senior Resident Inspector, Catawba
- R. Franovich, Resident Inspector, Catawba
- *R. Aiello, Senior License Examiner (Chief Examiner), RII
- *L. Mellen, Senior License Examiner, RII
- *P. Steiner, License Examiner, RII
- *M Sykes, License Examiner, RII

* Attended exit interview

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened:

50-414, 50-414/99-301-01

NCV

Initial License Examination Security
Procedure Violation. (Section O8.1)

Closed:

None

Discussed:

None

SIMULATION FACILITY REPORT

Facility Licensee: Duke Energy Corporation - Catawba Nuclear Station Units 1 & 2

Facility Docket Nos.: 50-413 and 50-414

Operating Tests Administered on: May 24 - 27, and June 7 - 11, 1999.

This form is to be used only to report observations. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information that may be used in future evaluations. No licensee action is required in response to these observations.

While conducting the simulator portion of the operating tests, the following items were observed:

ITEM

DESCRIPTION

Piping & Instrumentation Drawings

The location and configuration of drawings in the simulator was not consistent with those in the control room.

ENCLOSURE 3
FACILITY POST-EXAMINATION COMMENTS