U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-335, 50-389
License Nos.: DRP-67, NPF-16

Report Nos.: 50-335/98-302, 50-389/98-302

Licensee: Florida Power & Light Co.

Facility: St. Lucie Nuclear Plant, Units 1 & 2

Location: 6351 South Ocean Drive
Jensen Beach, Florida

Dates: November 30 - December 4 and December 14 - 18, 1998

Examiners: Richard S. Baldwin, Chief License Examiner
Ronald F. Aiello, License Examiner
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Approved by: Harold O. Christensen, Chief
Operator Licensing and Human Performance Branch
Division of Reactor Safety

Enclosure 1

EXECUTIVE SUMMARY

St. Lucie Nuclear Plant, Units 1 & 2
NRC Examination Report No. 50-335/98-302 and 50-389/98-302

During the periods of November 30 - December 4 and December 14 - 18, 1998, NRC examiners conducted an announced operator licensing initial examination in accordance with the guidance of Examiner Standards (ES), NUREG-1021, Interim Revision 8. This examination implemented the operator licensing requirements of 10 CFR §55.41, §55.43, and §55.45.

Two Senior Reactor Operator (SRO) candidates and six Reactor Operator (RO) candidates received written examinations and operating tests. One SRO candidate received a retake written examination. All of the operating examinations were administered by NRC operator licensing examiners. The written examination was administered by the licensee on December 18, 1998, and the operating tests were administered by the NRC the weeks of November 30 - December 4 and December 14 - 18, 1998.

Operations

- During observed Control Room activities, the operators were found to be attentive and professional in their duties. (Section O1.1)

- The submitted written examination and operating tests met the requirements of NUREG-1021. Minor problems were noted in the area of JPM follow-up questions. The examinations had shown improvement in quality as compared to the 1997 and 1998 examination submittals. (Section O5.1)

- Two of nine candidates passed the examination. Overall performance on the operating test was considered marginal for the SROs and weaker for the ROs. Weaknesses were noted in the areas of developing clearances, identification of radiological posting requirements, manual control of Steam Generator level, and understanding a Component Cooling Water (CCW) system failure. (Section O5.1)

- Candidate Pass/Fail

	SRO	RO	Total	Percent
Pass	2	0	2	22.3
Fail	1	6	7	77.7

- The licensee was effective in conducting training and examinations in the requalification training program. (Section O5.2)

Report Details

Summary of Plant Status

During the period of the examinations Unit 1 was at 100 percent power and Unit 2 was in an outage.

I. Operations

O1 Conduct of Operations

O1.1 Control Room Observation

During validation and administration of the examination, the examiners observed currently licensed operators conduct operations in the control room. The ROs were attentive to the evolutions in progress. The SROs limited personnel access for official business personnel only, which contributed to a quiet, professionally managed control room.

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 November 30 - December 4, 1998 and December 14 - 18, 1998. 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 ES, NUREG-1021, Interim Revision 8. Two SRO instant and six RO applicants received written examinations and operating tests. One additional SRO instant was administered a retake of the written examination.

b. Observations and Findings

The licensee developed the SRO and RO written examinations, three Job Performance Measure (JPM) sets, and four dynamic simulator scenarios, with one spare scenario, for use during the examination. All materials were submitted to the NRC on or before 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 November 16, 1998, to validate examination materials and familiarize themselves with the details required for examination administration.

(1) Written Examination

The examination review was expedited due to the organization of the submitted examination materials. Relevant portions of the reference materials were attached to each test item. The licensee sent a representative to the Region II office a number of times to deliver and discuss the examination submittal. This fostered open dialogue leading to the mutual goal of developing a quality examination.

This was the licensee's third time at developing the examinations in accordance with a pilot NRC program whereby licensee's are authorized to write the examinations. The NRC noted that the quality of the licensee's submittal was good and had shown improvement as compared to the 1997 and 1998 examination submittals. Aside from minor editorial changes to clarify or improve the language of the questions, the number of technical errors noted were minimal. Most comments were to assure clarity in the question stem and to enhance the quality of the incorrect distractors. The final examination was considered a good product, in that, it discriminated a competent from a less than competent candidate.

(2) Operating Test Development

The NRC reviewed three walkthrough examination sets submitted by the facility. These were comprised of JPMs and follow-up questions. Only one walkthrough set was used due to the decrease in the number of candidates. The examiners found that the JPMs were developed to the appropriate level as described in NUREG-1021. The NRC noted that the quality of some of the JPM follow-up questions were weak. Several JPM questions were considered direct look-up which lacked operational validity and some did not correctly elicit the answer provided. These questions were changed or the use of references were not allowed to answer these questions.

The NRC reviewed four simulator scenarios (plus one spare) developed for the examination. Some changes and additions were made to the scenarios to enhance the examiners opportunity to observe candidates perform all required competencies. These were corrected during the examination preparation week. Overall, the scenarios were found to be challenging and at the appropriate level of difficulty. The final scenarios were considered a good examination tool providing discrimination between satisfactory from less then satisfactory performance. Only two of the scenarios were used due to the decrease in the number of candidates.

During the preparation and examination weeks the examiners found six procedures that were confusing or hard to use. The facility acted promptly to resolve these procedural weaknesses.

The facility administered the written on December 18, 1998, in accordance with NUREG-1021 and by direction of the examination assignment sheet. The licensee during the course of the examination requested, by telephone, four, thirty minute extensions to the four hour time period of the examination. The four extensions were granted by the acting Branch Chief, providing a total of six hours for the written examination.

Examination Results

The facility licensee submitted post-examination comments for nine written examination questions, of which the NRC accepted four (see Enclosures 3 and 4). The acceptance of these comments did change the outcome of the grading for two of the SRO candidates.

The examiners reviewed the results of the written examination and found that two of nine candidates passed this examination. Overall SRO candidate performance on the written examination was marginal while RO candidate performance on the written examination was weaker with all candidates failing the examination. The licensee conducted a post-examination item analysis of the SRO and RO written examinations. This analysis identified twelve questions where both SRO and RO candidates exhibited knowledge deficiencies. The analysis also identified four other SRO specific knowledge weaknesses and eight other RO specific knowledge weaknesses. The examiners concluded that no generic knowledge weaknesses existed where multiple questions on the same system or topic were missed by a large number of candidates.

Examiners also identified several weaknesses in candidate performance during the operations 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 in order to enable the licensee to evaluate the weaknesses and provide appropriate remedial training for those operators, as necessary. In general, these weaknesses included the following: knowledge of radiological posting requirements, and during the performance of developing a clearance, candidates consistently did not maintain plant configuration control when restoring valves to their required locked position.

During scenario performance examiners noted: In the area of identification of failed automatic actions, four of four crews identified that the "A" Main Steam Isolation Valve did not close on its closure signal. The candidates took appropriate action to close the valve prior to the SRO reading the Standard Post Trip Actions (SPTA). During a leak on the CCW system, with a failure of an isolation to close, four out of four crews failed to understand/recognize what was occurring with the N-header and the "A" and "B" CCW header isolation valves on low CCW. Two of the four crews reinitiated CCW flow from the "B" header (not faulted) to the faulted "A" header and therefore reinitiated the leak. In an attempt to control feed water manually during a high failure of a steam generator steam flow transmitter, four of four crews were unable to take manual control of the steam generator feed water regulating valve and prevent a reactor trip on high steam generator level. Candidates consistently followed the licensee's communications, briefing and annunciator response procedures in accordance with operations standards and expectations.

c. Conclusions

In general, the examiners found that the submitted written examination and operating test met the requirements of NUREG-1021. Minor problems were noted in the area of JPM follow-up questions. The examinations had shown improvement in quality as compared to the 1997 and 1998 examination submittals.

Two of nine candidates passed the examination. Overall performance on the operating test was considered marginal for the SROs and ROs. Weaknesses were noted in the areas of developing clearances, identification of radiological posting requirements, manual control of steam generator level, and understanding a Component Cooling Water (CCW) system failure.

O5.2 Licensed Operator Requalification (LOR) Program Evaluation and Training and Qualification Effectiveness

a. Inspection Scope (41500, 71001)

The inspector reviewed portions of the licensee's initial and requalification program for initial candidates and currently licensed reactor and senior reactor operators to ensure that proper Emergency Operating Procedure (EOP-01) and Standard Post Trip Actions (SPTAs) training was being conducted. The inspector reviewed Administrative Procedure AP-0010120, Conduct of Operations, Revisions 102 through 107, and 2-EOP-01, Revisions 16 and 17 to verify that the appropriate actions were being taken to isolate the Steam Generators (SG) following an excessive steam demand event. The inspector also conducted a record review and interviews to verify that the instructors were appropriately delivering information to the classes and that students were being appropriately trained as required by 10 CFR 50.120 and 55.59.

b. Observations and Findings

The inspector conducted a review of 2-EOP-01, Revisions 16 and 17. Paragraph 5, step 7, Contingency Actions, of EOP-01, Revision 16 stated "If Containment pressure is greater than 3.5 psig, then ensure Safety Injection Actuation Signal (SIAS) and Containment Isolation Actuation Signal (CIAS) have actuated." Procedure EOP-01 had been revised (Revision 17) to include Main Steam Isolation System (MSIS) actuation verification if containment pressure was greater than or equal to 3.5 psig. This change required operators to ensure MSIS was actuated when required and that steam generators isolated following an excessive steam demand event.

Combustion Engineering EOP Users Guide, CEN-152, stated that the SPTAs are designed to stabilize the plant, take the minimum actions necessary due to plant conditions to maintain safety functions and diagnose the event(s). The inspector noted that AP-0010120 was revised twice (Revision 104 and 106) to clarify guidance in the area of operator actions permitted/expected prior to Assistant Plant Supervisor (ANPS) concurrence and expected operator action while performing EOP-01.

In AP-0010120 Revisions 105 and earlier, one licensed operator would perform the SPTAs from memory then the other would verify the previous operator's actions with the procedure. Consequently two "sets of eyes" would have reviewed the control boards. Revisions 106 and 107 required the operators to perform a two minute board walkdown of each of their respective panels from memory. When this review was completed, the ANPS would read the procedure and the operators re-verified the actions they had performed. The inspectors noted that this "reader/doer" method of executing SPTAs may not be as thorough as the previous method since only one individual was observing his/her respective panel. There would be only one "set of eyes" per panel. The licensee was soliciting comments from operators on how to best implement the SPTAs. The licensee facility plans to have this implementation standardized by early 1999. Licensed operator candidates who were examined during the summer of 1998 received additional training that reiterated the revised expectations thus far. This item is identified as Inspector Followup Item (IFI) 50-335,389/98-302-01, EOP-01, Standard Post Trip Actions, Implementation.

The inspector conducted a record review and interviews to verify that the instructors were appropriately delivering information during requalification training and the operators were being appropriately trained. The inspector identified that the 1998 operator training schedule, class content, and simulator training was planned, developed and scheduled at the beginning of the class year. Regular simulator demonstrations were added to the training classes of each cycle. The Training Department Manager (TM) and the Training Supervisors periodically observed training classes. The purpose was to evaluate and critique the instructors. The TM and Supervisors monitored Instructor presentations to ensure instructors were not "purposefully" divulging test material to the operators. Class participants were provided Enabling Objectives (EOs) at the start of each class cycle. Material and demonstrations relative to the EOs were intended and expected to be discussed or used in class instruction. Supervisors and instructors who were interviewed stated that simulator demonstrations were beneficial. They also believed the degree of difficulty in training department's program has remained consistent and unchanged.

The inspector reviewed several cycles of the 1998 requalification program to determine the pass/fail rate for each class. No unusual circumstances were identified.

c. Conclusions

The inspector reviewed AP-0010120, Conduct of Operations, Revision 102 - 107; and EOP-01, Revision 16 and 17. The new revisions to these procedures adequately addressed all of the inspectors safety concerns. Additional training was provided to licensed operators to reiterate revised expectations of these procedures. However, the facility's EOP-01, SPTAs, implementation was not finalized due to unresolved implementation concerns. The facility expected to have these concerns addressed early in 1999.

The inspector determined through record review and interviews that the licensee was effective in conducting training and examinations to ensure operator mastery of the requalification training program objectives. The pass/fail rates were consistent over past cycles. The inspector identified no negative trends in LOR training and examinations.

O8.0 Miscellaneous Operations Issues

O8.1 (Closed) Violation 50-335,389/97-11-02: Maintenance worker qualification not in accordance with a systems approach to training. The inspector verified corrective actions outlined in the licensee's response letter L-97-319, dated December 19, 1997, to be completed. The inspector verified that the administrative procedures ADM 08.02, "Conduct of Maintenance", and ADM 22.01, "Verification of Training/Certification for Temporarily Employed Personnel", have incorporated additional guidance to prevent supervisors from inadvertently assigning unqualified workers tasks which require qualifications. Neither the licensee or the NRC identified any actual occurrences of non-qualified workers being assigned tasks which require qualification.

Management Meetings

X1. Exit Meeting Summary

At the conclusion of the site visit, December 18, 1998, 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

T. Bolander, Operations Training Instructor
M. Allen, Operations Manager
D. Brown, Initial Operations Training Supervisor
D. Fadden, Training Manager
C. Ladd, Operation Supervisor
G. Loree, Simulator Engineering Group
L. Rich, Operations Training Supervisor
E. Weinkam, Licensing Manager
R. West, Plant General Manager

NRC

T. Ross, Senior Resident Inspector
R. Aiello, Examiner, RII
P. Steiner, Examiner, RII

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened:

50-335, 339/98-302-01	IFI	Review licensee implementation of SPTAs (Section O5.2)

Closed:

50-335, 389/97-11-02	VIO	Maintenance worker qualification not in accordance with system approach to training (Section O8.1)

SIMULATION FACILITY REPORT

Facility Licensee: Florida Power and Light Company - St. Lucie Nuclear Plant, Units 1 & 2

Facility Docket Nos.: 50-335 and 50-389

Operating Tests Administered on: November 30 - December 4, and December 14 - 18, 1998

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, no configuration or fidelity items were observed.

Enclosure 2

. FACILITY POST-EXAMINATION COMMENTS

Enclosure 3