



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report No.: 50-302/94-04

Licensee: Florida Power Corporation
3201-34th Street, South
St. Petersburg, Fl. 33733

Docket No.: 50-302

License No.: DPR-72

Facility Name: Crystal River 3

Inspection Conducted: January 31 to February 11, 1994

Inspector: *G. MacDonald* 3/9/94
G. MacDonald, Reactor Inspector Date Signed

Accompanying Personnel: T. Cooper, Resident Inspector
N. Salgado, Reactor Inspector

Approved by: *M. Shymlock* 3-9-93
M. Shymlock, Chief Date Signed
Plant Systems Section
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope:

This special, announced inspection was conducted in the area of Technical Specification Surveillance. The Improved Technical Specification (ITS) Surveillance Procedure (SP) status was reviewed. Selected electrical and instrumentation ITS revised SPs were reviewed to determine if ITS surveillance requirements were adequately implemented. Inspector Followup Item 50-302/93-18-05 was reviewed.

Results:

The licensee did not write all new procedures to implement the ITS. Existing SPs were revised to incorporate any ITS required changes. No SP validation was planned prior to ITS implementation with the exception of SP-417, Refueling Interval Integrated Plant Response To And Engineered Safeguards Actuation, which was validated on the simulator.

Approximately 10 percent of the 270 SPs required for performance in 1994 remain to be revised. The inspectors review indicated that the revised SPs were adequately implementing the ITS surveillance requirements.

The 18 month frequency for approximately 60 ITS surveillance requirements conflicted with the licensee's planned 24 month operating cycle. This will require mid-cycle outages or an ITS amendment.

One ITS surveillance requirement to measure battery average electrolyte temperature was identified for which an SP had not been developed.

Three procedures were identified which did not reference the appropriate ITS surveillance.

One procedure was identified whose acceptance criteria did not match the ITS surveillance requirement.

The definition of channel check in ITS section 1.0 did not match the definition used in several of the ITS bases sections.

One instance was identified where an ITS required surveillance was implemented with a PM procedure rather than an SP.

Inspector Followup Item 50-302/93-18-05 was reviewed and closed.

In the areas inspected, violations or deviations were not identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *D. Bates, Supervisor, Quality Systems
- *J. Carr, Nuclear Regulatory Specialist
- *M. Fitzgerald, Supervisor Nuclear Plant System Engineering
- *W. Koleff, Supervisor Nuclear Plant System Engineering
- *P. McKee, Director Quality Programs
- *B. McLaughlin, Nuclear Regulatory Specialist
- *S. Robinson, Manager Nuclear Quality Assessment
- *J. Terry, Manager Nuclear Plant System Engineering
- *R. Thompson, Quality Auditor
- *R. Van Alstine, Senior Engineer Nuclear Plant Technical Support
- *R. Widell, Director, Nuclear Operations Site Support
- *K. Wilson, Manager, Nuclear Licensing
- *B. Wunderly, Nuclear Licensing Engineer
- *R. Yost, Supervisor Quality Systems

Other licensee employees contacted during this inspection included engineers, technicians, and administrative personnel.

Other NRC Employees

- *R. Butcher, Senior Resident Inspector
- *T. Cooper, Resident Inspector

*Denotes those individuals that attended the exit meeting.

Acronyms and Abbreviations used throughout this report are listed in the last paragraph.

2. Improved Technical Specification Process

By letter dated August 25, 1989, the Florida Power Corporation (FPC) proposed to amend Appendix A of Operating License No. DPR-72 to revise, in its entirety, the Crystal River Unit 3 Technical Specifications (TS). The proposed amendment was based on guidance provided in the "NRC Interim Policy Statement on Technical Specification Improvements for Nuclear Power Reactors," published on February 6, 1987.

The overall objective of the proposed amendment, consistent with the NRC Interim Policy Statement, was to completely rewrite, reformat, and streamline the existing Crystal River TS. Emphasis was placed on human factors principles to add clarity and understanding to the improved Crystal River TS and to define more clearly the appropriate scope of the TS. In addition, significant changes were proposed to the Bases section of the Crystal River TS to enhance the clarity and understanding of each specification.

Crystal River currently operates with TS issued with the original operating license on December 3, 1976, as amended. FPC's present proposal to revise the Crystal River TS was based on a Babcock & Wilcox (B&W) Topical Report, "B&WOG Revised Standard Technical Specifications" (BAW-2076).

By letter dated December 20, 1993, the Commission issued Amendment No. 149 to Facility Operating License No. DRP-72 for the Crystal River Unit 3 Nuclear Generating Plant. The amendment consisted of changes to the TS in response to the licensee's application dated August 25, 1989.

Implementation of the license amendment was required within 120 days of amendment approval. The licensee must revise plant surveillance procedures to incorporate the changes contained in the Improved Technical Specifications (ITS).

3. ITS Implementation and Status

During this inspection, selected surveillance requirements (SRs) from sections 3.3 Instrumentation and 3.8 Electrical Power were selected. The specific surveillance procedure (SP) that implemented that SR was reviewed to determine if it was technically correct and met the intent, frequency, and acceptance criteria of the SR. The inspectors reviews of specific Electrical SPs are discussed in paragraph 5 and the Instrumentation SPs in paragraph 6. Appendix A contains a listing of the sample of ITS SRs and the associated SPs which were reviewed during the inspection.

The inspectors discussed the ITS implementation process with the licensee. The licensee did not write all new Surveillance Procedures (SP) to implement the ITS. Their approach was to revise existing SPs to incorporate the changes. Surveillance procedure validation was not planned prior to ITS implementation with the exception of SP-417, Refueling Interval Integrated Plant Response To And Engineered Safeguards Actuation, which was validated on the simulator.

The status of the SP revision was reviewed. Approximately 350 SPs were planned for revision. Of these 350 procedures, 270 were required for performance during 1994. At the end of this inspection, approximately 10 percent of the 270 SPs required for performance in 1994 remain to be revised.

As part of the ITS upgrade, some surveillances previously controlled by the TS were transferred to other licensee programs. The licensee developed a tracking matrix to identify the SPs which implemented each ITS surveillance requirement. The inspectors reviewed the matrix and noted errors in some of the data. The licensee was in an ongoing process of validating the matrix. The inspectors expressed concern to the licensee that incorrect ITS SR/SP data could lead to missed ITS surveillances if incorrect data was loaded into the work planning process.

4. ITS Surveillance Frequency

The licensee has indicated their intention of implementing 24 month operating cycles for Crystal River Unit 3. The inspectors noted that approximately 59 instrumentation SRs and the OTSG tube integrity inspection activity are still indicated to be performed at 18 month intervals in the ITS. This will require mid-cycle outages for performance of these surveillances or NRC approval of a TS amendment. The inspectors reviewed the listing of instrumentation SRs. Approximately one third of the instrumentation SRs appeared to require a plant shutdown for performance of the surveillance.

The ITS refueling surveillance frequencies for the EDGs has been extended to 24 months. However, the refueling frequency for the batteries, inverters, and battery chargers have been left at 18 months.

5. ITS Surveillance Procedure Review - Electrical (IP 61700)

The inspectors reviewed nine SPs which covered the SRs for the electrical systems. These procedures covered thirty-four of the forty SRs in section 3.8, Electrical Power, of the ITS.

The review of the procedures determined that for the most part, the procedures would accomplish the SRs, with one exception. SP-521, Quarterly Battery Check, was intended to fulfill the requirements of SR 3.8.6.3, dealing with the average electrolyte temperature of the batteries. This check was inadvertently omitted from the procedure, and was not included in any other procedure. This was brought to the attention of the licensee, who promptly revised the procedure to include the necessary steps.

Other discrepant conditions were minor in scope. Among these were the inclusion in the monthly diesel generator procedure, SP-354 A and B, Monthly Functional Test of Emergency Diesel Generator A(B), of a note instructing the operator to verify that operation above 3250 kW did not exceed 30 minutes in duration. This procedure requires operation of the EDG between 2650 kW and 2850 kW. However, SP-457, Refueling Interval ECCS Response to a Safety Injection Test Signal, requires operation of the EDG up to 3250 kW, but does not include the requirement. The note in this case would be very important.

In SP-417, Refueling Interval Integrated Plant Response To And Engineered Safeguards Actuation, there is a caution statement at the beginning of sections 4.2 and 4.5 which indicated to the operator not to run the EDG above 3250 kW. The caution note gives directions for lowering the EDG loading if it exceeds 3250 kW. Licensee Administrative Instruction AI-402B, Procedure Writing, Except for EP/AP/VP, step 4.2.11.3 indicates that caution statements are not to include operator actions. However, the caution statements in SP-417 contain directions. This was discussed with the licensee, who stated that the operator actions would be removed from the caution statements.

SP-520, Weekly Battery Check, setpoint section 3.1, requires that the specific gravity check to meet SR 3.8.6.1 be greater than or equal to 1.2, rounded off to two decimal places. The SR limit, in ITS Table 3.8.6-1, Category A, is 1.200. The allowance by the procedure of rounding off to two decimal places could be non-conservative for the SR.

SR 3.8.4.2 allows either a check for visible corrosion at battery terminals and connections, or verifying battery connection resistance by measuring voltage drops at the maximum expected service discharge current. SP-521, Quarterly Battery Check, is used to complete SR 3.8.4.2. Step 4.1.2 of that procedure performs the visible corrosion inspection and step 4.1.3 performs the voltage drop check. However, if step 4.1.2 detects visible corrosion, step 4.1.3 is not performed, the user is sent to contingency step 5.2 which declares the battery inoperable and enters the TS action statement. This action was overly conservative, as the SR allowed the performance of either test to meet the requirements. The licensee was revising the procedure to allow the completion of step 4.1.3 before taking any further action.

The revised SPs meet the SRs of the ITS, in the electrical area. The one exception is SR 3.8.6.3, which was not included in any of the procedures. The licensee has already corrected this omission. Other observations were mainly weaknesses in the procedures that existed prior to the revision, which were not fixed during the revision.

6. ITS Surveillance Procedure Review - Instrumentation (IP 61700)

The inspectors reviewed nineteen SPs which covered 22 SRs for ITS section 3.3, Instrumentation. No discrepancies were identified by the inspectors in ten of the nineteen SPs. These particular SPs met their associated ITS SRs for intent, frequency, and acceptance criteria. However, it was noted that some of the procedures still indicated an 18 month frequency which did not support the planned 24 month refueling interval. For additional details see paragraph 4.

The inspectors reviewed SP-907, Monthly Functional Test of 4160V ES Bus "A" Undervoltage Relaying which was referenced as satisfying SR 3.3.8.1 and 3.3.8.2. SP-907 was performed to satisfy a monthly channel functional test requirement, and to test on a monthly basis one set of the channel A, first-level undervoltage relays (FLURs), such that all three sets would be proven operable every three months. It was noted that the FLURs and second-level undervoltage relays (SLURs) were not calibrated in accordance with the existing TS. This calibration was a new requirement of the ITS. The SP provided for the channel functional testing adequately. The SP's instruction step 4.3.11 initiates an action to recalibrate the FLURs per PM-102, Calibration of Protective Electrical Relays, if the relay actuation time is out of tolerance. Therefore, if the relay is never out of tolerance a calibration would not be required for the FLURs. It was the inspectors understanding that all ITS SRs were to be fulfilled by SPs, but in this particular case a

PM would perform the function of a SP. However, the PM does not make mention of the SR, and is only performed outside the scope of SP-907 on a 24 month frequency for safety related relays. The licensee was evaluating how to handle this discrepancy.

During review of SR 3.3.11.3, Channel Calibration of Emergency Feedwater Initiation and Control, the inspectors noted that implementing procedure SP-112, Calibration of the Reactor Protective System, did not reference ITS SR 3.3.11.3. Surveillance 3.3.11.3 function 1-d was EFW Initiation on RCP Status. SP-112 section 4.10 performed the calibration of the RCP Power Channels but the procedure did not reference ITS SR 3.3.11.3-1d.

During review of SP-300, Operating Daily Surveillance Log, Control Room Log Readings, page 15 item 2, the inspectors noted that the channel check of RM-A1 did not reference SR 3.3.15.1. The reference was to ODCM section 2.2.1.

SR 3.3.15.3 requires periodic calibration of Reactor Building High Radiation Monitor RM-A1 on an 18 month interval. The implementing procedure was SP-701. The licensee's ITS SR/SP tracking matrix incorrectly referenced SP-702. Radiation Monitoring Surveillance Table, SP-701 Enclosure 1 page 1 of 9, had an inappropriate entry for the Gas Channel Calibration upper limit acceptance criteria. The table referenced note 11 which states "the required lower limit of detection (LLD) is 1 E-6 microcuries per cubic centimeter". The acceptance criteria should have been the alarm setpoint. The ITS Bases B 3.3.15 indicated that the monitor will alarm and initiate reactor building purge valve closure signal at approximately 1 E-2 microcuries per second (Krypton 85). This is based on a monitor setpoint of approximately 2 times the expected background at the location of the monitor. Procedure SP-701 references procedure CH-232 for calibration of the monitor and the ODCM for determination of monitor settings and gaseous radioactive waste release permit (GRWRP) values. The acceptance criteria in the SP-701 table should match the ITS requirement.

A few minor discrepancies worth noting were also identified to the licensee by the inspectors. One discrepancy was identified in SP-110D, "D" Channel Reactor Protection System Functional Testing. The SP intent was to perform a functional test of the Reactor Protection System instrumentation channel to meet SR 3.3.1.4. In the setpoint section 3.1.3 of the SP the high value trip signal of the "High RC Pressure B/S" was listed as 7.884 V. The SP's instruction section for RCS high pressure functional test required the high value for the bistable trip setpoint to be 7.844 V. The licensee determined that the value in the instructions was correct, and that the setpoint section value was incorrect. This minor discrepancy was also identified to the licensee by the inspectors in SP-110A, "A" Channel Reactor Protection System Functional Testing, SP-110B, "B" Channel Reactor Protection System Functional Testing, and SP-110C, "C" Channel Reactor Protection System Functional Testing.

The inspectors noted another minor discrepancy when they reviewed ITS SR 3.3.1.1 on channel check for Reactor Protection System Instrumentation. SP-300 implemented this ITS surveillance. Item 3.3.1.1-7 for Reactor Coolant Pump Power Monitors was checked once per shift to ensure that more than one RCP was drawing power between 1152 and 14,400 kW. The SP-300 check (Page 58-59 items 44-51) contains an allowable value of .02 milliamps. The units in SP-300 and the ITS did not match. SP-300 did not include a range as specified by the ITS requirement.

The definition of channel check in ITS section 1.0 did not match the definition used in several of the ITS bases sections. The inspectors reviewed ITS SRs 3.3.15.1 for Reactor Building Purge Isolation- High Radiation. ITS SR 3.3.15.1 required a channel check of radiation monitor RM-A1 every 12 hours. SP-300 implemented this check once every 8 hour shift. There was only one radiation monitor channel for this function. The definition for channel check in ITS Bases B 3.3.15.3 is "The channel check is a comparison of the parameter indicated on the radiation monitoring instrumentation channel to a similar parameter on other channels." The actual channel check performed for RM-A1 was to verify power availability and to ensure that the monitor was not in an alarm state. This check did not meet the criteria of the channel check defined in ITS B 3.3.15.3. The definition of channel check in ITS section 1.0 - Definitions is "A channel check shall be the qualitative assessment by observation of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter". The actual channel check performed met the ITS section 1.0 definition requirement. SR 3.3.18.1 Bases was similar. The definition in the bases should match the ITS section 1.0.

The licensee indicated that they would review all identified discrepancies.

7. Conclusion

The reviewed SPs met the SRs of both the electrical and instrumentation sections of ITS. The one exception was SR 3.8.6.3 which was not included in any of the SPs. Other observations were mainly weaknesses in the SPs that existed prior to the SP upgrade for the ITS.

8. Inspector Followup Item 50-302/93-18-05 (IP 92700)

The inspectors reviewed the licensee's corrective action on Inspector Follow-up Item 302/93-18-05, Incorrect Values in Proposed New Technical Specifications. During the Electrical Distribution System Functional Inspection at Crystal River Unit 3, the team identified the following:

- (a) Surveillance requirement 3.3.8.2 specified 0 V as the setpoint for the undervoltage relay. A higher value, such as the 2334 V currently prescribed in the licensee's relay setting procedure, should be specified.

- (b) Surveillance requirement 3.8.6.1 specified a minimum electrolyte temperature of 60°F for battery operability. The inspectors found that the battery sizing calculation had been based on a minimum electrolyte temperature of 70°F for operability of the battery.

In the licensee response, FPC stated that they have discussed both issues with NRC Technical Specification Branch representatives. After reviewing the first issue, the licensee did not agree with the EDSFI team that it was in error and concluded no change was needed. The inspectors reviewed the SR and its associated SPs, and concluded that the SPs met the ITS SR. The second issue was reviewed and ITS section 3.3.6 now contains the appropriate reference of the electrolyte temperature of 70°F for battery operability. This item was closed.

9. Exit Meeting

The inspection scope and results were summarized on February 11, 1993 with those individuals indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection findings. There were no dissenting comments received from the licensee. Proprietary information is not contained in this report.

(Closed) Inspector Follow-up Item 302/93-18-05, incorrect Values in Proposed New Technical Specifications

10. Abbreviations and Acronyms

AI	Administrative Instruction
B&W	Babcock and Wilcox
B&WOG	Babcock and Wilcox Owners Group
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EDSFI	Electrical Distribution Functional Inspection
EFIC	Emergency Feedwater Initiation and Control
EFW	Emergency Feedwater
ES	Engineered Safeguards
FLUR	First-Level Undervoltage Relay
FPC	Florida Power Corporation
GRWRP	Gaseous Radioactive Waste Release Permit
IFI	Inspector Follow-up Item
IP	Inspection Procedure
ITS	Improved Technical Specifications
kW	Kilo-Watts
LLD	Lower Limit of Detection
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OTSG	Once Through Steam Generator
PM	Preventive Maintenance
RC	Reactor Coolant
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RM	Radiation Monitor

SLUR Second-Level Undervoltage Relay
SP Surveillance Procedure
SR Surveillance Requirement
TS Technical Specification
V Volts Alternating Current

APPENDIX A ITS SR/SP REVIEW SAMPLE

PROCEDURES	TITLE	SR FOR ITS
SP-701, Rev. 26	Radiation Monitoring Instrumentation Chemistry Surveillance Program	SR 3.3.16.3, 3.3.15.3
SP-907A, Rev. 10	Monthly Functional Test of 4160V ES Bus "A" Undervoltage Relaying	SR 3.3.8.1, 3.3.8.2
SP-162, Rev. 28	Post-Accident Monitoring Instrumentation Channel Calibration	SR 3.2.17.2
SP-352A, Rev. 20	Operations ES Monthly Automatic Actuation Logic Functional Test #1	SR 3.3.7.1
SP-161C, Rev. 10	Remote Shutdown Instrumentation Calibration	SR 3.3.18.2
SP-108, Rev. 0	Reactor Trip Module and Control Rod Drive Trip Functional Test	SR 3.3.3.1
SP-112, Rev. 51	Calibration of the Reactor Protection System	SR 3.3.1.9
SP-335C, Rev. 12	Radiation Monitoring Instrumentation Functional Test of RM-A1, A2, A6, A11, and A12	SR 3.3.15.2
SP-300, Rev. 126	Operating Daily Surveillance Log	SR 3.3.15.1, 3.3.11.1, 3.3.1.1, 3.3.5.1
SP-193A, Rev. 1	EFIC Transmitters Channel Calibration During Modes 4 Through 6	SR 3.3.11.3
SP-416, Rev. 26	Emergency Feedwater Automatic Actuation	SR 3.3.11.3
SP-338, Rev. 19	Remote Shutdown and Post Accident Monitoring Channel Check	SR 3.3.17.1, 3.3.18.1
SP-110D, Rev. 0	"D" Channel Reactor Protection System Functional Testing	SR 3.3.1.4
SP-132, Rev. 32	Engineered Safeguards Channel Calibration	SR 3.3.5.3
SP-904, Rev. 12	Calibration of 4160 Volt ES Bus Degraded Grid Relays	SR 3.3.8.2
SP-901, Rev. 14	4160 V ES Bus "B" Undervoltage Trip Test And Auxiliary Relay Calibration	SR 3.3.8.2
PM-102, Rev. 14	Calibration of Protective Electrical Relays	SR 3.3.8.2
SP-146A, Rev. 5	EFIC Monthly Functional Test (During Modes 1,2, and 3)	SR 3.3.11.2, 3.3.13.1, 3.3.14.1
SP-332, Rev. 35	Monthly Steam Line and Feedwater Isolation Functional Test	SR 3.3.13.1
SP-520, Rev. 19	Weekly Battery Check	SR 3.8.4.1, 3.8.5.1, 3.8.6.1,
SP-521, Rev. 25	Quarterly Battery Check	SR 3.8.4.2, 3.8.5.1, 3.8.6.2, 3.8.6.3
SP-522, Rev. 15	Station Battery Inspection and Battery Charger Load Test	SR 3.8.4.2, 3.8.4.3, 3.8.4.4, 3.8.4.5, 3.8.4.6, 3.8.5.1
SP-354A, Rev. 33	Monthly Functional Test of Emergency Diesel Generator A	SR 3.8.1.2, 3.8.1.3, 3.8.1.4, 3.8.1.5, 3.8.1.6, 3.8.2.1, 3.8.3.1, 3.8.3.2, 3.8.3.4
SP-354B, Rev. 32	Monthly Functional Test of Emergency Diesel Generator B	SR 3.8.1.2, 3.8.1.3, 3.8.1.4, 3.8.1.5, 3.8.1.6, 3.8.2.1, 3.8.3.1, 3.8.3.2, 3.8.3.4

PROCEDURES	TITLE	SR FOR ITS
SP-321, Rev. 37	Power Distribution Breaker Alignment and Power Availability Verification	SR 3.8.1.1, 3.8.2.1, 3.8.7.1, 3.8.8.1, 3.8.9.1, 3.8.10.1
SP-417, Rev. 32	Refueling Interval Integrated Plant Response To and Engineered Safeguards Actuation	SR 3.8.1.10, 3.8.1.8
SP-457, Rev. 11	Refueling Interval ECCS Response to a Safety Injection Test Signal	SR 3.8.1.11, 3.8.1.8 a-c