



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

Report No: 50-302/90-26

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: August 11 - September 7, 1990

Inspected by:	<u><i>P. V. Holmes-Ray</i></u>	<u>9/28/90</u>
	P. Holmes-Ray, Senior Resident Inspector	Date Signed
	<u><i>W. Bradford</i></u>	<u>9/28/90</u>
	W. Bradford, Resident Inspector	Date Signed
Approved by:	<u><i>R. Crlenjak</i></u>	<u>9/28/90</u>
	R. Crlenjak, Section Chief	Date Signed
	Division of Reactor Projects	

SUMMARY

Scope: This routine inspection was conducted by two resident inspectors in the areas of plant operations, plant maintenance, security, radiological controls, Licensee Event Reports and Nonconforming Operations Reports, facility modifications, and licensee action on previous inspection items. Numerous facility tours were conducted and facility operations observed. Some of these tours and observations were conducted on backshifts.

Results: One violation and one non-cited violation were identified and reviewed: Failure to follow procedure AI-2205 (paragraph 5.b.); Improper exit from the RCA (paragraph 2.b.(4)).

REPORT DETAILS

1. Persons Contacted Licensee Employees

- *J. Alberdi, Manager, Nuclear Site Support
- *P. Bassa, Supervisor, Nuclear Plant Security
- G. Boldt, Vice President Nuclear Production
- *P. Breedlove, Nuclear Records Management Supervisor
- *L. Cecilia, Nuclear Project Engineer
- *J. Colby, Manager, Site Nuclear Engineering Services (Acting)
- *G. Cowles, Senior Nuclear Results Engineer
- *C. Dutcher, Superintendent, Construction
- *P. Ezell, Nuclear Operations Planning Supervisor
- R. Fuller, Senior Nuclear Licensing Engineer
- *B. Hickie, Manager, Nuclear Plant Operations
- *M. Jacobs, Area Public Information Coordinator
- *A. Kazemfar, Supervisor, Radiological Support Services
- *W. Marshall, Nuclear Operations Superintendent
- *P. McKee, Director, Nuclear Plant Operations
- W. Neuman, Supervisor, Inservice Inspection (ISI)
- *W. Nielsen, Assistant Nuclear Maintenance Supervisor (Acting)
- *S. Robinson, Nuclear Chemistry and Radiation Protection
Superintendent
- V. Roppel, Manager, Nuclear Operations Maintenance and Outages
- *W. Rossfeld, Manager, Nuclear Compliance
- P. Skramstad, Superintendent, Nuclear Chemistry/Radiation
Protection
- *F. Sullivan, Manager, Nuclear Plant Systems Engineer
- E. Welch, Manager, Nuclear Electrical/Instrumentation and Control
Engineering Services
- *R. Widell, Director, Nuclear Operations Site Support
- *D. Wilder, Manager, Radiation Protection
- *M. Williams, Nuclear Regulatory Specialist
- K. Wilson, Manager, Nuclear Licensing

Other licensee employees contacted included office, operations, engineering, maintenance, chemistry/radiation, and corporate personnel.

*Attended exit interview

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

2. Review of Plant Operations (71707)

The plant continued in power operation (Mode 1) for the duration of this inspection period.

a. Shift Logs and Facility Records

The inspector reviewed records and discussed various entries with

operations personnel to verify compliance with the Technical Specifications (TS) and the licensee's administrative procedures.

The following records were reviewed:

Shift Supervisor's Log; Reactor Operator's Log; Equipment Out-Of-Service Log; Shift Relief Checklist; Auxiliary Building Operator's Log; Active Clearance Log; Daily Operating Surveillance Log; Short Term Instructions (STI); and Selected Chemistry/Radiation Protection Logs.

In addition to these record reviews, the inspector independently verified clearance order tagouts.

b. Facility Tours and Observations

Throughout the inspection period, facility tours were conducted to observe operations and maintenance activities in progress. Some operations and maintenance activity observations were conducted during backshifts. Also, during this inspection period, licensee meetings were attended by the inspector to observe planning and management activities.

The facility tours and observations encompassed the following areas: security perimeter fence; control room; emergency diesel generator room; auxiliary building; intermediate building; battery rooms; and electrical switchgear rooms.

The inspectors also observed conditions in the following areas:

(1) Monitoring Instrumentation

The following instrumentation and/or indications were observed to verify that indicated parameters were in accordance with the TS for the current operational mode:

Equipment operating status; area atmospheric and liquid radiation monitors; electrical system lineup; reactor operating parameters; and auxiliary equipment operating parameters.

(2) Shift Staffing

The inspector verified that operating shift staffing was in accordance with TS requirements and that control room operations were being conducted in an orderly and professional manner. In addition, the inspector observed shift turnovers on various occasions to verify the continuity of plant status, operational problems, and other pertinent plant information during these turnovers.

(3) Plant Housekeeping Conditions

Storage of material and components, and cleanliness conditions of various areas throughout the facility were observed to determine whether safety and/or fire hazards existed.

The plant cleanup continues with most plant areas now the cleanest in recent times. This prioritized cleanup has been very effective. The amount of low level waste stored in plastic bags in the auxiliary building is slowly being reduced.

(4) Radiological Protection Program

Radiation protection control activities were observed to verify that these activities were in conformance with the facility policies and procedures, and in compliance with regulatory requirements. These observations included:

- Entry to and exit from contaminated areas, including step-off pad conditions and disposal of contaminated clothing;
- Area postings and controls;
- Work activity within radiation, high radiation, and contaminated areas;
- Radiation Control Area (RCA) exiting practices; and
- Proper wearing of personnel monitoring equipment, protective clothing, and respiratory equipment.

Area postings were independently verified for accuracy by the inspector. The inspector also reviewed selected Radiation Work Permits (RWPs) to verify that the RWP was current and that the controls were adequate.

At approximately 6:30 am on September 7, 1990, the inspector observed a security guard apparently looking for something on the ground just outside the Radiation Controlled Area (RCA). The guard then stepped across the Health Physics (HP) tape boundary into the RCA. When asked by the inspector what he was doing the guard replied that he was on routine patrol.

The licensee's security management interviewed the guard and the guard stated that vital area patrol keys got caught in the fence just east of the Diesel Generator building and fell to the ground outside the RCA as he pulled away from the fence. He could not reach the keys from inside the RCA so he crossed the barrier (exiting the RCA) to retrieve his keys and then re-entered the RCA across the HP tape. When he exited the RCA properly, through the control point, no contamination was found.

The licensee took prompt corrective action to prevent recurrence that included disciplinary action against the guard, requiring

the guard to go back through General Employment Training and informing the guard force of the incident as the subject of a Security Bulletin. No other similar occurrences have been documented, therefore this is considered an isolated incident. This NRC-identified violation is not being cited because criteria specified in Section V.A of the NRC Enforcement Policy were satisfied.

Non-cited Violation (50-302/90-26-01): Improper exit from the RCA.

(5) Security Control

In the course of the monthly activities, the inspector included a review of the licensee's physical security program. The performance of various shifts of the security force was observed in the conduct of daily activities to include: protected and vital area access controls; searching of personnel, packages, and vehicles; badge issuance and retrieval; escorting of visitors; patrols; and compensatory posts. In addition, the inspector observed the operational status of Closed Circuit Television (CCTV) monitors, the Intrusion Detection system in the central and secondary alarm stations, protected area lighting, protected and vital area barrier integrity, and the security organization interface with operations and maintenance.

(6) Fire Protection

Fire protection activities, staffing, and equipment were observed to verify that fire brigade staffing was appropriate and that fire alarms, extinguishing equipment, actuating controls, fire fighting equipment, emergency equipment, and fire barriers were operable.

The inspectors, as a result of routine plant tours and various operational observations, determined that the general plant and system material conditions were being satisfactorily maintained, the plant security program was being effective, and that the overall performance of plant operations was good.

3. Review of Maintenance (62703) and Surveillance (61726) Activities

Surveillance tests were observed to verify that approved procedures were being used; qualified personnel were conducting the tests; tests were adequate to verify equipment operability; calibrated equipment was utilized; and TS requirements were followed.

The following tests were observed and/or data reviewed:

- SP-130, Engineered Safeguards Monthly Functional Test;

- SP-137, Engineered Safeguards Actuation System Time Delay Relay Calibration;
- SP-146, Emergency Feedwater Initiation and Control Monthly Functional Test;
- SP-317, Reactor Coolant System Water Inventory Balance; and
- SP-354B, Monthly Functional Test of the Emergency Diesel Generator EGDG-1B.

In addition, the inspector observed maintenance activities to verify that correct equipment clearances were in effect; work requests and fire prevention work permits, as required, were issued and being followed; quality control personnel were available for inspection activities as required; and TS requirements were being followed.

Maintenance was observed and work packages were reviewed for the following maintenance activities:

- Rebuild station air compressor SAP-1C;
- Removal and shipping of spent fuel racks;
- Cleaning 1A and 1B SC heat exchanger;
- DC ground checking; and
- PT-130, Hydraulic Pipe Snubber Test Procedure.

For the surveillance and maintenance activities observed and listed above, the inspectors determined that the work was performed in a satisfactory manner in accordance with procedural requirements and met the requirements of the Technical Specification. No violations or deviations were identified.

5. Review of Licensee Event Reports (92700) and Nonconforming Operations Reports (71707)

- a. Licensee Event Reports (LERs) were reviewed for potential generic impact, to detect trends, and to determine whether corrective actions appeared appropriate. Events that were reported immediately were reviewed as they occurred to determine if the TS were satisfied. LERs were reviewed in accordance with the current NRC Enforcement Policy. LERs 88-17, 89-04, 05, 07, 08, 09, 10 and 27 are closed.

- (1) (Closed) LER 88-17: Lack of understanding of their safety function leads to failure to perform post maintenance test.

NRC Report 89-15 left this LER open pending completion of a licensee review of containment check valves, other than FWV 43/44, to insure proper testing. The evaluation of the additional check valves was completed in December of 1989 and concluded that all of the old TS table 3.6.1 check valves are in the check valve program. Also, revision 6 of the post maintenance test document includes the testing requirements of check valve work. Corrective action for NCOR 88-103 documents the completion of the evaluation tasks. This item is closed.

- (2) (Closed) LER 89-04: Personnel error in overfilling cells results in both trains of station batteries becoming inoperable.

The licensee's corrective actions have been completed and reviewed by the inspectors. SPs-510, 511, 513A, 513B, 520, 521, and 523 have been revised to specify the proper battery fill level. This is documented in corrective action item number N89-18-01.

The battery surveillance testing was reviewed in the electric shop safety meeting on July 28, 1989.

- (3) (Closed) LER 89-05: Fire barrier deficiency caused by construction personnel failing to build masonry fire barriers in accordance with all design requirements.

The licensee's corrective actions have been completed. This is documented on MAR 89-02-03-01 and WR 110374 dated March 26, 1989.

- (4) (Closed) LER 89-07: Design deficiency results in operation outside design basis.

The inspectors reviewed the licensee's corrective actions which consisted of the following:

- a. Manual isolation valves CHV-76 and CHV-77 were closed and Operating Procedure (OP) 409 Rev. 19, Plant Ventilation Systems, was changed to indicate that CHV-76 and 77 are closed and sealed with a plastic seal.
- b. An engineering evaluation was performed. This is documented on RE1-88-11-14-00 dated March 9, 1989.
- c. A review was completed on safety related system flow diagrams. This is documented on SP-89-023 dated November 2, 1989.

- (5) (Closed) LER 89-08: Noncompliance with design requirements leads to construction and operation of system outside of design basis.

The licensee found a one inch steam line to a steam trap system off the main steam lines upstream of the main steam isolation valves (MSIV). The steam trap isolation valve is a normally open valve and does not conform to a type III containment penetration.

The licensee's corrective actions were to close and tag the trap isolation valve and perform an analysis of acceptable operation

with the trap in operation (Letter - R. Widell to NRC dated May 23, 1989) and letter number WPN89-0032 dated April 25, 1989.

- (6) (Closed) LER 89-09: Change in vendor guidance in determination that decay heat removal pumps were unable to perform their safety function.

This LER concerns vendor guidance covering minimum continuous flow output of the decay heat removal pumps in that they may not be able to perform their safety function for certain accidents.

The licensee performed tests to verify operational reliability at low flows. This is documented by letter number 3FC489-08 of April 17, 1989, to the commission.

The licensee submitted a supplemental report to the commission to describe results of this testing. This report was dated June 28, 1989.

The licensee submitted an engineering evaluation to the commission on June 15, 1989.

- (7) (Closed) LER 89-10: Inadequate instructions lead to improper cable splice installation, failure to meet design requirements, and conditions outside design basis.

The licensee found an electrical splice on a main feedwater pump suction valve to be undersized and to not meet the environmental qualification. Maintenance Procedure (MP) 405, "Installing Repairing and Terminating Control and Instrument Cables" was inadequate in that there was no requirement to measure and verify wire diameters before installing splices.

The corrective actions consisted of (1) replacement of the cable splice under WR 112362, dated March 29, 1989; (2) MP-405 was revised on June 27, 1989; and (3) an engineering evaluation was performed. This evaluation is documented by letter from Raychem Corporation dated March 24, 1989.

- (8) (Closed) LER 89-27: Personnel error in failure to implement surveillance requirements of technical specification amendment results in failure to perform surveillance in required interval.

The inspectors have reviewed the licensee's corrective action. The corrective action consisted of a letter of clarification, issued on September 12, 1989, to department managers which details responsibilities and authority in implementation of technical specification amendments. This letter is identified as letter number NIP89-0155. There were no changes required to be made to administrative procedures.

- b. The inspector reviewed Nonconforming Operations Reports (NCORs) to verify the following: TS are complied with, corrective actions as identified in the reports or during subsequent reviews have been accomplished or are being pursued for completion, generic items are identified and reported as required by 10 CFR Part 21, and items are reported as required by TS.

All NCORs were reviewed in accordance with the current NRC Enforcement Policy.

- (1) NCOR 1990-136 reported that on August 17, 18 and 19, 1990, one person assigned to the Fire Brigade Team was not qualified to be a Fire Brigade Team member. The discovery was made by the Fire Team leader when the qualification list was checked on August 20, 1990

An interview with the Fire Team leader revealed that the qualification list was checked for non-operations personnel on August 17, 18, and 19 but not for operations personnel. The unqualified person assigned to the Fire Team was from the operations department and had been in the same class of Basic Emergency Team Philosophy (BETP) as the Fire Team leader. The Fire Team leader was mistaken in thinking all had passed the BETP course. This assignment of an unqualified person to the Fire Brigade Team is a violation.

Unqualified personnel assigned to the Fire Team was the subject of Nonconforming Operations Report (NCOR) 89-91, 88-23 and 87-124 and Violations 88-01-01 and 87-21-01.

Violation (50-302/90-16-02): Failure to follow procedure AI-2205.

6. Followup of Onsite Events (93702)

On August 24, 1990, the licensee was performing SP-137, Engineered Safeguards Actuation System Time Delay Relay Calibration, on ES channel A. At noon, all systems had been returned to normal and the test had been stopped for lunch. A recording instrument remained in place with test leads connected by test clips. At 12:56 pm one of the insulators on a test lead, installed on relay AX in ES Actuation Relay cabinet 1A, slipped and created a short circuit to ground. This caused a fuse to blow which caused A1 S1 relays to trip on undervoltage. The reactor would have tripped if any other relay in the opposite train had received a trip signal. The licensee researched the blown fuse circuit prior to replacing the fuse. The fuse was replaced; the A1 relays were reset and the plant was returned to normal.

7. Licensee Action on Previously Identified Inspection Findings (92702 & 92701)

- a. (Closed) Violation 302/88-24-02, Inadequate Evaluation and Procedures to Control Incoming Vendor Technical Issues.

(Closed) UNR 302/88-24-03, Determine the Significance of the Findings from the Licensee's Review of the Technical Review of Vendor Item Disposition.

(Closed) UNR 302/88-24-04, Determine the Significance of the Findings from the Licensee's Review of the Procedural Control of Vendor Technical Issues.

These items pertain to failure to perform an adequate evaluation of two Limitorque Technical 10 CFR Part 21 reports to determine applicability to installed hardware and plant design bases. Also, the licensee failed to ensure that vendor technical deviations are adequately and fully evaluated in a timely manner as evidenced by many examples cited in the violation.

The inspector reviewed the licensee's responses of October 19, 1988 and November 14, 1988, and their corrective actions. The licensee determined that there were two primary causes for the violation: 1) Lack of understanding of the reporting requirements by the technical staff; and 2) the procedures implementing the vendor technical process did not include a time frame to resolve the vendor information.

For the two Limitorque Technical letters, FPC again reviewed the letters and determined that the issues were not a significant safety concern at CR-3. These actions were reviewed, evaluated, and approved by the Plant Review Committee (PRC).

For the February 10, 1988, Power Conversion letter, FPC completed their Technical evaluation on September 29, 1988, which concluded that the technical evaluation was adequate at that time.

To address the overall concern of failing to perform an adequate evaluation and to ensure that vendor technical deviations are adequately and fully evaluated, the licensee formed a task group to review the concerns. The group was composed of key managers from engineering, licensing, quality programs, and the plant staff. The outcome of their efforts was that Nuclear Operations Department Procedure NOD-17, Design Basis Issue Resolution, was issued on August 15, 1988. This procedure contains information relative to vendor technical information as potential input into the process for the resolution of design basis issues including consideration of reporting requirements. A Quality Programs procedure, Technical Information Program, NOD-6 was issued on January 31, 1989. This procedure identifies the requirements and commitments for the program and how they are to be satisfied.

Administrative Instruction AI-404A, Review of Technical Information, issued March 19, 1990, established the method which will ensure consistent, thorough, documented reviews of technical information by cognizant staff members and responsible department managers.

FPC also reviewed all closed Vendor Technical Information packages for correct determination of applicability to CR-3, missed reporting under 10 CFR 21 or other requirements, and for assurance that any follow-up actions were completed. These items are considered closed.

8. Licensee Disposition Actions in Regard to Vendor Related Issues (36100)

The inspector reviewed the licensee's hardware problem disposition actions associated with the following issues:

- a. (Closed) P2188-01, a 10 CFR Part 21 report from Limatorque dated March 18, 1988, in regard to potential defect in worm gear component of type H3BC valve actuators.

The difficulty was identified to be limited only to the Size 2 Limatorque actuator (Type SMB, SB, and SBD) and only when it is combined with a two-pole AC motor (3600 rpm, 60 hertz or 3000rpm, 50 hertz) or a DC motor using an actuator ratio less than 55.84:1.

Failure of this worm shaft gear would prevent the actuator from properly positioning the valve in the motor drive mode. Auxiliary handwheel operation would, however, still be available.

In October 1985, Nuclear Operations Engineering surveyed the plant Limatorque valves and found eight operators in the plant with the mentioned operator type. However, of these eight operators, only two operators met the conditions specified by Limatorque as having to exist for there to be a potential failure. Valves DHV-34 and DHV-35 both have AC, 3600 rpm motors with gear ratios of less than 55.84:1 (actual ration is 33:1).

FPC evaluated the valve actuators and determined that they are justified to continue operations for the following reason: DHV-34 and DHV-35 are normally closed valves that open on a LPI injection signal to provide BWST suction to the LPI pumps. Otherwise, they are not normally operated by the plant. If these valves require maintenance, they are functionally tested after the maintenance by stroking the valves electrically. This is governed by MP-402, Maintenance of "Limatorque" Valve Controls. This procedure assures that the valves are not left in a state (described in the Limatorque letter) that could result in a failure. These valves can also be operated under surveillance tests SP-457, SP-340A, and SP-340B. These procedures only operate the valves electrically, which also avoids the situation that could lead to the potential failure. SP-340A & B require surveillance operation of these valves on a quarterly basis. Operations is confident that adequate time exists

for a valve failure to be recognized and operator action to be taken to manually open these valves, if required. This item is closed.

9. Exit Interview (30703)

The inspector met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on September 10, 1990. During this meeting, the inspector summarized the scope and findings of the inspection as they are detailed in this report with particular emphasis on the violations.

The licensee representatives acknowledged the inspector's comments and did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

Item Number	Description and Reference
50-302/90-26-01	Non-cited Violation - Improper exit from the RCA.
50-302/90-26-02	Violation - Failure to follow procedure AI-2205.

10. Acronyms and Abbreviations

AC	- Alternating Current
AFW	- Auxiliary Feedwater System
AI	- Administrative Instruction
BETP	- Basic Emergency Team Philosophy
BWST	- Borated Water Storage Tank
CCTV	- Closed Circuit Television
CFR	- Code of Federal Regulations
DC	- Direct Current
DEV	- Deviation
ECCS	- Emergency Core Cooling System(s)
EDG	- Emergency Diesel Generators
ES	- Emergency Safeguards
FPC	- Florida Power Corporation
FSAR	- Final Safety Analysis Report
HP	- Health Physics
I&C	- Instrumentation and Control
IFI	- Inspector Followup Item
ISI	- Inservice Inspection
IST	- Inservice Test
LER	- Licensee Event Report
LPI	- Low Pressure Injection
MAR	- Modification Approval Record
MSIV	- Main Steam Isolation Valve
MP	- Maintenance Procedure
NCOR	- Nonconforming Operation Report

NOD - Nuclear Operations Department
NRC - Nuclear Regulatory Commission
OP - Operating Procedure
PM - Preventive Maintenance
QC - Quality Control
QA - Quality Assurance
RCA - Radiation Control Area
RCS - Reactor Coolant System
RO - Reactor Operator
RWP - Radiation Work Permit
S/G - Steam Generator
SP - Surveillance Procedure
STI - Short Term Instruction
TS - Technical Specification
UNR - Unresolved Item
VIO - Violation
WR - Work Request