APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-382/85-16 License: NPF-38

Docket: 50-382

Licensee: Louisiana Power & Light Company (LP&L)
142 Delaronde Street
New Orleans, Louisiana 70174

Facility Name: Waterford Steam Electric Station, Unit 3

Inspection At: Taft, Louisiana

Inspection Conducted: April 1 through May 31, 1985

Inspectors: 7/18/85
G. L. Constable — Date
Senior Resident Inspector

T. A. Flippo — July 2, 1985
T. A. Flippo, Resident Inspector — Date

T. A. Flippo — July 2, 1985
for W. B. Jones, Reactor Inspector — Date

T. H. Johnson — 7/29/85
FOR A. R. Johnson, Reactor Inspector — Date

Approved: 7/18/85
G. L. Constable, Chief — Date
Reactor Project Section B

Inspection Summary

Inspection Conducted April 1 through May 31, 1985 (Report 50-382/85-16)

Areas Inspected: Routine, announced inspection of: (1) Control of Design Changes; (2) Radioactive Contamination of Secondary System; (3) Startup Test Procedure Review; (4) Phase III Test Witnessing; (5) Test Results Evaluation; and (6) Survey of Licensee Responses to Selected Safety Issues. The inspection involved 638 inspector-hours onsite by 4 NRC inspectors.

Results: Within the areas inspected, 3 violations were identified.

DETAILS

1. Persons Contacted

Principal Licensee Employees

*R. S. Leddick, Senior Vice President, Nuclear Operations
*R. P. Barkhurst, Plant Manager, Nuclear
*T. F. Gerrets, Corporate QA Manager
*L. F. Storz, Assistant Plant Manager, Operations and Maintenance
S. A. Alleman, Assistant Plant Manager, Plant Technical Staff
*O. D. Hayes, Operations Superintendent
L. M. Meyers, Assistant Operations Superintendent
*J. R. McGaha, Maintenance Superintendent
*R. G. Pittman, Operations QA Audit Supervisor
*J. N. Woods, Plant Quality Manager
*K. L. Brewster, Onsite Licensing Engineer
G. E. Wuller, Onsite Licensing Coordinator
*T. C. Payne, I&C Supervisor
*G. F. Koehler, Operations QA Engineer

*Present at exit interviews.

In addition to the above personnel, the NRC inspectors held discussions with various operations, engineering, technical support, and administrative members of the licensee's staff.

2. Plant Status

The Waterford 3 site is presently in the startup testing phase. The 80% testing plateau has been completed and the plant is in an approximate 3 week outage to perform preventive maintenance associated with a chemical buildup in the main electrical generator.

3. Control of Design Changes

On March 3, 1985, the NRC inspector observed that the licensee had implemented the modifications described in Station Modification Package (SMP) 760. This SMP changed the automatic isolation of component cooling water (CCW) to the reactor coolant pump (RCP) integral seal cooler from high CCW discharge seal cooler pressure to high CCW discharge seal cooler temperature. In addition, SMP 760 added control switches on CP-2 which allow the operator to reopen the CCW isolation valves.

While reviewing LP&L's off-normal operating procedures on April 10, 1985, the NRC inspector noted that OP-901-022, Revision 1, "High Activity in Component Cooling Water System," had not been revised to reflect the above modifications. The procedure indicated that CCW to

the RCP integral seal cooler isolated on a 2/3 high pressure indication; however, the station modification isolated the CCW line on a 1/1 high temperature indication. In addition, the procedure did not address the installed switches on CP-2 for reopening an isolated CCW line and the 100 second interlock that will reclose the valve if the high temperature indication is still present.

The NRC inspector reviewed Plant Engineering Procedure PE-2-006, Revision 5, "Station Modifications," Attachment 6.14, "Document Update Record," to determine if OP-901-022 had been identified as needing revision during the SMP 760 review process. The review revealed that OP-901-022 had not been identified as an affected document; however, Off-Normal Operating Procedure OP-901-010, Revision 1, "Reactor Coolant Pump Malfunction," and Operating Procedure OP-01-002, Revision 4, "Reactor Coolant Pump Operation," were identified as affected documents on Attachment 6.14 and were subsequently revised to reflect the changes made in SMP 760.

This is a violation. (382/8516-01)

4. Radioactive Contamination of Secondary System

On April 3, 1985, the licensee detected small amounts of radioactive contamination, approximately 10^{-7} uCi/ml, at the discharge of the condenser vacuum pumps. A walkdown of the secondary system by the licensee revealed that an auxiliary operator had failed to close Boron Management Valve BM-435 A(B) as required by LP&L Operating Procedure OP-07-001, Revision 4, "Boron Management System," after the last operation of the boric acid concentrator (BAC). Boron Management Valve BM-435 A(B) normally isolates the boric acid concentrator steam chest from the radioactive system relief header. The relief header is fed by various chemical volume control systems (CVCS) and BM relief valve, including CVCS letdown relief valve CVC-115, and discharges to one of the four holdup tanks.

During operation of the BMC, steam is fed to the BAC steam chest through the auxiliary steam header. BM valve BM-435 A(B) is then opened to allow venting of noncondensables to the relief header. When the auxiliary operator failed to close BM-435 A(B) after closing down the BAC, a direct flow path from the radioactive relief header to the auxiliary steam header and gland seal leak-off tank was provided.

Earlier, on April 3, 1985, the CVCS letdown line experienced a flow transient which caused a pressure spike downstream of the letdown orifice valves. This resulted in CVCS letdown relief valve CVC-115 opening to reduce the pressure spike; however, the valve failed to properly reseat after the pressure was reduced producing approximately 1 gpm RCS leakage to the relief header. The relief header was properly aligned to a holdup tank, but backpressure in the tank bypassed the RCS

water to the BMC steam chest. From the steam chest, the RCS water flowed to the auxiliary steam header and gland seal leak off tank contaminating both. In addition, the gland seal leak off tank discharged to the condenser. From the condenser the contaminated condensate made its way into the polishers and steam generators via the normal secondary system flow path.

Samples of the condenser exhaust tank by the licensee revealed the following:

Xe - 133	6.8×10^{-7} uCi/ml
Xe - 135	3.9×10^{-7} uCi/ml
Kr - 85u	1.1×10^{-7} uCi/ml

In addition the licensee sampled the turbine building industrial waste sump. The samples taken revealed the following:

Xe - 135	1.2×10^{-6} uCi/ml
Co - 58	7.6×10^{-6} uCi/ml
Na - 24	7.5×10^{-6} uCi/ml
I - 133	1.4×10^{-6} uCi/ml
Zr - 97	8.5×10^{-7} uCi/ml

Upon verifying the presence of contamination outside the radiation control areas, the licensee isolated the affected areas and established controls in accordance with their approved procedures to prevent the spread of contamination.

This is a violation. (382/8516-02)

5. <u>Startup Test Procedure Review</u>

The NRC inspectors reviewed the startup test procedures for power ascension testing of the plant. The procedures were reviewed for technical content, compliance with Final Safety Analysis Report (FSAR), and compliance with licensee's administrative procedures. The startup test procedures reviewed are listed below.

SIT-TP-707 Atmospheric Steam Dump and Turbine Bypass Valve Capacity Checks

SIT-TP-726 Remote Reactor Trip with Subsequent Remote Plant Cooldown

No violations or deviations were identified.

6. <u>Phase III Test Procedure Witnessing</u>

The NRC inspectors observed the performance of portions of the following Phase III test procedures:

SIT-TP-716	Core Performance Record
SIT-TP-718	Variable Tavg Test
SIT-TP-707	Atmospheric Steam Dump and Turbine Bypass Valve Capacity
SIT-TP-724	Temperature Decalibration Verification
SIT-TP-728	Loss of Offsite Power Trip Test
SIT-TP-726	Remote Reactor Trip with Subsequent Remote Plant Cooldown
SIT-TP-755	Natural Circulation Demonstration Testing

During the performance of the test, the NRC inspectors verified the following:

a. The personnel conducting the test were cognizant of the test acceptance criteria, precautions, and prerequisites prior to beginning the test.

b. The test was conducted in accordance with an approved procedure and the test procedure was used and signed off by personnel conducting the test.

c. Data was collected and recorded as required by the test procedure instructions.

No violations or deviations were identified.

7. Test Results Evaluation

The NRC inspectors reviewed Phase III test results to verify that: (1) all changes, including deletions to the test program, had been reviewed for conformance to the requirements established in the FSAR and Regulatory Guide 1.68; (2) deficiencies had been adequately addressed and corrective action completed; (3) the licensee correctly analyzed the test data and verified that it met the established acceptance criteria; and (4) the startup organization as well as the plant operating review committee (PORC) had reviewed and accepted the test results. The following test packages were reviewed:

SIT-TP-650	Low Power Physics Testing

SIT-TP-716 Core Performance Record

SIT-TP-717 CPC/COLSS Verification

The NRC inspectors determined that each of the above test packages was properly reviewed by the licensee and met the applicable acceptance criteria.

No violations or deviations were identified.

8. Survey of Licensee Responses to Selected Safety Issues

During this inspection period, the NRC inspectors reviewed the actions taken by the licensee of safety issues identified in I. E. Information Notices 83-75 and 84-06. The selected review included possible steam binding of emergency feed water pumps and power operations with mispositioned control rods.

The NRC inspectors reviewed each of the above safety issues to determine whether the licensee had implemented procedures and provided training programs to prevent, detect, and recover from a steam bound EFW pump and mispositioned control rods. In addition, the NRC inspectors compared the Waterford 3 EFW system design with the designs at H. B. Robinson 2, Farley 1, and Surry 2 which have all experienced steam binding of the auxiliary feedwater pumps.

The review revealed that the EFW system design at Waterford 3 incorporates additional isolation valves between the EFW pump and main feedwater line that are not used in the other auxiliary feedwater designs. Specifically, the discharge of the EFW pump is isolated from the main feedwater line by two check valves and two isolation valves, all in series. The isolation valves do not receive a signal to open until after the EFW pumps are running. The licensee performs an operational test of the EFW pumps every 31 days in accordance with Surveillance Procedure OP-903-019, Revision 2, "Emergency Feedwater Flow Verification," to verify the operability of the check valves. In addition, the licensee performs Surveillance Procedure OP-903-045, Revision 1, "Emergency Feedwater Flow Path Verification" every 31 days to ensure the isolation valves are properly aligned and free from external leakage.

The NRC inspectors determined that the licensee's procedures for recovery of a mispositioned control rod and verification of rod position, when one form of indication is lost, have been adequately addressed in Off-Normal Operating Procedure OP-901-009, Revision 3, "CEA or CEDMS Malfunction." The licensee has also provided the operators with training in the proper movement of control rods, and the consequences of improper movement and operating with a mispositioned control rod.

No violations or deviations were identified.

9. Site Tour

At various times during the course of this inspection period the NRC inspectors conducted general tours of the reactor auxiliary building, turbine building, and reactor building to observe ongoing maintenance and testing.

On May 15, 1985, while on tour in the reactor auxiliary building, the NRC inspector found Fire Door D-221 to the Boric Acid Concentrator Room B had been removed from service. After further investigation, it was found that LP&L Fire Protection Procedure FP-1-015, Revision 1, "Fire Protection System Impairments," paragraph 4.2, required in part that the shift supervisor/control room supervisor (SS/CRS) evaluate the fire impairment impact of Technical Specifications and insure that applicable ACTION statement are complied with. In addition, the SS/CRS is required to complete a fire appliance impairment form and note the same in index log.

Contrary to the above statement, the NRC inspector could find no evidence of a completed fire appliance impairment form or that operability of the fire detectors on at least one side of the inoperable assembly had been verified. This is a violation (382/8516-03).

10. Open Items

Three violations have been identified in this report.

8516-01	Control of design changes	Paragraph 3
8516-02	Failure to close boron management valve during BAC operation	Paragraph 4
8516-03	Failure to follow procedures for evaluation of removal of fire doors	Paragraph 9

11. Exit Interviews

The NRC inspectors met with the licensee representatives at various times during the course of the inspection. The scope and findings of the inspection were discussed.