APPENDIX C

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-382/86-29 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: November 1-30, 1986

Inspectors: for J. G. Luehman, Senior Resident Inspector — Date 2-6-87

for T. R. Staker, Resident Inspector — Date 2-6-87

for R. C. Stewart, Reactor Inspector — Date 2/6/87

Approved: D. M. Hunnicutt, Chief, Operations Section — Date 2/6/87

G. L. Constable, Chief, Reactor Projects Section C — Date 2/6/87

Inspection Summary

Inspection Conducted November 1-30, 1986 (Report 50-382/86-29)

Areas Inspected: Routine, unannounced inspection of: (1) Plant Status, (2) Previously Identified Inspection Findings, (3) Licensee Event Report Followup, (4) Monthly Maintenance, (5) Monthly Surveillance, (6) Routine Operational Safety Inspection, '7) IE Bulletins, (8) ESF System Walkdown, (9) 10 CFR Part 21 Report Followup, (10) Cold Weather Protection, (11) Calibration, (12) Followup of Previously Identified Items, and (13) Preparations for Refueling.

Results: Within the areas inspected, three potential violations were identified: (failure to follow security escort requirements; failure to verify the position of two fire protection flow path valves every 31 days as required by Technical Specifications, paragragh 10; failure to follow a procedure for the receipt of new fuel, paragraph 11.)

DETAILS

1. Persons Contacted

Principal Licensee Employees

J. G. Dewease, Senior Vice President, Nuclear Operations
R. P. Barkhurst, Vice President, Nuclear Operations
*N. S. Carns, Plant Manager, Nuclear
T. F. Gerrets, Corporate QA Manager
S. A. Alleman, Assistant Plant Manager, Plant Technical Staff
J. R. McGaha, Assistant Plant Manager, Operations and Maintenance
J. N. Woods, QC Manager
*A. S. Lockhart, Site Quality Manager
R. F. Burski, Engineering and Nuclear Safety Manager
K. L. Brewster, Onsite Licensing Engineer
*G. E. Wuller, Onsite Licensing Coordinator
T. H. Smith, Maintenance Superintendent, Nuclear

*Present at exit interviews.

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

2. Licensee Action on Previous Inspection Findings

(Closed) Violation 382/8616-02 - Failure to follow an approved fire protection program procedure. The NRC inspectors have reviewed the licensee's response to this violation contained in a letter dated November 13, 1986, and have inspected the corrective actions taken. Both the response and the corrective actions appear satisfactory therefore, this violation is considered closed.

(Closed) Violation 382/8616-03 - Reading of unauthorized material in the Secondary Alarm Station. The licensee's response to this violation as well as the corrective actions taken are contained in a letter dated November 13, 1986. The NRC inspectors found both the response and the actions taken to be acceptable.

(Closed) Violation 382/8615-02 - Failure to make reports specified by 10 CFR Parts 50.72 and 50.73. The NRC inspectors have reviewed the licensee's response to this violation, which is contained in a letter dated September 24, 1986, and have no further questions.

(Closed) Violation 382/8616-05 - Failure to properly inspect the installation of certain plant components. The NRC inspectors have reviewed the licensee's response to this violation, which is contained in a letter dated November 13, 1986. As indicated in the reply to this

response the NRC does not feel the licensee had an adequate basis for taking exception to the second part of the violation. The NRC inspectors have determined that the licensee's stated corrective actions appear acceptable.

No violations or deviations were identified.

3. Unresolved Items

An unresolved item is a matter about which more information is required to determine whether it is acceptable or may involve a violation or deviation.

Previously identified unresolved items are discussed in paragraphs 6 and 9.

4. Plant Status

The inspection period began with the plant at full power. At 11:50 p.m. (CST) on November 1, 1986, a power reduction was commenced in order to reduce radiation levels in the area of the quench tank so that repairs could be made on that tank's leaking rupture disc. The return to full power was begun at 8:13 p.m. on November 3, 1986, after the decision was made to delay repairs of the leaking rupture disc until the refueling outage. A slow decrease in power to 95 percent was begun on November 11, 1986. This power reduction was made so that should the Core Operating Limit Supervisory System (COLSS) become inoperable the operators could comply with the requirements of either TS 3.2.1 or 3.2.4 in a controlled manner. With the plant so close to the end of core life it would be difficult to meet the time limits of the TS ACTION requirements with the plant at full power. The plant stabilized at approximately 95 percent power on November 13, 1986.

At 11:00 p.m. on November 26, 1986, the unit was taken off the line and the reactor was placed in Mode 3. A cooldown of the reactor coolant system was begun to support the first refueling outage with the reactor reaching Mode 4 at 10:16 a.m. on November 27, 1986, and entering Mode 5 at 12:40 a.m. on November 28, 1986. The inspection period ended with the reactor coolant system in a partially drained condition to support work on the reactor coolant pumps and steam generators.

No violations or deviations were identified.

5. Licensee Event Report (LER) Followup

The following LERs were reviewed and closed. The NRC inspectors verified that reporting requirements had been met, that causes had been identified, that corrective actions appeared appropriate, that generic applicability had been considered, and that the LER forms were complete. Additionally, the NRC inspectors confirmed that no unreviewed safety questions were

involved and that violations of regulations or Technical Specification (TS) conditions had been identified.

(Closed) LER 382/85-007 - Inadvertent Actuation of Reactor Protection System. The problems with electronic noise described in this report have not reoccured therefore, this report is considered closed.

(Closed) LER 382/85-014 - Automatic Actuation of Reactor Protective System.

(Closed) LER 382/85-020 - Automatic Actuation of Reactor Protective System. In addition to the corrective actions described in this report the licensee is undertaking upgrades of the condensate polisher system as discussed in LER 382/85-034. Additionally, because of frequent problems with the system the licensee has a senior reactor operator directly supervise any major system operations.

(Closed) LER 382/85-029 - Automatic Actuation of Reactor Protective System.

(Closed) LER 382/85-041 - Reactor Trip Due to Failure of FWCS Steam Flow Square Root Extractor.

(Closed) LER 382/85-049 - Wet Cooling Tower Basin Level Instrument Discrepancy. This event was the subject of Violation 382/8528-02 which was reviewed and closed in NRC Inspection Report 50-382/86-05.

(Closed) LER 382/85-051 - Reactor Trip on Inadvertent Low DNBR.

(Closed) LER 382/85-052 - Inoperable Radiation Monitor Without Performing Required Sampling.

(Closed) LER 382/85-053 - Core Protection Calculator Surveillance Deficiency. The NRC inspectors verified that MI-3-126, "Core Protection Calculator Functional Test," was revised.

(Closed) LER 382/86-007 - Misnumbered Log Page, Along with Failure to Perform Computer Check, Resulted in a Missed Fire Watch Inspection.

(Closed) LER 382/86-018 - Hydrogen Recombiner (BB) Was Not Seismically Qualified Due To Missing Structural Weld. The NRC inspectors have reviewed this report as well as the licensee's response to Violation 382/8616-05 and have found the corrective actions to be acceptable.

(Closed) LER 382/86-021 - Hourly Firewatch Tour Not Performed Due to Personnel Error.

(Closed) LER 382/86-022 - Control Room Isolation Due to Failed Pressure Transmitter.

No violations or deviations were identified.

6. Followup of Previously Identified Items

(Closed) Unresolved Item 382/8533-01 - This item concerned the lack of a full inspection of the cell plates in the starting battery for the diesel fire pump. The Office of Nuclear Reactor Regulation (NRR) has recently approved a change to TS 4.7.10.1.3 as part of amendment No. 8 to the plant operating license. The change to the TS was submitted to resolve this issue and it deletes the requirement to inspect the cell plates for this battery therefore, this item is considered closed.

No violations or deviations were identified.

7. Monthly Maintenance

Station maintenance activities affecting safety-related systems and components were observed/reviewed to ascertain that the activities were conducted in accordance with approved procedures, regulatory guides and industry codes or standards, and in conformance with TS.

Preventative maintenance on Containment Atmosphere Release System (CARS) supply fan S-3 (3B-SB) was observed. The maintenance was performed in accordance with ME-7-002 Revision 5, "Molded-Case Circuit Breakers and Thermal Overload Relays."

Portions of the following Condition Identification Work Authorizations (CIWAs) were observed by the NRC inspectors.

CIWA 027958 - Replacement of the pump shaft seal on Boron Addition and Makeup Pump "B"

CIWA 029940 - Troubleshooting S/G Low Flow Protection Channel "B"

No violations or deviations were identified.

8. Monthly Surveillance

The NRC inspectors observed/reviewed TS required testing and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation (LCO) were met, and that any deficiencies identified were properly reviewed and resolved.

The NRC inspectors observed the initial calibration of FP-ILIT-8691B (Level transmitter for Fire Water Storage Tank (FWST B)) as well as the unsucessful initial calibration of FP-ILIT-8691A (Level transmitter for FWST A). These calibrations were performed as part of Station

Modification 1087. While observing the calibrations the NRC inspectors noticed that isolation valve (8FP-V272-2) for the transmitter on FWST B was red tagged in the closed position while the isolation valve (8FP-V272-1) for the transmitter on FWST A, though closed, was not red tagged. A review of clearance 86-834 in the control room showed that red tag 86-834-1 should have been attached to the valve. The NRC inspectors promptly notified licensee operations personnel of the problem and it was corrected. Apparently since the string for the tag was still hanging on the valve handwheel the tag had been placed but was missing due to prolonged exposure to the weather.

The NRC inspector observed, "Reactor Coolant System Water Inventory Balance," OP-903-024, Revision 5 as performed to determine system leakage as required by Technical Specification 4.4.5.2.1.d.

The NRC inspector observed the performance of OP-904-001, Revision 9, "Security Diesel Generator Operability Check," on November 26, 1986.

No violations or deviations were identified.

9. ESF System Walkdown

The emergency feed water (EFW) system was verified operable by performing a walkdown of the accessiable and essential portions of the system on November 5 and 6, 1986.

The NRC inspector used the EFW standby system valve lineup specified on attachment 8.1 and the the breaker lineup specified on Attachment 8.2 of procedure OP-9-003, Revision 3, in conjunction with the referenced drawings. In addition the NRC inspector reviewed the monthly lineup check (OP-903-45) performed on the EFW system.

On completion of the inspection the NRC inspector had the following comments:

a. While performing the EFW system walkdown, the NRC inspector found both of the EFW pump A/B turbine stop valve seat drain valves (MS418 and 419) in the shut position. The standby system valve lineup of OP-9-003 requires these valves to be open, while the standby valve lineup for the Main Steam (MS) system (OP-5-004) requires these valves to be shut. This conflict was discussed with plant operations personnel and it was determined that the valves were in the correct (shut) position. Further comparision of the EFW and MS standby valve lineup determined that other conflicts in required valve position existed.

b. There were several errors in the grid location and drawing page numbers as referenced in the valve lineup procedure.

c. Attachment 10.1 of OP-903-045 requires valves EFW-215A and B to be positioned open, these valves were found to be locked open as specified in attachment 8.1 of OP-9-003.

d. Several valve positions as specified on attachment 8.1 of OP-9-003 were in conflict with the positions shown on the referenced drawings.

e. Drawing LOU-1564-G-153 shows EFW recirculation line vent and drain valves labeled as FW 2263A and FW 2262B. This is inconsistent with the standby system valve lineup of OP-9-003 listing of these valves as EFW 2263A and EFW 2262B. This drawing also shows FW 2263B as a EFW recirculation line drain valve. This valve is not included in the standby system valve lineup.

f. The individual EFW pump recirculation line isolation valves are required to be locked open per OP-9-003 while the common recirculation header isolation valve is required only to be in the open position. The mispositioning of the header isolation valve would be a more significant problem than the mispositioning of any one of the individual recirculation line valves since it would eliminate the recirculation path for all three pumps. Additionally, in the EFW reliability analysis contained in FSAR Appendix 10.4.9.B, the recirculation header isolation valve (EFW-205) was considered to be locked open (as shown in Figure 10.4.9B-1). As indicated above locking this valve in the open position is inconsistent with the requirements of existing valve lineups and it is also inconsistent with the present revision of the applicable plant drawing (LOU-1564 G-160 Revision 20 Sheet 3 of 3).

As documented in NRC Inspection Report 50-382/86-02, paragraph 8, the licensee has identified a program to upgrade all safety-related checklists, properly tag all plant valves, and label all electric breakers. The upgrading program is scheduled to be completed by the end of the first refueling outage, which is currently scheduled to be completed by the end of January 1987. The upgrading program completion and correction of the deficiencies identified in NRC inspection reports will be inspected as part of the followup to Unresolved Item 382/8606-01.

No violations or deviations were identified.

10. Routine Operational Safety Inspection

By observation during the inspection period, the NRC inspectors verified that the control room manning requirements were being met. In addition, the NRC inspectors observed shift turnover to verify that continuity of system status was maintained. The NRC inspectors periodically questioned shift personnel relative to their awareness of the plant conditions.

Through log review and plant tours, the NRC inspectors verified compliance with selected TS and limiting conditions for operations.

During the course of the inspection observations relative to protected and vital area security were made including access controls, boundary integrity, search, escort, and badging.

On a regular basis, radiation work permits (RWP) were reviewed and the specific work activity was monitored to assure the activities were being conducted per the RWPs. Selected radiation protection instruments were periodically checked and equipment operability and calibration frequency were verified.

The NRC inspectors kept themselves informed on a daily basis of overall status of plant and of any significant safety matter related to plant operations. Discussions were held with plant management and various members of the operations staff on a regular basis. Selected portions of operating logs and data sheets were reviewed daily.

The NRC inspectors conducted various plant tours and made frequent visits of the control room. Observations included: witnessing work activities in progress; verifying the status of operating and standby safety systems and equipment; confirming valve positions, instrument and recorder readings, annunciator alarms; and housekeeping.

On November 12, 1986, licensee operations personnel performed a Reactor Coolant System (RCS) inventory balance to determine system leakage as required by Technical Specification (TS) 4.4.5.2.1.d. The results of the inventory balance were acceptable when compared to the requirements of TS 3.5.4.2. However, the identified leakage of slightly greater than 2.0 gpm was made up of approximately 1.9 gpm leakage into the quench tank and that leakage was apparently due to leakage from the RCS safety valves. The Waterford Steam Electric Station Unit No. 3 Final Safety Analysis Report (FSAR) Section 5.4.10.2 states, "With an assumed 400,000 BTU/hr heat loss and a safety valve leakage of up to .5 gpm, natural circulation can be maintained at hot standby with 50 F subcooled margin indefinitely by energizing 150 KW of heater capacity thirty minutes after the loss of offsite power."

The NRC inspectors ask the licensee whether adequate pressurizer heater capacity, capable of being powered from emergency power, was available to compensate for a safety valve leakage rate approximately four times that assumed in Section 5.4.10.2 of the FSAR. The licensee responded that this situation had not been considered but it would be addressed. Subsequently, the licensee ran a test to determine the actual pressurizer heater capacity needed. It was determined that with the present safety valve leakage 230 KW of pressurizer heater needed to be available. Each backup heater bank was calculated as having approximately a 200 KW capacity and since each of these banks can be powered from an emergency source the needed 80 KW would be available provided the emergency diesel generators could accept the extra load. The additional loading of the emergency diesel generators was calculated to be acceptable by the licensee and a

change to the FSAR will be made to clearly describe the possible use of these heaters off of the emergency power following a loss of offsite power.

While reviewing the Waterford 3 Final Safety Analysis Report (FSAR) the NRC inspector observed that several valves were not included in the Table of Containment Penetrations and isolation valves (Table 6.2-32), including a Main Steam Bypass valve, MS-1244B and several Component Cooling Water system drain valves. The licensee is evaluating the apparent deficiencies in Table 6.2-32.

During performance of an inspection of selected containment penetration isolations, the NRC inspector found the two Fire Suppression system containment isolation valves, FP-601A and FP-601B in the open position (as required) with the handwheels locked in the neutral position. This configuration allowed automatic and remote operation (from the control room) of these valves, while preventing local handwheel operation. Monthly position verification of all Fire Suppression system flowpath valves that are not secured in position is required by TS 4.7.10.1.1.c. Plant procedure OP-903-054, Revision 6, "Fire Protection Valve Lineup Check," is performed monthly to satisfy this requirement. Flowpath valves FP-601A and FP-601B were found not to be secured in position (as discussed above, the handwheels were locked in the neutral position to allow only remote operation of these valves) or included in OP-903-054. The failure to perform position verifications on valves FP-601A and FP-601B is an apparent violation and is identified as 382/8629-02.

During additional containment penetration isolation inspection, the NRC inspector observed that no cap was installed on the tailpiece downstream of Component Cooling Water system (CCW) drain valve CC-819A. A cap is shown installed on this tailpiece on plant CCW system drawing LOU-1564-G-160. Valve CC-819A is a closed system containment isolation valve. General design criteria 57 of Appendix A of 10 CFR Part 50 and chapter 6.2 of the Waterford 3 Final Safety Analysis Report (FSAR) both require that all closed system (systems that are not part of the reactor coolant pressure boundary and are not connected directly to the containment atmosphere) penetration isolation valves shall have automatic or remote operation capability or be locked in place. Valve CC-819A does not have automatic or remote operation capability and was found not to be locked in place. There is no Technical Specification surveillance requirement applicable to valves such as CC-819A, but the failure to lock the valve and to cap the tailpiece constitute an apparent deviation from your FSAR commitments. It was brought to the attention of the licensee that all containment isolations must be maintained as specified in the FSAR. The licensee corrected the deficiencies, performed an inspection, and found that no other caps were missing from any tailpieces installed downstream of containment isolation valves, therefore, this appears to be an isolated case. Since the licensee has taken appropriate action to fix the deviation and has taken action to prevent recurrence, no response is required for this issue.

No other violations or deviations were identified.

11. Preparations for Refueling

On the morning of November 4, 1986, the licensee was unloading new Fuel Element Assemblies (FEA) from shipping containers in the Fuel Handling Building. While preparing to transfer FEA LAD-212 (rigged with the new fuel handling tool) from the uprighted shipping container licensee personnel removed the independent bundle support clamp from the other FEA in the shipping container (LAD-001). The unsupported FEA fell foward and came to rest on the personnel air lift platform that was positioned in front of the shipping container for FEA inspection. Though some external damage was evident on the FEA, no breach of the cladding was detected. The licensee loaded FEA LAD-001 for shipment and sent it back to the vendor (Combustion Engineering Inc.) for further evaluation. The NRC inspector's followup of this event revealed the following:

a. Step 10.5.2 of NE-1-001 Revision 4, "New Fuel Shipping Container Operations," is poorly worded and confusing.

b. Section 10.5 of NE-1-001 was not properly followed in that step 10.5.5 requires the independent bundle support clamp for the tool-supported assembly be loosened and removed. With FEA LAD-212 supported by the new fuel handling tool, the clamp for FEA LAD-001 was loosened and removed. The failure to follow the procedure is an apparent violation (382/8629-03).

c. The above problem was in part caused by the layout of the Fuel Handling Building. Originally, FEA LAD-001 was going to be off loaded first but because of the positioning of the container the crane could not be positioned over that element. The switch to the other element could have caused some confusion and the subsequent loosening of the wrong support clamp. The NRC inspectors have discussed with licensee management the need to carefully plan evolutions involving receipt of new fuel because of problems encountrol with the layout of the building.

In response to the licensee's problem with handling the receipt of new fuel the NRC inspectors augmented their inspection of these activities. On November 4-6, 1986, the NRC inspectors witnessed the licensee's receipt of the following additional new fuel element assemblies;

- November 4, 1986

  LAD-213, 222, and 224.

- November 5, 1986

  LAD-011, 013, and 016-019.

- November 6, 1986

  LAD-010, 012, 014, and 015.

No additional violations or deviations were identified.

12. IE Bulletins

(Closed) IEB 86-04, "Defective Teletherapy Timer That May Not Terminate Treatment Dose," - Not applicable to Waterford 3.

(Closed) IEB 86-03, "Potential Failure of Multiple ECCS Pumps Due to Single Failure of Air-Operated Valve in Minimum Flow Recirculation Line." The NRC inspectors have reviewed the licensee's response to this compliance bulletin which is contained in a letter dated November 14, 1986. The results of the NRC inspectors' examination of the applicable plant drawings support the the licensee's conclusion that the Waterford 3 ECCS minimum flow recirculation lines are designed with the required independence and redundancy.

No violations or deviations were identified.

13. Cold Weather Preparation

The NRC inspector reviewed OP-2-007, Revision 2, "Freeze Protection," then toured the plant looking for potential cold weather problem areas. The NRC inspector discussed with plant engineering personnel the status of freeze protection equipment and concerns due to the scheduled outage (November 27, 1986, through January 27, 1987). The licensee is currently pursuing completion of work items that affect the operability of freeze protection circuitry and licensee engineering personnel have identified the potential problem areas in the numerous presently inactive plant systems.

No violations or deviations were identified.

14. 10 CFR Part 21 Reports

The NRC inspector reviewed the applicable portion of the Oak Ridge data base for 10 CFR Part 21 reports, along with the licensee's records of Part 21 reports. The licensee was unaware of three of the reports that were included in the Oak Ridge file. The three reports were "Unqualified Terminal Blocks for Hydraulic Actuators," "Deficient Testing of Manville Fiberglass Pipe Insulation," and "Faulty AK and AKR Low-Voltage Power Circuit Breakers by GE." The available information (from the Oak Ridge file) on these three reports was discussed with the licensee. Based on the NRC inspectors' review of the licensee's Part 21 program, it appears adequate but the licensee is not receiving all potentially applicable Part 21 reports. The licensee has been notified about many Part 21 issues via vendor letters which in some cases do not specifically state they are

Part 21 issues or technical bulletins which may or may not have an identified connection with an existing Part 21 report.

While reviewing licensee supplied information on possible applicable Part 21 reports the NRC inspector identified one concern. A Part 21 report outlining a possible deficiency in the power supply to the Airpax Control tachometers (installed on both emergency diesel generators (EDG)) was evaluated as potentially applicable by the licensee. The licensee sent a letter to the vendor in October 1985 to followup this report. As of the time of this inspection no reply had been received from the vendor and the licensee had not pursued the issure further even though the problem with the tackometer power supply could prevent the EDG(s) from starting. The followup of the licensee's actions on this Part 21 report is identified as Open Item 382/8629-04.

No violations or deviations were identified.

15. Calibration

During the period of November 17-22, 1986, the NRC inspector reviewed the TS required plant instrument calibration program.

The objective of this inspection was to determine if the licensee had developed a program for control and evaluation of TS required instrument calibration, channel calibration, and channel functional testing for the following systems:

- Reactor Protection
- Emergency Core Cooling Activation
- Reactivity Control
- Plant Auxiliary
- Reactor Coolant
- Electrical Distribution

The NRC inspector verified that instrument calibration, channel calibration, and channel functional testing were performed at the TS required frequency by reviewing the licensee's maintenence tracking system, "Maintenence Planning and Scheduling System," (MPSS) for approximatly 50 percent of each of the above systems.

In addition, the NRC inspector examined ten completed test and calibration documents for surveillances performed during the prior 18 months. The objective was to verify that approved procedures were utilized, acceptance criteria were met, performance was in accordance with the procedure, and the procedure contained "as found" conditions.

The completion of this inspection including the witnessing of selected component calibrations will be performed at a later date.

No violations or deviations were identified.

16. Exit Interview

The inspection scope and findings were summarized on December 2, 1986, with those persons indicated in paragraph 1 above. The licensee acknowledged the NRC inspectors findings.