

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-382/87-25

License: NPF-38

Docket: 50-382

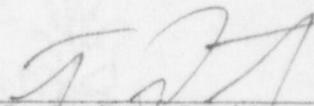
Licensee: Louisiana Power & Light Company (LP&L)
142 Delaronde Street
New Orleans, Louisiana 70174

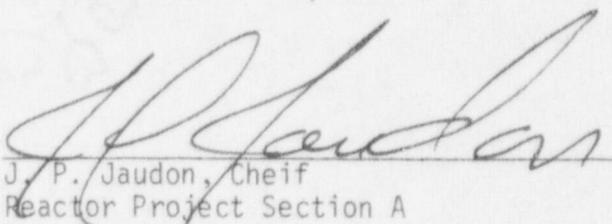
Facility Name: Waterford Steam Electric Station, Unit 3

Inspection At: Taft, Louisiana

Inspection Conducted: November 16 through December 15, 1987

Inspectors:  12/18/87
W. F. Smith, Senior Resident Inspector Date

 12-18-87
T. R. Staker, Resident Inspector Date

Approved:  12/29/87
J. P. Jaudon, Chief Date
Reactor Project Section A

Inspection Summary

Inspection Conducted November 16 through December 15, 1987
(Report 50-382/87-25)

Areas Inspected: Routine, unannounced inspection consisting of: (1) followup of previously identified items, (2) monthly surveillance observation, (3) monthly maintenance observation, (4) engineered safety feature system walkdown, (5) cold weather preparations inspection, (6) onsite followup of events, (7) operational safety verification, (8) licensee event report followup, and (9) plant status.

Results: Within the areas inspected, one violation involving failure to maintain design controls was identified (paragraph 2). One unresolved item was identified pending clarification from NRR as to what type of emergency diesel generator failures must be reported pursuant to Technical Specification 4.8.1.1.3 (paragraph 7a).

DETAILS1. Persons ContactedPrincipal Licensee Employees

- J. G. Dewease, Senior Vice President, Nuclear Operations
- R. P. Barkhurst, Vice President, Nuclear Operations
- *N. S. Carns, Plant Manager, Nuclear
- S. A. Alleman, Assistant Plant Manager, Technical Support
- *J. R. McGaha, Assistant Plant Manager, Operations and Maintenance
- J. J. Zabritski, Operations QA Manager
- A. S. Lockhart, Manager of Nuclear Operations Support and Assessments
- W. T. Labonte, Radiation Protection Superintendent
- *T. O. Gray, Operations QA Supervisor
- D. E. Baker, Senior Engineer, Nuclear
- *G. E. Wuller, Onsite Licensing Coordinator
- D. W. Vinci, Maintenance Superintendent (Acting)
- R. F. Burski, Engineering Service Manager
- L. W. Myers, Operations Superintendent, Nuclear
- *C. Fugate, Shift Supervisor

*Present at exit interview.

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. Followup of Previously Identified Items

(Closed) Unresolved Item 382/8724-03: Review of licensee's investigation as to the cause of incorrect bolts installed on Dry Cooling Tower (DCT) Fan 4B. During a maintenance inspection conducted by the NRC resident inspector on November 11, 1987, the inspector noticed that the bolts installed in the hub of failed DCT Fan 4B were partially threaded, although all the other 29 fans had fully threaded bolts. It appeared that there was insufficient thread length to permit proper forces to be exerted against the backing rings of the blades, and thus it appeared that this was the cause of one blade coming loose. The licensee investigated and found that the vendor technical manual was not specific enough to require fully threaded bolts. This would not be a problem except that in 1983, a design modification was implemented to add jam nuts to the bolts to lock them in place without regard for the amount of threads needed to accommodate the jam nuts. 10 CFR 50, Appendix B, Criterion III, states, in part, that measures should be established for the selection and review for suitability of application of parts that are essential to the safety-related functions of the components. This is implemented by the licensee's approved quality assurance plan. The licensee's Nuclear Operations Management Manual, Section V, Chapter 3, Revision 2, "Design Control," states, in part, that a program is provided to ensure that safety-related components are maintained at the quality level required for

performance of their intended functions. Contrary to these requirements, the licensee failed to install six suitable bolts in the hub of DCT Fan 4B in 1983 causing failure of one fan blade and then attempted to install similar incorrect bolts in November 1987, until questioned by the NRC inspector about the cause of failure. Failure to maintain proper design configuration control is an apparent violation (382/8725-01). This Unresolved Item is closed.

(Closed) Open Item 382/8724-04: Correction of emergency diesel generator surveillance procedure deficiencies. The NRC inspector verified that the issuance of change number three to OP-903-068, Revision 4, "Emergency Diesel Generator Operability Verification," has corrected the identified deficiencies. This item is closed.

(Closed) NRC Information Notice (IN) 87-53: "Auxiliary Feedwater Pump Trips Resulting from Low Suction Pressure." On October 20, 1987, the NRC published IN 87-53 to alert licensees and holders of construction permits to potential problems resulting from low suction pressure trips of auxiliary feedwater pumps. At Waterford-3, the equivalent pumps are referred to as "Emergency Feedwater (EFW) Pumps." At four different plants during testing and/or bona fide actuation, the pumps tripped on low suction pressure due to suction pressure oscillations that normally occur while the system is starting up and attempting to stabilize, despite sufficient steady state net positive suction head. Since this phenomenon contributes to system unavailability and unreliability, all four plants eliminated this common-mode failure by either removing the low suction pressure trip feature or introducing a time delay that would allow flow and suction pressure to stabilize. The NRC inspector discussed this matter with Waterford-3 personnel and referred to the Waterford-3 FSAR; it was found that no action was necessary. The EFW system does not have the low suction pressure trip feature. This IN is closed for Waterford-3.

No other violations or deviations were identified.

3. Monthly Surveillance Observation

The NRC inspectors observed the surveillance testing listed below to verify that the activities were being performed in accordance with the technical specifications and surveillance procedures. The applicable procedures were reviewed for adequacy, test instrumentation was verified to be in calibration, and test data was reviewed for accuracy and completeness. The inspectors ascertained that any deficiencies identified were properly reviewed and resolved.

- a. Procedure OP-903-024, Revision 6, "Reactor Coolant System (RCS) Water Inventory Balance." The NRC inspector witnessed the data acquisition for, and calculation of, identified and unidentified RCS leakages in accordance with Technical Specification 4.4.5.2.1.d. The NRC inspector noted that the results were well within the technical specification limits. After the data package was completed, the NRC

inspector viewed the document and performed independent calculations to confirm the results. No deficiencies were identified.

- b. Procedure OP-903-030, Revision 6, "Safety Injection Pump Operability Verification." The NRC inspector observed the performance of OP-903-030 on high pressure safety injection pump "B" after the performance of routine maintenance on the pump and prior to returning the pump to operable status. The NRC inspector verified that the data acquired met the acceptance criteria in PE-1-004, "Section XI Pump and Valve Reference Data/Acceptance Criteria Notebook." Additionally, compliance with Technical Specification 4.5.2.f.1 was verified.
- c. Procedure OP-903-053, Revision 4, "Surveillance Procedure, Fire Protection System Pump Operability Test." The NRC inspector observed the operability test on the motor driven and diesel driven fire pumps and noted the following problems:
- . Shortly after the operator started diesel fire pump number 1, the high engine temperature alarm annunciated. The operator promptly tripped the diesel; however, the temperature appeared to be normal. After troubleshooting the alarm circuit and finding no problem, the diesel was restarted. It appeared that the jacket water temperature reached the alarm setpoint of 195°F just as the thermostat opened, after which the temperature stabilized at about 180 degrees. The procedure or operator training should be improved to provide for this startup temperature transient. This was discussed with the licensee.
 - . Step 8.2.6 of OP-903-053 requires the diesel fire pump to be started in accordance with Procedure OP-9-004, "Operating Procedure, Fire Protection System." Step 6.7.3 of OP-9-004 requires the operator to blow down the raw cooling water strainer. There are two raw cooling water strainers on each diesel fire pump. One has a convenient blowdown valve, and the other has a plugged union. The operator has been blowing down the strainer with the valve and not the one with the plugged union. The strainer with the blowdown valve is in the bypass for the raw cooling water pressure reducing and solenoid valves and is seldom, if ever, used. The strainer just upstream of the pressure reducing and solenoid valves is always used; it could be most subject to clogging but has probably never been blown down because there is no blowdown valve. This problem was also discussed with the licensee.

The items noted above are considered an Open Item (382/8725-02), and they will be checked during future inspections.

No violations or deviations were identified.

4. Monthly Maintenance Observation

The station maintenance activities listed below were observed and documentation was reviewed to ascertain that the activities were conducted in accordance with approved procedures and technical specifications.

- a. Work Authorization 01007985. The NRC inspector observed conduct of routine maintenance on Component Cooling Pump "B." The work involved pump and motor bearing oil changes in accordance with Procedure UNT-05-007, Revision 1, "Plant Lubrication Program," and coupling alignment check per Procedure MM-06-004, Revision 3, "Shaft Coupling Alignment and Belt Tensioning." The inspector observed the measurement of parallel and angular alignment readings and noted that they were unsatisfactory. The maintenance technician performed the alignment procedure, which required motor base shim changes. After completion of this work and rechecking the alignment, the inspector noted that the post-alignment readings were nearly perfect. The inspector witnessed the retesting of the pump, which included vibration readings, and found no problems.
- b. Work Authorization 01007708. The NRC inspector observed the establishment of a freeze seal on high pressure safety injection train "B" recirculation to refueling water storage pool piping per Procedure MM-6-010, Revision 4, "Freeze Seal Application." The seal was established as part of the system isolation for repair of a body-to-bonnet leak on the pump recirculation to refueling water storage pool down stream isolation valve (SI-121B). During freeze seal formation, the inspector observed that piping support SIRR 194 was a lateral support and did not bear any of the load as referenced in the engineering evaluation of the freeze seal equipment loading. The engineer who performed the evaluation stated that he could not identify that this support was nonloadbearing from the drawings used to perform the evaluation. The loading was then re-evaluated satisfactorily.

The NRC inspector observed the testing of the valve SI-121B motor operator per Procedure ME-7-008, Revision 6, "Motor Operated Valves," after completion of body-to-bonnet leak repairs.

The NRC inspector observed dye penetrant testing on piping affected by the SI-121B freeze seal per Departmental Procedure QI-009-011, Revision 3, "Liquid Penetrant Examination Color Contrast Solvent Removable," after freeze seal thawing. The NRC inspector observed that the copy of QI-009-011 available at the work site was not controlled. When questioned, the technician stated that a field copy of quality assurance procedures was not required to be controlled. Further, a copy of this procedure was not required at the job site, because it was for information purposes only. The licensee later stated that because of the scope of the job and the qualification requirements, a copy of the procedure was not required to perform the examination. Also, quality assurance procedures are not under the

requirements of Procedure QP-006-01, Revision 1, "Document Control" and are not normally used in the field. There are no administrative document controls for field copies of quality assurance procedures. The licensee committed to implement administrative document controls for field copies of quality assurance procedures. The implementation of controls for quality assurance procedures is an Open Item (382/8725-03).

Prior to performing the dye penetrant testing, piping diameter measurements were taken. The technician taking these measurements used unmarked "masking" tape to aid in marking the piping in order to measure at the same locations that were measured prior to establishing the freeze seal. The NRC inspector questioned the technician on this use of tape on stainless steel piping. The technician replied that he would not normally use this tape on stainless steel components, but he would be cleaning the piping during the dye penetrant testing so there was no problem. Approved Procedure UNT-7-003, Revision 4, "Control of Consumable Materials," requires use of consumable materials as approved in RAN 457001798, "Plant Consumable Materials Manual." The tape used was not approved in RAN 457001798. During installation of test equipment for the MOVATS testing on valve SI-121B, the inspector again observed the use of the same type of tape on stainless steel piping. These failures to adhere to Procedure UNT-7-003 are further examples of a failure to maintain procedural adherence and attention to details as identified in violation 382/8722-01 to which the licensee has not yet responded. Since corrective actions have not been fully implemented and thus cannot be expected to have prevented the above failure to follow procedure, an additional violation will not be cited.

No violations or deviations were identified.

5. Engineered Safety Feature (ESF) System Walkdown

The NRC inspectors conducted a walkdown of the accessible portions of the Control Room Air Conditioning system to independently verify the operability of the system. A review was performed to confirm that the licensee's system operating procedure matched plant drawings and the as-built configuration. Equipment condition, valve and breaker position, housekeeping, labeling, permanent instrument indication and calibration, and apparent operability of support systems essential to actuation of the ESF system were all noted as appropriate.

The NRC inspectors identified the following items to licensee management:

- a. Seals on airlock doors D-71 and D-73 were visibly damaged. The seal on door D-71 was bent out with the appearance that someone attempted to open the door with a crowbar. Door D-73 did not self-close completely as described in the Waterford-3 FSAR, and part of the bottom seal was missing.

- b. The outlet gravity damper (HVC-305A) on secured exhaust fan E-34A was oscillating open and closed, and the fan was windmilling backwards while the redundant fan E-34B was running. This appeared to short circuit flow from fan E-34B, thus reducing exhaust flow.
- c. A chilled water manually operated drain valve (CHW-414B) on the normal air handling unit was missing its hand wheel. The valve ID tag was caked with insulating paste making it difficult to read.
- d. The insulation installed on AH-12A and AH-12B outlet ducting was badly torn.
- e. The following Condition Identification Work Authorization (CIWA) tags were found installed with no other evidence of work in progress:
 - . CIWA 012737, dated December 13, 1984, was found on the conduit to Valve CHW-746.
 - . CIWA 021854, undated, was found on the toilet exhaust upstream damper (HVC-306) while the component identified was listed as HVC-307.
 - . A CIWA tag, dated October 22, 1984, stating, "Number Pending," was found on TS-HV5060A.
- f. Plant housekeeping was not being adequately maintained per Procedure UNT-7-006, Revision 3, "Housekeeping," as evidenced by the following:
 - . A can of "Conq-r dust" cleaning compound was found stored on top of a conduit pullbox above the "A" emergency filtration unit.
 - . The structure above the kitchen and toilet exhaust fans was observed to be littered with debris.
 - . A massive unidentified piping manifold was found stowed on top of ducting between the AH-12B fan and the plenum.
 - . Sunflower seed shells were found littering the deck behind the "A" emergency filtration unit.
 - . Rope was hanging from conduits 3SD71A-NA and 3SD71A1-NA (non-safety) and supporting the overhead lighting conduit.
 - . Metal insulation sheathing from a chilled water pipe elbow above toilet exhaust fan E-34B was found adrift on the fan support structure.

- g. The following breaker identification label discrepancies were observed:

- . The label on HVC-EBKR-95B-21S indicated that it supplied power to dampers HVC-103B and HVC-105B only. Drawing LOU-1564-B424 indicated that this breaker also supplied power to HVC-101, the normal outside air intake upstream damper.
- . The label on HVC-EBKR-94A-21S indicated that it supplied power to dampers HVC-103A and HVC-105A only. Drawing LOU-1564-B-424 indicates that this breaker also fed HVC-102, the normal outside air intake downstream damper.
- . The label on HVC-EBKR-45AB-24 indicated that it supplied power to HVC-106A and HVC-107A. Drawing LOU-1564-B-424 showed this breaker supplied power to HVC-106 and HVC-107.
- . Breaker HVC-EBKR-311A-10C-S, power supply for HVC-201A north control room emergency supply damper was incorrectly identified as the power supply for HVC-210A.
- . The label on HVC-EBKR-45AB-22 indicated that it supplied power to several dampers including HVC-304. Drawing LOU-1564-B-424 showed that HVC-304 was not supplied from this breaker.
- . The identification label for HVC-EBKR-85B-22 indicated that it supplied power to several dampers including HVC-302. Drawing LOU-1564-B-424 showed that this breaker did not supply HVC-302 but supplied power to the kitchen exhaust damper HVC-311 which was not on the label.
- . Breaker HVC-EBKR-316B-3J which supplied power to the computer room air handling unit LEHC-23(3) was observed to be labeled as HVC-EBKR-316B-3K.

- h. The inspectors reviewed Procedure OP-3-014, Revision 3, "Operating Procedure Control Room Heating and Ventilation (HVAC)," and found the following errors:

- . References 2.1 and 2.3 call out the same document. It appears that one of the two references should be deleted.
- . Step 6.2.4 requires the operator to verify HVC-106 and HVC-107, computer room supply and exhaust dampers close when stopping the computer room supplemental air handling unit. These dampers are independent of this air handling unit.
- . The "NOTE" at the beginning of Step 6.3 is poorly worded, implying that the toilet exhaust fans come on automatically,

although they do not. Step 6.3 does not include instructions to turn on the kitchen or toilet exhaust fans, further supporting this possible misconception.

- . Step 6.5.1 should verify HVC-309 closed in addition to HVC-308, HVC-310, and HVC-311.
- . Step 6.6.1 should verify HVC-309 opens in addition to HVC-308, HVC-310, and HVC-311.
- . The Breaker Lineup, Attachment 8.2, does not have a position specified for HVC-EBKR-91B-3S, CP18 Recorder Supply.
- . Step 6.7 has a note that states, "The following will place the Control Room Emergency Filter Unit A(B) in the Recirculation mode." This is the only place in the procedure that such a mode is referenced. Technical Specification 3.7.6 requires the control room HVAC system to be placed in the "recirculation" mode if one of the redundant trains becomes inoperable while in plant operational Mode 5 or 6. According to the licensee, complying with this requirement involves placing the system in "isolation" per Step 6.9, and not in "recirculation" per Step 6.7. The procedure should clearly reflect this difference.
- i. The inspectors reviewed Procedure OP-903-051, Revision 5, "Surveillance Procedure, Control Room Emergency Filtration Unit Operability Check." The only problem found was that Step 8.2.3 specifies a differential pressure tolerance of 2 inches of water when it should be 0.2 inches of water.

The above listed discrepancies did not appear to render the control room air conditioning system inoperable; however, it is another example of failure on the part of the licensee to assure attention to detail. This was addressed previously in a notice of violation accompanying NRC Inspection Report 50-382/87-22, dated November 23, 1987. Corrective actions would not have precluded the above problems; however, it is expected that future ESF walkdowns will yield considerably less deficiencies of the above nature. Correction of the specifics shall be tracked as Open Item 382/8725-04.

No violations or deviations were identified.

6. Cold Weather Preparations Inspection

The objective of this inspection was to verify that the licensee has effectively implemented a program to protect safety-related equipment from damage that could be caused by freezing weather conditions.

The inspector reviewed IE Bulletin 79-24, "Frozen Lines," and the licensee's actions in response to the bulletin. The bulletin was addressed to all licensees and specific construction permit holders

receiving the bulletin for action; however, at that time, Waterford-3 was not among them. Therefore, no response was made to the NRC, nor was it required.

The licensee produced documentation to show that the implications of IE Bulletin 79-24 were reviewed, and a determination was made in 1980 that Waterford-3 complied with freeze protection requirements as identified in the bulletin. In NRC Inspection Report 50-382/86-05, dated April 2, 1986, the licensee's internal response to IE Bulletin 79-24 was reviewed with satisfactory results, and the bulletin was closed for Waterford-3.

Freeze protection is a nonsafety portion of the Heat Trace System at Waterford-3. All piping subject to freezing is protected by Thermon Econotrace parallel resistance cables powered by six electrical distribution panels containing automatic controls. The panels are located in the Reactor Auxiliary Building, Turbine Building, Intake Structure, Fire Pump House, Discharge Structure, and Chiller Building. Each panel is annunciated in the control room in the event of low heater voltage or thermostat failure in combination with an ambient temperature of less than 35°F.

The licensee's 1987 winter freeze protection program has been implemented. Conduct of Maintenance Procedure ME-4-423, Revision 3, "Freeze Protection Maintenance" was accomplished by November 30, 1987. This procedure inspects the system for visual defects, measures the insulation resistance of each heater circuit, measures the individual heater circuit current, and verifies phase-to-phase voltage readings. The inspector reviewed the documentation showing the results of this work and noted no significant problems.

The inspector visually inspected the freeze protection control panels in the Reactor Auxiliary Building (FP 2-1 Panel) and the Fire Pump House (FP 2-4 Panel), and accessible heat trace circuits. These two subsystems contained most of the freeze protection for safety related systems. The panels were clean and operational, and the conduit and insulation housing the heat trace circuits appeared to be in good condition. Power was being supplied to the panels and the control room annunciators were clear. From all indications, the system appeared ready to respond automatically to a drop in ambient temperature.

The licensee lines up the system for operation in accordance with Operating Procedure OP-2-007, Revision 3, "Freeze Protection." The inspector reviewed the procedure and found no significant problems. Verification of individual heat trace circuit breaker positions in accordance with Operating Procedure OP-2-007 revealed several spare breakers in the "on" position when they should have been "off." This has no safety significance other than being another example of inattention to detail.

Operations conducts daily checks of the operation of all freeze protection circuits using a daily log, which will be reviewed by the inspectors when ambient conditions warrant system operation.

No violations or deviations were identified.

7. Onsite Followup of Events

a. Reportability of Emergency Diesel Generator (EDG) Failures

On August 15, 1987, EDG "A" would not start in the manual mode but would start in the emergency mode. The licensee's Potentially Reportable Event (PRE) Report 87-073 stated that the failure was because of the spurious operation of a trip, which was bypassed in the emergency mode, and therefore, no test or failure occurred per Regulatory Guide 1.108, Revision 1, August 1977, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants." The PRE report classified the event as not reportable under Technical Specification 4.8.1.1.3, which requires a special report to the Commission for all EDG failures, valid or nonvalid, within 30 days. While reviewing Plant Operations Review Committee Minutes 87-117, dated September 24, 1987, the NRC inspectors noted some discussion followed by approval of the above disposition. The inspectors expressed concern to the licensee that failure to report the event was an apparent violation of Technical Specification 4.8.1.1.3. The licensee explained that they, and perhaps several other licensees, did not report such events because of the current understanding of what types of failures must be reported as delineated in Regulatory Guide 1.108. This guide states, in part, that unsuccessful start and load attempts attributed to operating error, spurious operation of trips bypassed in the emergency operating mode, and certain intentional start and load terminations should not be considered valid tests or failures. Since the above trip function was bypassed in the emergency mode, the licensee declared that there was no valid test. The licensee went on to conclude that since there was no test, there was no failure, valid or invalid, so the language of Technical Specification 4.8.1.1.3 did not apply. The inspectors pointed out that for purposes of reportability, pursuant to Technical Specification 4.8.1.1.3, an invalid test could not be construed to mean "no test." Therefore, the licensee's "no test, no failure" rationale appeared to be inappropriate. The licensee exhibited a desire to report what is needed by the NRC but stated that the ambiguity of Regulatory Guide 1.108 lends itself to varying interpretations, notwithstanding the words of Technical Specification 4.8.1.1.3. Upon request by the NRC inspectors, the licensee provided nine other examples over the past 2 years where Technical Specification 4.8.1.1.3 required a report on an emergency diesel generator failure, but because of the

licensee's apparent understanding or misunderstanding of Regulatory Guide 1.108, were not reported. Some examples are as follows:

- . On January 30, 1986, emergency diesel generator "B" tripped on low turbocharger oil pressure, which was an invalid failure as defined in Regulatory Guide 1.108. The licensee declared this event as not reportable. In this case, no rationale was offered (PRE 86-007).
- . On March 7, 1986, emergency diesel generator "A" tripped with no alarms locked in after running at full load for 42 minutes. The licensee later concluded that the failure was caused by spurious trip of the generator fault trip, which is bypassed in the emergency mode, and thus was an "invalid test and nonvalid failure," not requiring a report (PRE 86-020).
- . On January 30, 1987, emergency diesel generator "B" was intentionally secured after approximately 2 minutes of fully loaded operation because of a fuel oil leak at a fuel injector. The licensee evaluated the failure and concluded that since the leak would not have resulted in damage to or failure of the emergency diesel generator, the test was invalid and therefore not reportable under Technical Specification 4.8.1.1.3 (PRE 87-013).
- . On June 22 and 23, 1987, there were two instances in which emergency diesel generator "A" shutdown because of spurious trips of features that are normally bypassed when in emergency operation. In both cases, the licensee correctly classified the tests as nonvalid, but the failures were incorrectly classified as nonexistent and thus not reportable under Technical Specification 4.8.1.1.3 (PRE 87-059 and PRE 87-061).

The inspectors considered the licensee's failure to report all of the above emergency diesel generator failures (whether valid or nonvalid) to be in violation of Technical Specification 4.8.1.1.3. However, discussions between NRR and the licensee followed by further discussions between NRR and the resident inspectors resulted in an open question as to whether or not the NRC intended for all failures not considered as valid per Regulatory Guide 1.108 are indeed "nonvalid" and reportable. NRR acknowledged the apparent ambiguities in Regulatory Guide 1.108 and agreed to review the matter and provide clarification as appropriate. Region IV will track this issue as an unresolved item until a response is obtained from NRR (382/8725-05).

b. Loss of Control of Radioactive Byproduct Material

On December 7, 1987, the licensee's Health Physics Department was informed by Warehouse 7B personnel that a canister labeled, "Caution Radioactive Material" had been found while cleaning the warehouse. The label also indicated that two serialized radioactive sources were

inside, one being 0.2 microcuries of Chlorine-36 and the other being 9.0 microcuries of Cesium-137. A health physics technician surveyed the canister and found a contact dose rate of less than 0.05 millirem per hour. Upon opening the canister, it was determined that the Cesium-137 source was missing. The warehouse was searched with the aid of a high sensitivity survey instrument ("Micro-R"), but nothing was found. The licensee is attempting to account for the source, but, as of the end of this inspection, has not had any success. The licensee has committed to advise the resident inspectors of the final results. These are both exempt quantities of byproduct material under 10 CFR 20.203 for marking and under 10 CFR 30.18 for licensing. Therefore, the licensee does not plan to submit a formal report to the NRC pursuant to 10 CFR 50.73. This item is for information and will not require documented followup.

c. Emergency Diesel Generator Pole Winding Movement

On October 28, 1987, the inspectors were made aware by Region IV management of a condition discovered during a routine maintenance inspection at River Bend Nuclear Station where the motor windings on #14 pole for the Division 2 emergency diesel generator had apparently separated from the shaft pole washer and bowed out toward the stator. Individual wires in the winding were reported to have delaminated and overlapped, but the wires had not entered the air gap between the motor and the stator. Unpainted surfaces exposed on the pole washer seemed to indicate that the condition occurred during operation rather than during manufacture. Reportedly, the most probable cause of the lack of adhesion was inadequate attention on the part of the manufacturer, NEI Peebles-Electric Products, Inc., to shelf life and storage conditions for the polyester resin used between the winding wraps. Since Waterford-3 has generators from the same manufacturer, the resident inspectors provided this information to the licensee so that any generic implications could be pursued in a timely manner. The licensee subsequently contacted the manufacturer and discussed the possible impact on Waterford-3 generators. The manufacturer responded in a letter dated November 24, 1987, which stated that the condition at River Bend did not cause a generator failure, but if left in that condition, would create uncertainty with regard to long term reliability. Thus at River Bend, the pole was rewound. The manufacturer recommended a procedure for inspecting the poles for similar problems. The licensee informed the resident inspectors that such an inspection will be conducted as part of the routine maintenance procedures performed on emergency diesel generators during refueling outages.

No violations or deviations were identified.

8. Operational Safety Verification

The objectives of this portion of the inspection were to ensure that this facility is being operated safely and in conformance with regulatory

requirements, to ensure that the licensee's management controls are effective in discharging the licensee's responsibilities for continued safe operation, to assure that selected activities of the licensee's radiological protection programs are implemented in conformance with plant policies and procedures and in compliance with regulatory requirements, and to inspect the licensee's compliance with the approved physical security plan.

The inspectors visited the control room on a daily basis when onsite and verified that control room staffing, operator behavior, shift turnover, adherence to technical specification limiting conditions for operation, and overall control room decorum were being conducted in accordance with NRC requirements. No problems were identified.

Tours were conducted in various locations of the plant to observe work and operations in progress. Radiological work practices, posting of barriers, and proper use of personnel dosimetry were observed. The inspectors noted considerable effort underway to reduce areas containing surface contamination in the Reactor Auxiliary Building.

General housekeeping, condition of fire protection equipment, and physical condition of safety related equipment were inspected with particular emphasis on engineered safety feature systems.

The inspectors verified, on a sampling basis, that the licensee's security force was functioning in compliance with the approved physical security plan. Search equipment such as X-ray machines, metal detectors and explosive detectors were observed to be operational. The inspectors noted that the protected area was well maintained and not compromised by erosion or unauthorized openings in the area barrier.

No violations or deviations were identified.

9. Licensee Event Report (LER) Followup

The following LERs were reviewed and closed. The NRC inspectors verified that reporting requirements had been met, causes had been identified, corrective actions appeared appropriate, generic applicability had been considered, and that the LER forms were complete. The NRC inspectors confirmed that unreviewed safety questions and violations of technical specifications, license conditions, or other regulatory requirements had been adequately described.

(Closed) LER 382/87-20, "Reactor Trip Due to Main Condenser Waterbox Isolation."

(Closed) LER 382/87-21, "Fire Seal Missing Due to Error in Construction Documentation."

(Closed) LER 382/87-22, "ESF Ventilation Actuators Due to Shorted Relay."

No violations or deviations were identified.

10. Plant Status

Waterford-3 had been operating at full power for the duration of this inspection period until 7:53 a.m. on December 11, 1987. At that time, the reactor tripped from 90 percent power, and the plant was brought to hot standby to correct the cause of the trip and accomplish a few preplanned forced outage maintenance items. The cause of the trip appeared to be a Core Protection Computer trip based on a reactor coolant system cold leg temperature imbalance. The imbalance was caused by the sudden and unexpected full closure of the Number 2 Steam Generator main steam isolation valve (MS-142B) while conducting a quarterly surveillance test, which is designed to cycle the valve from fully open to 90 percent open and back to fully open. Because of the failure of a hydraulic component in the valve operator, the valve failed closed just long enough to cause the reactor trip. This event will be reported by the licensee in greater detail pursuant to 10 CFR 50.73. After repair and retesting of the hydraulic operator for MS-142B and completion of other forced outage items, the licensee resumed power operation on December 12, 1987, and reached full power at about 7:30 a.m. on December 14, 1987.

No violations or deviations were identified.

11. Exit Interview

The inspection scope and findings were summarized on December 11, 1987, with those persons indicated in paragraph 1 above. The licensee acknowledged the NRC inspectors' findings. The licensee did not identify as proprietary any of the material provided to or reviewed by the NRC inspectors during this inspection.