

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-382/88-19

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

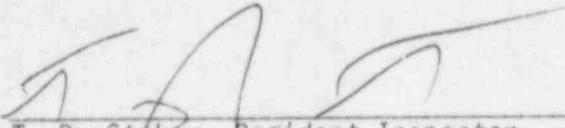
Inspection Conducted: June 18 through July 31, 1988

Inspectors:



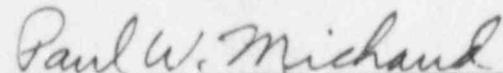
W. F. Smith, Senior Resident Inspector

8/4/88
Date



T. R. Stake, Resident Inspector

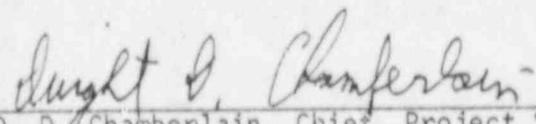
8-2-88
Date



P. W. Michaud, Resident Inspector, Region IV

7-22-88
Date

Approved:



D. D. Chamberlain, Chief, Project Section A
Division of Reactor Projects

8/19/88
Date

Inspection SummaryInspection Conducted June 18 through July 31, 1988 (Report 50-382/88-19)

Areas Inspected: Routine, unannounced inspection consisting of: (1) enforcement followup on quality verification function inspection, (2) monthly maintenance observation, (3) allegation followup, (4) operational safety verification, (5) monthly surveillance observation, (6) followup of previously identified items, (7) followup of NRC Bulletin 88-05, (8) licensee event report followup, (9) onsite followup of events, and (10) plant status.

Results:

Within the areas inspected, four violations were identified. The first violation involved four failures to submit Licensee Event Reports within the 30 days required by 10 CFR 50.73 (paragraph 2). The second and third violations involved failures to follow operating and maintenance procedures respectively (paragraphs 2 & 3). The fourth violation involved failure to perform special processes using appropriately qualified personnel (paragraph 4). There is one new unresolved item in paragraph 3 regarding the possibility of unacceptable delays in correcting undersized power cables.

DETAILS1. Persons ContactedPrincipal Licensee Employees

R. P. Barkhurst, Vice President, Nuclear Operations
 *N. S. Carns, Plant Manager, Nuclear
 P. V. Prasankumar, Assistant Plant Manager, Technical Support
 D. F. Packer, Assistant Plant Manager, Operations and Maintenance
 J. J. Zabritski, Manager of Operations Quality Assurance
 J. R. McGaha, Manager of Nuclear Operations Engineering
 W. T. Labonte, Radiation Protection Superintendent
 D. E. Baker, Manager of Nuclear Operations Support and Assessments
 *A. L. Holder, Fire Protection and Safety Department Head
 *L. W. Laughlin, Site Licensing Support Supervisor
 D. W. Vinci, Maintenance Superintendent
 *N. E. Howard, Trending Compliance & Response Supervisor
 A. F. Burski, Manager of Nuclear Safety and Regulatory Affairs
 R. S. Starkey, Operations Superintendent
 G. M. Woodard, Manager of Events Analysis Reporting & Responses
 J. Sleger, Jr., Nuclear Safety Review Manager

*Present at exit interview.

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

2. Enforcement Followup on Quality Verification Function Inspection (25578)

During the period of February 1 through February 12, 1988, the NRC staff conducted NRC headquarters-directed quality verification function inspections under the guidance of Temporary Instruction 2515/78. The Inspection Report (50-382/88-200) was issued on June 2, 1988. Enclosure 1 of the report identified several potential enforcement findings. The NRC Region IV staff has the responsibility to issue the appropriate Notices of Violation for items requiring enforcement action. The items are listed below:

- a. Item 1.a: Failure to report a valid actuation of the broad range toxic gas detection system pursuant to 10 CFR 50.73(a)(2)(iii), which requires a 30-day report when an external condition poses a threat to the safety of the nuclear power plant or significantly hampers site personnel. Neither of these criteria were met when the actuation occurred, therefore, the Region IV staff determined the item did not have to be reported. There will be no enforcement action on this item.
- b. Item 1.b: Failure to report being outside of the design basis of the plant due to nitrogen pressure indicator taps being located on the

Main Steam Isolation Valves (MSIVs) such that pressure could not be monitored when the MSIVs were open. The Region IV staff considered the licensee correct in not reporting this condition because the design basis of the installation did not include being able to monitor this parameter. This was further supported by the monitors not being listed in the Technical Specifications. The staff noted that LP&L did move the sensing line so that nitrogen pressure could be checked, and that the information was provided to the licensee's operational assessment group for dissemination to the nuclear industry. There will be no enforcement action on this item.

- c. Item 1.b: Nonreporting of a failure to meet safety to nonsafety electrical distribution separation criteria. The licensee subsequently reported the event in LER 87-029, dated April 18, 1988. Failure to report this event within 30 days of the discovery date, which was April 2, 1987, is contrary to the requirements of 10 CFR 50.73(a)(2)(ii)(b) which states that the licensee shall submit a 30-day report identifying any event or condition of the nuclear power plant, including its principal safety barriers, being in a condition that was outside the design basis of the plant. This is the first example of where the licensee failed to submit a report required by 10 CFR 50.73 and is an apparent violation (382/8819-01).
- d. Item 1.c: Failure to report an event where sampling and analysis of the gas decay tank was not performed in accordance with the action requirements of Technical Specification (TS) Table 3.3-13. The apparent basis for nonreporting was that the 25 percent surveillance extension permitted by TS 4.0.2 was not exceeded. This assertion was incorrect. TS Action Statements are not under the purview of Surveillance Section 4.0.2. LP&L control room personnel appeared to be aware of this limitation all along. The licensee published LER 87-030 on April 18, 1988, in response to the NRC concern but improperly identified the LER as "voluntary" instead of pursuant to 10 CFR 50.73(a)(2)(i)(B), which requires a 30-day report of any operation or condition prohibited by the plant's Technical Specifications. It will be necessary for the licensee to revise the LER cover sheet to indicate that it is not a voluntary report. Since the event date was August 19, 1987, this is the second example of the licensee's failure to submit a report required by 10 CFR 50.73 and is part of apparent violation 382/8819-01.
- e. Item 1.c: Failure to report a missed surveillance. The licensee failed to perform stroke testing of Containment Atmosphere Purge Valve CAP-205 within the required interval in accordance with TS 4.0.5. This was discovered on October 21, 1987. The licensee's basis of nonreporting was that the action statements which required that the penetration be isolated was unwittingly satisfied by other valves. Although this mitigated the safety significance of the event, it did not eliminate the fact that TS surveillance requirements were not met. The licensee published LER 87-031, dated April 18, 1988, in response to the NRC concern but improperly

identified the LER as "voluntary" instead of pursuant to 10 CFR 50.73(a)(2)(i). It will be necessary for the licensee to revise the LER cover sheet to indicate that it is not a voluntary report. This is the third example of the licensee's failure to submit a 30-day report as required by 10 CFR 50.73 and is part of apparent violation 382/8819-01.

- f. Item 1.d: Failure to report a wiring error that occurred during a routine relay replacement. The relay was related to the automatic start of a switchgear ventilation recirculation fan with an ESF actuation. The fan had redundant controls as well as the other train being available. The licensee did not consider that the error alone could have prevented the fulfillment of the safety function of safety structures or systems as described in 10 CFR 50.73(a)(2)(v). Therefore, the licensee did not report the incident. The Region IV staff agrees and will take no enforcement action on this item.
- g. Enforcement action related to reporting of emergency diesel generator valid and nonvalid failures has been taken in NRC Inspection Report 50-382/88-08.
- h. While in the control room, the inspection team observed standing signals, which had not been acknowledged at various times during the inspection, including February 5 and 9, 1988. Further, the inspectors observed signal actuations at about 1:00 p.m. on February 8 (annunciator No. 6, Trains A and B - Containment Isolation) and at about 3:20 p.m. on February 10 (annunciator No. 1, Trains A, B, and AB - Emergency Feedwater). On neither occasion was the signal acknowledged as specified by procedure. This is contrary to Technical Specification 6.8.1.a which requires the implementation of procedures covering activities recommended in Appendix A of Regulatory Guide 1.33, Revision 2, including the procedures for abnormal, off-normal, or alarm conditions. Operating Procedure OP-4-020, Revision 0, "Bypassed and Inoperable Status Indication System," requires the monitoring of safety equipment status by way of computer and requires operator acknowledgement and evaluation of systems that have been computed to be inoperable. This is an apparent violation (382/8819-02).

3. Monthly Maintenance Observation (62703)

The below listed station maintenance activities affecting safety-related systems and components were observed and documentation reviewed to ascertain that the activities were conducted in accordance with approved procedures, technical specifications, and appropriate industry codes or standards.

- a. Work Authorization 99000212. The NRC inspector observed the performance of hardness examinations on the inlet and outlet flanges for component cooling water system Valves CC-8083AB, CC-8085AB, CC-8244AB, and CC-8246AB. These flanges were part of the recently

installed piping used to connect a temporary chiller to the containment coolers during long duration outages. The flanges were examined in response to NRC Bulletin 88-05, "Nonconforming Materials Supplied by Piping Supplies, Inc., at Folsom, New Jersey, and West Jersey Manufacturing Company at Williamstown, New Jersey." Testing was performed with an Equotip hardness tester. Two of the eight flanges tested had satisfactory hardness measurements but six were unsatisfactory. After consulting the NUMARC and the Equotip vendor, the licensee decided the following:

- (1) The acceptance criteria would be reduced from a hardness corresponding to 70,000 pounds per square inch strength (70 KSI) to that which corresponds to 66 KSI.
- (2) The test surface would have to be prepared using 120 grit flapper wheels only (60 grit was previously used) in order to get accurate measurements.
- (3) The hardness test sample size for each flange would be increased from four to five with the highest and lowest readings discarded before averaging the readings.
- (4) Acceptance criteria for the variation in readings was provided by the hardness tester vendor. If all readings in a sample did not meet this criteria, testing would be performed at a new location.

After the appropriate procedure changes, all eight flanges were retested satisfactorily.

The NRC inspectors also observed the hardness testing of Essential Service Chilled Water Flanges 3AC-220B, 3AC-221B, and 3AC-222B. The flanges did not meet the specified minimum hardness corresponding to 66 KSI. The lowest reading corresponded to 63.3 KSI. The licensee promptly performed an analysis which determined that the flanges were suitable for their present application. This is a low pressure, low energy system. The inspector reviewed the completed work package, including the analysis and a justification for continued operation, and no problems were noted.

- b. Work Authorization WA-01020904. The NRC inspector witnessed portions of the overhaul of the motor-driven firewater pump during the week of July 18, 1988. The inspector reviewed the work authorization to determine if it contained adequate instructions, references, and hold points. The inspector also verified that Quality Assurance, Maintenance Administrative Supervisor, and Shift Supervisor reviews and approvals were received prior to starting work. The inspector verified the materials to be used met the appropriate specifications and had the proper documentation. Some packing material was upgraded for use in this application in accordance with licensee Procedure UNT-07-021, Revision 6, "Spare Parts Equivalency Evaluation

Report/Parts Quality Level Determination." The NRC inspector reviewed this procedure and the evaluation for the packing material in this application and found this acceptable.

Three instances of procedural noncompliance were observed during the pump reassembly. Work Authorization 01020904 referenced Technical Manual 457000514, Volume 2, "Type A Centrifugal Pumps," for instructions for pump reassembly. The manual contained FMC Corporation, Peerless Pump Division, Bulletin No. 2880551, "Repair Instructions, Type A Centrifugal Pumps." Step 3-2.f of this document provided instructions which stated, "Cover the top side of the casing gasket with a mixture of graphite and oil." The NRC inspector noted that this step was not performed prior to the pump casing assembly. Steps 3-2.f and 3-2.h provided instructions which stated, "Rotate shaft by hand to check that it runs free," after the casing reassembly and after the packing gland reassembly. These rotational checks were not performed. Step 3-2.g provides instructions which state, "Insert the glands and set the nuts finger tight-DO NOT USE A WRENCH." The NRC inspector observed the packing rings inserted with the use of a wrench.

The instances above did not represent a significant degradation of the work product but rather indicated a lack of sensitivity to procedural compliance. This lack of adherence to procedural requirements is an apparent violation of NRC regulations (382/8819-03).

- c. Work Authorization 01022087. The NRC inspectors monitored the licensee's efforts to repair the AB Essential Services Chilled Water System Chiller. This chiller is a "swing" unit which can serve as a backup to either the A or B chiller. The AB chiller is not normally in operation and does not come under the purview of the technical specifications, unless it is being used in place of the A or B chiller in that respective essential services chilled water loop. The problems with the AB chiller may have been caused or aided by the fact that it was not run on a routine basis. This indicates that its availability may be questionable if left out of service for extended time periods. The licensee is evaluating the preventive maintenance and reliability aspects of the AB chiller and intends to do more work during the next inspection period. The inspectors will continue to monitor licensee activity on this unit.
- d. Work Authorization 01005480. The NRC inspector observed the replacement of the wiring and conduit in an auxiliary control panel to the "A" Shield Building Ventilation System Heater Control Panel (EHC-51(3A-5A)). The installed wire was observed to be brittle and discolored. No problems were noted during the installation. During work package documentation review, the NRC inspector observed that the wire and conduit were being replaced in response to Nonconformance Condition Identification Work Authorization (CIWA) 016612, dated March 24, 1985. The

nonconformance was written after determining that the installed wire (No. 12 AWG) was not adequate for the load requirements and No. 8 AWG wire was the minimum required size. In March 1985, licensee personnel observed that this undersized wiring was discolored and brittle. It was also noted that a backup contactor in the "B" Train Heater Control Panel (EHC(3B-5B)) was overheating during operation. This indicated that proper contact was not being made and/or a high contact resistance condition existed. The engineering evaluation in CIWA 016612 required immediate action to replace the backup contactor to avoid further damage and immediate expediting of replacement power cables. The backup contactor was replaced in January 1986 (approximately nine months later). The power cables for the "A" Train Heater were not replaced until July 1988, almost two and one half years later. The NRC inspector requested that the licensee provide additional information on the basis for the delays in correcting these nonconformances. Determination of the causes for the delays and of the safety significance of this issue shall be the subject of an Unresolved Item (382/8819-04).

4. Allegation Followup (92701)

The NRC inspector performed a review to determine the safety significance of the following concerns and to ensure that appropriate corrective action was taken.

a. (Closed) Concern 4-87-A-0030

The following issues on fire wrap of cable installations were identified by a concerned individual:

- (1) The individual did not consider his concerns as having been adequately addressed by the licensee's Quality Team. (The Quality Team is a licensee organization that provides a confidential means by which employee safety and quality concerns can be received, investigated, and acted upon as appropriate. Exiting employees and contractors are encouraged to check out through the Quality Team. If they do not, a form letter is sent to their forwarding address thus providing the opportunity by mail or by telephone "hot line.")
- (2) At the time these concerns were received by the NRC, the individual stated that he had been unjustly terminated because of his previous concerns. (It is understood by the staff from discussions with the individual that this is no longer an issue and thus will not be addressed in this report.)
- (3) The LP&L insulation inspector is not doing a correct or adequate job.

The NRC inspectors reviewed the practices and policies of the LP&L Quality Team on July 29, 1988. It appeared that the Quality Team was

carrying out their charter as required by company policies and procedures. The inspector noted, however, that the followup closure letters sent to the individuals are very short and somewhat cryptic. Comparison of sample letters with the activity files indicated that disposition letters sent to individuals do not fully represent what action was taken and to what extent. The licensee's representative stated that it is LP&L's policy to avoid detailed technical discussion in the responses. The inspector acknowledged this as LP&L's prerogative. The brief notifications may be the cause for some individuals concluding that little or no action was taken on their concerns. Their only recourse is to take the concerns to the NRC. This appears to resolve Item (1) above. The staff intends to take no further action on this.

The inspector reviewed Quality Team files related to fire wrap and fire seals in 1987 and 1988. The concerns appeared to have been adequately addressed with the exception of one area. In one file, there was concern that fire wrap was not being properly installed; that people were leaving trash and debris in cable trays and wrapping trash along with the cables. A letter to the Assistant Plant Manager, Technical Services, dated March 5, 1987, was in the Quality Team file requesting action in response to the concern. No response was in the file nor could the Quality Team Supervisor produce an appropriate disposition. The Quality Team Supervisor committed to provide an answer for the inspector. On August 2, 1988, the inspector was provided with the response, which was dated August 1, 1988. The letter stated that there was a delay in the response because a 100 percent surveillance of fire wrap was underway. On January 12, 1988, the surveillance was completed, and any deficiencies discovered were repaired and reinspected.

The inspectors reviewed documentation of completed fire wrap and fire seals. There was no indication that the LP&L insulation inspectors were failing to follow the procedural requirements of inspection and verifying correct work in these areas. The inspectors also reviewed a sampling of completed fire seal surveillances. It appeared that roughly five percent of the results were unsatisfactory and thus requiring repairs due to expected wear and tear from people working in the areas. There was not a preponderance of evidence that would lead the inspectors to the conclusion that improper inspection activities existed, thus Item (3) could not be substantiated.

b. (Closed) Concern 4-88-A-0032

The following issues on fire seal installation/rework were identified by a concerned individual.

- (1) Ropes were left protruding from fire barrier seals after rework.

- (2) Quality Assurance inspectors did not always verify the required dimensions (two inches around the periphery) of the void before it was filled with repair material and sealed during fire seal rework operations.
- (3) Fire seal installation/rework was being performed by unqualified individuals.
- (4) Quality Control inspectors were completing signoffs in the fire seal installation procedure accepting fire seals that were not installed.

The NRC inspector observed a fire seal and found a cable pull rope protruding from the seal. The licensee later stated during discussions that there is no degradation due to cable pull ropes protruding from fire seals. Additionally, the licensee provided copies of Southwest Research Institute Reports 01-8305-058A and 01-8305-058B which supported this. The inspector concluded that Item (1) above was not a valid concern.

The NRC inspector reviewed Procedure ME-13-100, Revision 6, "Fire Barrier Installation and Rework," and observed that a quality hold point to verify the removal of two inches (minimum) of material around repair areas was sequenced before the void was filled. The inspector also noted that a recent change was incorporated into the procedure to change the sequence of this hold point from after filling the void to prior to filling. Licensee personnel stated that this procedure change was issued after a concern had been raised by an individual performing fire seal repair work. The NRC inspector discussed the sequence of performance of this verification with a Quality Assurance inspector who had been responsible for performing these inspections. The Quality Assurance inspector stated that verification of removal of two inches of material was always performed prior to filling the void. The results of the NRC inspector's review of documentation indicated that although the hold point in ME-13-100 had been listed out of sequence, it would have to have been performed prior to installation of the seal material otherwise the Quality Assurance inspector could not have accomplished the action. The inspector found no reason to pursue the matter further short of removing seals to see if the two-inch requirement was met. There was insufficient evidence to require such action. The licensee's corrective action to change ME-13-100 to the proper sequence appeared adequate to preclude future questions in this area. Item (2) above is therefore resolved.

The NRC inspector discussed training requirements for fire seal repair personnel with the licensee. Training records were then reviewed to ascertain the qualifications of individuals involved in fire seal repair. The inspector noted that the licensee has not implemented a training course on fire seal installation/rework. Personnel performing these repairs were contractors, and

qualifications were determined by a licensee department head based on previous training and work experience. Some of the people installing fire seals, however, had no record of prior work experience nor any formal training in fire seal installation, thus they should not have been considered qualified. Failure to perform this special process with appropriately qualified personnel is contrary to the requirements of 10 CFR 50, Appendix B, Criterion IX, which states (in part) that measures shall be established to assure that special processes are accomplished by qualified personnel. This is an apparent violation (382/8819-05). Item (3) above is apparently substantiated.

ME-13-100, Paragraph 3.2, states, "Maintenance personnel directly supervising installation or rework activities in accordance with this procedure shall have successfully completed the training program (either B&B Training Program or LP&L Training Program or applicable instruments) covering Cable Wrap Protective System or Penetration Seals, Fire Barriers, and Water Seals." The wording does not appear to implement adequate measures to ensure people who are supervising, inspecting, and performing fire seal work will be properly qualified. The licensee identified this in LP&L Quality Assurance Audit SA-88-010.1, "Control of Special Processes," dated April 28, 1988. The audit was performed during the period February 19 through March 18, 1988. Quality Notice QA-88-036, of March 9, 1988, identified the deficiency for processing under the licensee's corrective action program.

The licensee's fire seal installation/rework program did require acceptance by Quality Control (QC) inspectors after work completion. In addition, third-party inspections were performed prior to returning the seals to an operable status in accordance with surveillance procedures. These inspections were performed by experienced personnel in the electrical maintenance department. The NRC inspector reviewed inspection documentation and discussed the inspection results with the department supervisor responsible for the third party inspections. No significant problems were identified to indicate a lack of QC inspections during fire seal installations. Item (4) above does not appear to be a valid concern.

Specific actions taken pursuant to apparent violation 382/8819-05 will be documented in a future inspection report.

5. Operational Safety Verification (71707, 71709, & 71881)

The objectives of this inspection are (1) to ensure that this facility is being operated safely and in conformance with regulatory requirements, (2) to ensure that the licensee's management controls are effectively discharging the licensee's responsibilities for continued safe operation, (3) 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 (4) to inspect the licensee's compliance with the approved physical security plan.

The NRC inspector attended the quarterly ALARA committee meeting held on June 27, 1988, and noted that the licensee's ALARA program appears to be effective in reducing Man-Rem expenditure as evidenced by the following:

- a. The licensee estimates that 5-10 Man-Rem were saved by use of improved reactor head shielding during the recent refueling operation.
- b. New aluminum foreign material exclusion covers versus steam generator nozzle dams for a cleanliness boundary during tube inspections reduced installation/removal time by a factor of ten. This resulted in significant Man-Rem savings. In addition, when nozzle dam installation was required, mockup training appeared to be effective because exposure rates were reduced by a factor of four from the previous refueling outage.
- c. The licensee's contaminated area reduction program has been effective resulting in a contaminated area reduction from 13 percent to 2.4 percent of plant area (outside of containment).

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.

6. Monthly Surveillance Observation (61726)

The NRC inspectors observed the below listed surveillance testing of safety-related systems and components to verify that the activities were being performed in accordance with the technical specifications. 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-903-032, Revision 6, "Quarterly ISI Valve Tests." On July 19, 1988, the NRC inspector observed the performance of Quarterly ISI Valve Tests on the component cooling water system by the licensee's control room operators. These surveillance tests were performed in accordance with Section 8.7 of Procedure OP-903-032. The NRC inspector reviewed the procedure to verify the appropriate administrative reviews and approvals were obtained prior to performing the test. The control room operators were observed using the procedure to perform these tests in a step-by-step manner. Communications between operations personnel in the control room and operators out in the plant were observed to be accurate and clear. The surveillance tests were completed satisfactorily, and no problems were identified.
- b. Procedure OP-903-056, Revision 6, "Fire Protection Systems Functional Test." During the period July 26 through July 29, 1988, the inspectors witnessed portions of the annual flow capacity testing of the motor-driven and both diesel-driven fire pumps. The operators appeared to follow the procedure satisfactorily in a step-by-step manner. The motor-driven pump performed well within the acceptance criteria, which was expected because the pump had just been overhauled during the week of July 18, 1988. The diesel pumps performed marginally. The raw data indicated that the pumps may not have been delivering at least 2000 gallons per minute (GPM) while at a pump head of 100 pounds per square inch differential (psid). Technical Specification (TS) 4.7.10.1.1.f.1 requires each of the pumps to deliver at least 2000 GPM at a total head of 100 psid by verifying at least three points on the pump performance curve during performance testing. Acceptance Criterion 7.2 of OP-903-056 appears to have the same requirements. The operator brought this to the attention of the system engineer who then evaluated the data using correction factors. The operator explained to the inspector that the pumps were performing satisfactorily based upon the engineer's calculations. The test was completed with what appeared to be marginal results. The NRC inspector decided that further review was necessary.

On July 30, 1988, the inspector reviewed the completed fire pump flow data that had been presented to the Shift Supervisor. Diesel Fire Pump No. 1, although it only delivered 1966.6 GPM, was running below rated speed. By applying correction factors for speed in accordance

with OP-903-056, the pump would deliver at least 2000 GPM at 100 psid if running at or above rated speed. The TS was silent as to whether the pump should deliver at least 2000 GPM at 100 psid when called upon during testing or actual need or just be proved capable of the same by applying correction factors. By taking a liberal interpretation of the TS and by applying correction factors for speed, the three point pump curve established by this test places the pump just above the 2000 GPM point at 100 psid.

Diesel Fire Pump No. 2 was running slightly above rated speed but delivered only 1991.5 GPM. Application of correction factors in accordance with OP-903-056 placed the pump below the 2000 GPM point at 100 psid. Although this was well within the acceptable range set up by ASME, Section XI, Table IWP-3100-2, which is +3 percent and -10 percent, it did not comply with the TS as written. When the inspector brought this to the attention of the Shift Supervisor, he agreed and declared the pump inoperable. Since only two of the three fire pumps must be operable at all times, this did not place the plant in a TS Limiting Condition for Operation (LCO). By the strict interpretation of the acceptance criteria in OP-903-056, the operator (assisted by the system engineer) failed to follow the procedure acceptance Section 8.8 which requires the operator to identify unsatisfactory test results and to inform the Shift Supervisor. Instead, the procedure was signed off as satisfactory. In light of the ambiguities associated with the TS and the procedure, particularly when the ASME Code allows a negative tolerance of 10 percent, the staff will not issue a Notice of Violation. The licensee has committed to obtain a TS change and clarify OP-903-056 acceptance criteria such that the intended operability requirements of the fire pumps will be met. The Waterford 3 FSAR, Section 9.5.1.2, calls for a maximum demand of 1844 GPM. As such, the TS value could be lowered to accommodate normal pump wear and still be within the safety analysis. This shall be tracked under Open Item 382/8819-06.

No violations or deviations were identified.

7. Followup of Previously Identified Items (92701)

- a. (Closed) Unresolved Item 382/8615-03: Conflicts and inconsistencies between the Technical Specifications, FSAR, and Operating Procedure OP-10-001, Revision 6, "Cooldown to Hot Shutdown (Mode 3 to Mode 4)." These inconsistencies were related to Reactor Coolant System (RCS) Low Temperature Overpressurization Protection (LTOP). Appendix 5.2B.3 of the FSAR states that administrative controls necessary to provide LTOP are limited to those controls that open the shutdown cooling system isolation valves, which in turn place the shutdown cooling system relief valve in service. The NRC inspector was concerned that there were additional administrative controls addressed in Section 6.3.2.5 of the FSAR. The language of Section 6.3.2.5.1 was determined to be poorly worded

and subject to misinterpretation. This section of the FSAR has since been rewritten and will be included in the 1988 revision of the FSAR. The other inconsistencies identified by the NRC inspector were also addressed and corrected by the revision to Section 6.3.2.5.1 of the FSAR. This item is closed.

- b. (Closed) Open Item 382/8710-01: Followup on the basis for modification to core protection calculator auxiliary cabinet fans. The licensee provided a copy of Field Action Request 9270-422, dated February 24, 1984, which documented Combustion Engineering's approval of modifications to the fans. The modifications included rerouting of the power cord and bypassing of the "high/low" switch. In addition, the licensee added a precaution to the SIMS - Instrument Information Sheet for the applicable control panel (CP-22) addressing fan modifications. This item is closed.
- c. (Open) Open Item 382/8710-03: Followup on the licensee's actions to install and ensure adequate control of seismic restraining bolts on 480 volt switchgear breaker cabinet hoists during maintenance activities. The NRC inspector verified that the seismic restraining bolts were installed. The NRC inspector also verified that instructions to reinstall these bolts after maintenance had been incorporated into the applicable breaker maintenance procedures. However, the instructions referenced Drawing 50676D500. This drawing could not be obtained by the NRC inspector from the document control center at the Waterford-3 site, which places its existence or perhaps the drawing number in question. As of the end of this inspection period, about a week had passed and the licensee had not yet provided the drawing. Consequently, this item could not be closed.
- d. (Closed) Open Item 382/8717-03: Followup on the licensee's implementation of corrective actions taken because a containment pressure instrument was left isolated during maintenance. The NRC inspector verified that Procedure OP-903-027, Revision 2, "Inspection of Containment," has been changed to require and provide instructions for containment pressure detector operability checks when establishing containment integrity. These checks are now performed by measuring the pressure difference with the containment purge system operating and secured. The NRC inspector reviewed the results of the check as performed after the recent refueling outage. No problems were noted. The licensee has issued a letter, W3M87-0244, dated September 15, 1987, to clarify policy requiring "in-hand" procedure use in radiological controlled areas. This position is also addressed in Procedures MD-1-014, Revision 2, "Conduct of Maintenance," and UNT-4-009, Revision 7, "Control, Distribution, Handling, and Use of POM Procedures." This item is closed.
- e. (Closed) Open Item 382/8804-03: Followup of licensee actions on items identified during controlled area ventilation system walkdown. The NRC inspector verified that the licensee had corrected the identified items. This item is closed.

- f. (Closed) Open Item 382/8731-02: Followup on final outcome of licensee staff reviews of vendor information packages. During the period of December 7 through December 18, 1987, the NRC conducted a Procurement/Vendor Information Audit at Waterford 3. The NRC inspectors identified cases where service bulletins issued by the emergency diesel generator vendor, Cooper-Bessemer, were not acted upon by the licensee. The specifics were corrected as reported in NRC Inspection Report 50-382/87-31, however, the licensee committed to conduct a two-phase review of a population of 769 items which had presumably been processed through the licensee's Vendor Equipment Technical Information Program (VETIP). The first phase consisted of 345 VETIP packages which the licensee determined to have a potential for significant impact on plant equipment. This was completed on a priority basis by January 5, 1988. The second phase was a review of the remaining 424 VETIP packages which was completed by March 1, 1988. A total of 208 packages required additional plant staff review, and as a result, 20 required procedure changes. Quality Notice 88-01 was written to document the failure to ensure that proper reviews of vendor information packages are performed. With the exception of the Cooper-Bessemer service bulletins already identified, no significant program or procedure changes resulted from the rescreening effort. Details on the licensee's actions were documented and transmitted from LP&L to the NRC on March 19, 1988, by cover letter serial number W3P88-0040. This item is closed.

No violations or deviations were identified.

8. Followup On NRC Bulletin 88-05 (92703)

The inspectors conducted followup inspections on NRC Bulletin 88-05, "Nonconforming Materials Supplied by Piping Supplies, Inc., at Folsom, New Jersey, and West Jersey Manufacturing Company at Williamstown, New Jersey." The licensee promptly initiated a program to carry out the instructions in the bulletin. They determined the number of affected flanges onsite, and then initiated actions to locate and test the flanges.

By review of procurement documents, the licensee determined that 534 of the affected flanges were potentially onsite. Records were traced to locate each flange. The licensee determined that 259 flanges were currently installed in safety-related systems, 138 flanges were in the warehouse, and the remaining 137 flanges were not installed in safety-related systems.

As flange locations were determined, the licensee performed hardness testing using an Equotip hardness tester to determine whether material design strength requirements were met. Several flanges were tested onsite and then at an independent testing laboratory to verify results of the onsite testing. In addition, several flanges were destructively tested offsite to verify onsite test results. The material strength determined offsite were found to correspond with onsite measurements. At the end of this inspection period, 16 flanges (in safety-related systems) were found

to have lower than acceptable strength of 66 KSI. Seven of these flanges (Heat Number G631889) were installed on the inlet to main steam relief valves. The licensee performed an analysis, based on the lowest strength flange (58 KSI) and the highest calculated loading, and determined that these flanges met the ASME, Section III NC-3658.1, requirements and were acceptable for their intended use.

Five essential service chilled water system flanges and four containment atmosphere release system flanges (the lowest were at 60 KSI) were found to have lower than required strength of 66 KSI. These flanges were determined to be acceptable after an analysis was performed and conformance with ASME, Section III, was verified.

The licensee has identified three flanges which are located in the containment. Two of these flanges are in the containment atmosphere release system and one on the component cooling water return to Reactor Coolant Pump 2A cooler. Because these flanges are in a high radiation and high temperature area, the licensee has published a justification for continued operation, which states that testing can be delayed until the next forced outage without introducing a significant hazard. These are low pressure, low energy systems.

No violations or deviations were identified.

9. Licensee Event Report (LER) Followup (92700)

In early June 1988, the inspector conducted a review of Potentially Reportable Event (PRE) Report 88-055 which was the licensee's internal identification that a snubber had been discovered missing from the shutdown cooling system (Safety Injection System) during maintenance.

On May 17, 1988, maintenance personnel were reinstalling the shutdown cooling relief Valve SI-404A after maintenance when they noted Snubber SISR-1352 missing. The Shift Supervisor was appropriately notified, and a work authorization was initiated to promptly replace the snubber. In accordance with Technical Specification (TS) 3.7.8, the absence (and thus the inoperability) of this snubber placed the shutdown cooling system in an inoperable status for an indeterminate amount of time, a condition prohibited by technical specifications. The plant was in a refueling outage, and there were times when TS 3.9.8.2 required shutdown cooling Train A to be operable. The PRE indicated that this event was not reportable because subsequent evaluation determined that the snubber could be removed permanently. The subsequent evaluation which showed the snubber was not required mitigated the consequences of the event but it did not affect the reportability of the event.

During an exit meeting on June 17, 1988, the inspector expressed concern to plant management regarding implementation of the reporting requirements of 10 CFR 50.73. On July 11, 1988, LER 88-017 was published describing the above event. This is a fourth example (see paragraph 2 of this

report) of failure to comply with the reporting requirements of 10 CFR 50.73. This is part of apparent violation 382/8819-01.

Since the issues are already identified in apparent violation 382/8819-01, the staff will not issue a second Notice of Violation citing the failure of the licensee to maintain shutdown cooling Train A operable when it was required by TS 3.9.8.2. It appears that issues and corrective actions that would normally be discussed in the response to such a violation were addressed in LER 88-017, thus no purpose would be served in the issuance of another Notice of Violation. Although the LER stated that a root cause of this event could not be determined because it could not be ascertained when or why the snubber was disconnected, the event implies that someone removed the snubber without authority after April 8, 1988, (when it was surveillance inspected in place). The inspector expressed concern that on-going licensee efforts to eliminate procedure violations (which includes doing work affecting quality without procedural controls) are not achieving satisfactory results to date. The licensee acknowledged the inspector's concerns in the procedure compliance area and discussed additional plans and programs being implemented to achieve procedure compliance. The resident inspectors will continue to monitor this area. LER 88-017 is closed.

10. Onsite Followup of Events (93702)

a. Failure of Main Feed Pump "A"

During the week of July 18, 1988, the licensee noted increasing vibration on the Main Feed Pump (MFP) "A". The plant was at full power with both MFPs in service. By the end of the week, the vibration had approached approximately 8 mils displacement, which was the licensee's decision point for reducing power and securing MFP "A" for investigation and repairs. By 3:00 p.m. on July 22, 1988, power was reduced to about 65 percent. The pump was disconnected from the turbine, and the turbine was tested for vibration, with satisfactory results. The pump was then disassembled to repair an already leaking inboard seal. The licensee found the inboard pump bearing badly damaged with melted babbitt, and two of the 26 socket head bolts that secured the diffuser were missing. One of the bolts was found jammed in the impeller. The bolt and the impeller were both damaged. This seemed to point toward the cause of vibration. Attempts to find the second bolt were unsuccessful due to access and visibility restrictions imposed by minor steam (hot flashing feedwater) leakage into the suction piping. Although the remaining 24 diffuser bolts were tack welded in place, two other bolts were found with the bolt heads broken off. The licensee commented that earlier revisions of the MFP technical manual did not specify a torque value for these bolts, but the current revision did, thus the bolts may have been over torqued during initial installation. The licensee replaced all 26 diffuser bolts, the pump bearings, the impeller, and the pump seals.

On July 26, 1988, MFP "A" was started up after completion of repairs. At about half speed, a metallic sound was heard in the pump, and again severe vibration of 8 to 10 mils was observed. On July 27, 1988, MFP "A" was again disassembled to determine the cause of vibration. The inboard seal was opened to look in the impeller for the bolt that could not be found. The feedwater isolation valves seated better this time allowing removal of a short section of the suction piping, and the bolt was found. The pump was reassembled, and by 6:00 a.m. on July 29, the plant was restored to full power.

No violations or deviations were identified.

11. Plant Status (71707)

The plant was at full power from the beginning of the reporting period until about 3:00 p.m. on July 22, 1988. Then power was reduced to 65 percent for Main Feedwater Pump "A" repairs, and stroke testing of the main turbine throttle, governor, and intercept valves. Also, while at reduced power, the monthly reactor control element assembly movement test was done.

On July 22, 1988, at about 9:25 p.m., the plant experienced a turbine trip on low electro-hydraulic control (EHC) pressure. Maintenance mechanics were replacing a test solenoid valve while at reduced power. A check valve used for isolation leaked due to a missing "O" ring when they attempted to remove the solenoid valve. This depressurized the EHC and the turbine tripped. The Steam Bypass Control System responded properly, and the reactor remained at power. Minimum power was about 30 percent until the plant was restored to the grid at about 9:30 a.m. on July 23, 1988, and then power was increased back to 60 to 65 percent.

As discussed in paragraph 10 above, by 6:00 a.m. on July 29, 1988, full power was restored and remained such as of the end of this inspection period.

No violations or deviations were identified.

12. Exit Interview

The inspection scope and findings were summarized on August 1, 1988, with those persons indicated in paragraph 1. 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.