

ENCLOSURE 1

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

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Facility: Waterford Steam Electric Station, Unit 3  
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Killona, Louisiana  
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Attachment: Supplemental Information

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## EXECUTIVE SUMMARY

### Waterford Steam Electric Station, Unit 3 NRC Inspection Report 50-382/96-23

This inspection evaluated the effectiveness of licensee controls in identifying, resolving, and preventing issues that degrade the quality of plant operations or safety.

#### Operations

- The licensee's identification and characterization of problems in licensee event reports, condition reports, and root-cause analysis reports were generally appropriate. The licensee resolution of problems reported in several licensee event reports and condition reports reviewed were generally complete (Section O7.1).
- The licensee's operability evaluations, reportability reviews, and 10 CFR 50.59 evaluations for selected condition reports were appropriate (Section O7.1).
- The corrective action program included many good facets. Condition review board activities associated with condition reports, root-cause analyses, and condition report trending were strengths of the program. Implementation of the program still had weaknesses. The most significant weakness was determined to be the apparent lack of effectiveness in precluding recurrence of conditions adverse to quality (Section O7.3).
- During the inspection, the licensee identified three conditions adverse to quality that were not precluded from repetition by corrective actions taken for similar conditions adverse to quality.
  - (1) The licensee's corrective actions for numerous work control and clearance process deficiencies did not preclude the installation and independent verification of a clearance tag for Diesel Oil Storage Tank Sump Pump Breaker on the wrong breaker on October 31, 1996. This is a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions." This licensee-identified violation is being treated as the first example of a non-cited violation, consistent with Section VII B.1 of the NRC Enforcement Policy (Section O7.1).
  - (2) The licensee's corrective actions for Condition Report 96-1583, which identified that 35 licensed operators and fire brigade members had been on watch without required respirator fit qualifications, did not preclude one of the identified fire brigade members from standing watch on November 6, 1996, without having obtained the required qualifications. This is a violation of 10 CFR Part 50, Appendix B Criterion XVI, "Corrective Actions." This licensee-identified violation is being treated as the second example of a non-cited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (Section O7.1).

- (3) The licensee's corrective actions for numerous violations of Technical Specification limiting conditions for operations did not preclude two additional violations. These discrepancies are being followed by the NRC resident inspectors (Section O7.1).
- The licensee had not identified a condition adverse to quality involving air receiver pressure gages located on the local emergency diesel generator control panel. The gages indicated receiver air pressure approximately 10 psig lower than the pressure indicated by gages located on top of the air receivers. This failure constitutes a violation of minor significance and is being treated as a non-cited violation, consistent with Section IV of the NRC Enforcement Policy (Section O7.5).
  - The inspectors determined that the condition report trending reports provided a good management tool for recognizing and addressing condition report trends (Section O7.3).
  - The operating experience feedback program was being effectively implemented (Section O7.4).
  - An inspection followup item was opened for further review of licensee evaluations regarding the Emergency Diesel Generator Air Receiver A2 wall thickness that was potentially less than the specified design wall thickness (Section O7.5).
  - Audits and assessments performed by the quality assurance organization were of mixed quality. Some audits were good while other were narrowly focused, and on occasion, added little value to the effective implementation of the corrective action program and safe operation of the plant (Section O7.6).
  - The licensee's in-progress root-cause analyses and corrective actions for previously identified fastener deficiencies were generally appropriate. Two apparent weaknesses of the in-progress root-cause analyses were observed involving the licensee not fully addressing the adequacy of the self-checking or independent verification process associated with the fastener discrepancies. However, the licensee had not identified any inoperable conditions as a result of their reviews.

## Report Details

### I. Operations

#### **07 Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems**

##### 07.1 Licensee Resolution of Problems

###### a. Inspection Scope (40500)

The inspectors selected a sample of issues or problems to assess the licensee's ability to identify and correct problems. The licensee event reports, condition reports, root-cause analysis reports, and ongoing issues that were selected for review are listed in the attachment to this report. The inspectors reviewed the reports and issues. The inspectors discussed the reports or issues with cognizant licensee personnel and observed licensee activities associated with the reports and issues.

###### b. Observations and Findings

The inspectors determined that initial identification and characterization of problems in the licensee event reports, condition reports, and root-cause analysis reports were generally appropriate. The licensee resolution of problems reported in several licensee event reports and condition reports reviewed were generally complete. For example, licensee corrective actions for conditions identified in Licensee Event Report 96-008 included replacing charging pump discharge relief valves with relief valves of a different design, correcting the charging pump operating procedure, and modifying the charging pump testing requirements prior to placing the charging pump back into service. However, the inspectors also noted that licensee corrective actions for three significant conditions adverse to quality did not preclude repetition of similar problems. The significant conditions had been identified in condition reports and root-cause analyses for the conditions had been performed.

###### Incorrect Clearance Tag on Diesel Oil Storage Tank Pump

On April 9, 1996, the licensee issued an adverse trend Condition Report CR-96-0526, regarding work control and clearance process problems that had been identified in ten 1995 and 1996 condition reports. The licensee performed a root-cause analysis for the work control and clearance process nonconformances. The nonconformances included Condition Report CR-96-0468 that documented the installation of a clearance tag on an incorrect auxiliary building potable water recirculation pump.

The licensee's evaluations and recommended corrective actions were documented in the root-cause analysis report. The licensee's root-cause analysis determined that inadequate self checking and lack of a questioning attitude were two of the causes of the problem. The licensee specified corrective actions in a plan that was included in the root-cause analysis report. The licensee's corrective actions included performance of "refresher and recurring STAR training" by all operations and maintenance personnel. The licensee also specified that the root-cause analysis of the problem would be reviewed by management with all operations, maintenance, and construction field personnel. Corrective actions had partially been completed by the end of the inspection.

On October 31, 1996, maintenance personnel determined that a clearance tag for Breaker SP EBKR213A 7B, for the Diesel Oil Storage Tank Sump Pump B, was installed on breaker SP EBKR213B 7B. The licensee issued Condition Report CR-96-1697 to document the condition. The failure to prevent reoccurrence of this significant condition adverse to quality is a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action." The licensee initiated corrective actions for the noted condition during the inspection. This licensee-identified violation is being treated as the first example of a non-cited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-382/9623-01).

#### Fire Brigade Members Without Respirator Fit Testing

On October 8, 1996, the licensee issued Condition Report CR-96-1583 to document that 35 control room and fire brigade watch standers did not have up-to-date respirator fit qualifications. The licensee performed a root-cause analysis for the problem. On November 7, 1996, the lead root-cause analysis reviewer discussed the analysis, prior to issuance of the report, with the condition review board. The NRC inspectors observed the condition review board meeting that was held on November 7, 1996. The lead root-cause analysis reviewer informed the condition review board that the involved individuals had been disqualified from standing watch, that appropriate departments had been notified, and that arrangements had been made for disqualified individuals to complete the required fit test prior to being qualified to stand watch. However, the lead root-cause analysis reviewer also informed the condition review board that a fire brigade member who had been identified as one of the individuals who did not have the required respirator fit qualifications, stood watch as a fire brigade member, on November 6, 1996. The necessary respirator fit test had not been completed.

The licensee issued Condition Report CR-96-1749 to document the condition. The failure to prevent reoccurrence of this significant condition adverse to quality is a violation of 10 CFR Part 50, Appendix B Criterion XVI, "Corrective Action." The licensee initiated corrective actions for the noted condition during the inspection. This licensee-identified violation is being treated as the second example of a non-cited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-382/9623-01).

### Failure to Perform Technical Specification Action Statements

On April 8, 1996, a quality assurance inspector determined that the required surveillance for Chilled Water Valve CHWMVAAA919 had not been satisfactorily performed within the required time and the valve and the affected control room Air Conditioning Unit B had not been declared inoperable. The quality assurance inspector initiated Condition Report CR-96-0497.

The licensee's in-house events assessment group reviewed the condition report and determined that numerous Technical Specification compliance problems, including five failures to comply with Technical Specification limiting conditions for operations in 1996, had been identified in recent condition reports. The in-house events assessment group determined that an adverse trend existed and classified Condition Report CR-96-0497 as a significant condition report because of the trend.

The licensee performed a root-cause analysis for the adverse trend. The licensee evaluated the problem and specified corrective actions in the root-cause analysis report. The licensee's root-cause analysis determined that two of the causes of the problem were inadequate administrative controls for second checking the applicability of limiting conditions for operations, and inadequate self checking. The licensee's corrective action plan included revision of Procedure OP-100-010, "Equipment Out of Service," to require a shift reactor operator, a senior reactor operator (other than the shift supervisor), or a station technical assistant to perform and document an initial screening of applicability of limiting conditions for operations. The root-cause analysis report corrective action plan also recommended that shift supervisors review the root-cause analysis report with their "shifts or work group" as additional corrective action for inadequate self checking.

On October 29, 1996, the operations department issued Condition Report CR-96-1687 for failure to perform actions required by Technical Specification 3.3.1 when Reactor Trip Circuit Breaker No. 7 failed open. On November 1, 1996, the operations department issued Condition Report CR-96-1726, for failure to perform the actions required by Technical Specifications 3.6.3.b when a containment isolation component cooling valve actuator (CC808A) was removed by a work authorization. This apparent continuing adverse trend associated with the compliance with Technical Specification limiting conditions for operations was a weakness that was being reviewed by the NRC resident inspectors.

The inspectors determined that operability evaluations, reportability reviews, and 10 CFR 50.59 evaluations that the licensee performed for the selected condition reports were appropriate.

c. Conclusion

The inspectors concluded that licensee identification, characterization, and evaluation of problems was generally good. However, the inspectors noted that licensee corrective actions for identified problems did not always preclude repetition of significant conditions adverse to quality.

07.2 Licensee Resolution of Solenoid-Operated Valve Problems

a. Inspection Scope (40500)

The inspectors reviewed two recent root-cause analyses and corrective actions for solenoid operated valve problems. In addition, the inspectors reviewed a sample of work packages associated with work on solenoid operated valves. The purpose was to ascertain the licensee's success at resolving repetitive failures of these valves.

b. Observation and Findings

The licensee performed a root-cause evaluation of the following valves that failed to close after the respective control switches were taken to the "closed" position in June 1995. A history of the similar valve failures also existed.

- Letdown to regenerative heat exchanger from Reactor Coolant Loop 2B  
Letdown Isolation Valve CVC-101,
- Letdown to regenerative heat exchanger from Reactor Coolant Loop 2B  
inside Containment Isolation Valve CVC-103, and
- Letdown to regenerative heat exchanger from Reactor Coolant Loop 2B  
outside Containment Isolation Valve CVC-103.

The licensee documented the problems and associated root-cause evaluation in Condition Report CR-95-0489.

The licensee completed a number of corrective actions to prevent the reoccurrence of the failure of the above three valves to operate. These actions included replacing the solenoid valves for all three valves. In addition, the licensee relocated the solenoid valves for valves CVC-101 and CVC-103 from the harsh environment around the regenerative heat exchanger to outside the heat exchanger area. The service lives for all three valves were revised by an appropriate engineering analysis. The root cause was detailed and thorough. The inspector determined that all corrective actions were complete. The inspector also determined that there had been no repeat failures of the valves since June 1995.

The licensee performed a root-cause evaluation for a solenoid valve failure of fire protection header Train A outside Containment Isolation Valve FP-601A. The valve failed to stroke within the required time in March 1996. The analysis of the failed

solenoid was performed by an independent laboratory and was detailed and comprehensive. The cause of the failed solenoids was identified as leakage through the exhaust port to atmosphere due to a worn seating surface. This caused reduced pressure to the air actuator and a slower valve-stroke time. The licensee installed a new solenoid valve and implemented enhanced monitoring of the valve. No further failures have occurred to date.

In addition to the above reviews, the inspectors performed a review of a sample of other solenoid valve problems for which condition identification tags were written. In each of those cases, the licensee properly developed work packages from the condition identification tags. The inspector reviewed the status of the work packages and found work was appropriately scheduled or properly completed.

c. Conclusions

The licensee's actions to prevent recurring solenoid failures for fire protection header containment isolation valves and letdown valves were appropriate. The licensee's method for identifying, scheduling, and working solenoid valve deficiencies appeared to be appropriate.

07.3 Corrective Action Programs

a. Inspection Scope (40500)

The inspectors reviewed the licensee's corrective action programs to determine the effectiveness of the programs. The inspectors performed plant walkthrough inspections, interviewed licensee personnel, and observed activities in progress to assess the licensee's knowledge and use of the program.

b. Observations and Findings

The inspectors determined that site Procedure W2.501, "Corrective Action," Revision 5, was the licensee's primary corrective action procedure. The inspectors determined through discussions with licensee managers that the procedure and corrective action process had been undergoing change and ultimately was revised in its entirety in August 1996. The procedure defined the terms "conditions adverse to quality" and "significant conditions adverse to quality." The procedure provided the process for identifying, reviewing, and resolving those conditions. Section 6.1.1, provided instructions for the initial identification and processing of a condition report for a condition adverse to quality. The inspectors discussed the procedure with operations, maintenance and engineering personnel, and observed work in progress.

### Operations Department

The licensed and nonlicensed operations personnel informed the inspectors that problems were being entered into the condition reporting process. The operations personnel provided the inspectors with examples of condition reports that they had initiated. The inspectors observed during the discussions that the operators had a clear understanding of the process for identifying problems and initiating condition reports.

The inspectors were also informed that licensee management had recently conducted lengthy discussions and briefings with all site personnel regarding the condition reporting process. The inspectors determined that operations personnel were knowledgeable of the condition reporting process, and had no difficulty having the condition reports that they generated approved. The inspectors were also informed by the licensed and nonlicensed operators that identified conditions were repaired in a timely manner.

During the interviews, five operators expressed a concern associated with the availability of status information for condition reports. The operators were concerned with the accessibility of the status of condition report corrective actions. The inspectors determined that only two operations personnel on the day shift had access to the condition report computer database. The process for determining condition report corrective action status was cumbersome during periods when the two operations personnel were not onsite. The inspectors determined that the licensee had plans for installing a new condition report computer database in the near future. The licensee informed the inspectors that the new database would be compatible with the licensee's local area network and would provide better access to the condition report status information.

### Maintenance Department

The inspectors also interviewed several maintenance craft and supervisors on the condition identification process. All personnel interviewed knew the fundamentals of the condition identification process, including how a condition identification tag is initiated. All craft personnel interviewed stated that they would contact the respective maintenance supervisor with concerns on plant equipment. The inspectors also determined that maintenance personnel were knowledgeable about the conditioning reporting process but predominantly used the condition identification process.

The inspectors determined that Administrative Procedure UNT-005-002, "Condition Identification," Revision 11, provided an adequate method for documenting hardware deviations observed during the course of inspections, testing, maintenance, or operations. Section 4.1.1, required that adverse conditions be reported using the condition report process in accordance with Administrative Procedure UNT-006-011. Administrative Procedure UNT-006-011 had been deleted and replaced by Site Procedure W2.501. The inspectors determined that Administrative Procedure UNT-005-002, provided a process for identifying,

evaluating, and correcting hardware deficiencies. The procedure required the shift supervisor/control room supervisor to evaluate the impact and reportability of abnormal conditions reported on condition identification forms. The procedure also required reviews of condition identification forms by a condition identification review committee to determine appropriate priority and disposition of identified conditions.

The inspectors observed three of the daily condition identification review committee meetings. The committee discussed conditions identified within the last day, and the disposition and assignment of actions for the identified conditions. The committee considered the need for a condition report for at least one of the discussed conditions. The inspectors determined that the condition identification review committee was appropriately performing its functions as assigned by Administrative Procedure UNT-005-002, Revision 11.

#### Engineering Personnel

The inspectors interviewed six system and design engineers. The inspectors determined through the interviews that the engineers had a good understanding of the condition reporting process. The inspectors observed more than five condition identification tags on the emergency diesel generator systems that identified conditions that the emergency diesel generator system engineer had identified by means of condition identification forms. The inspectors also observed that the diesel generator system engineer had a good understanding of the noted conditions and the status of corrective actions associated with the identified conditions.

#### Condition Review Board

Site Procedure W2.501, Revision 5, required review of safety-related condition reports by a condition review board. The board was required to be chaired by the general manager, plant operations, or his designee, and composed of all site directors and system engineering, operations, maintenance, licensing and training managers or their designees. The board was assigned the responsibility for maintaining cognizance and ensuring proper identification of emerging issues by means of the reviews of condition reports and controlled maintenance identification forms. The board was also assigned responsibility for assuring that adverse conditions receive commensurate attention and dedication of resources. The board was assigned responsibility for reviewing and approving root-cause analyses and corrective action plans for significant conditions adverse to quality.

The inspectors observed three of the daily condition review board meetings and one of the weekly condition review board meetings for review of root-cause analyses. The board discussed the significance of condition reports that had been initiated in the last day and determined the categorization for the reviewed condition reports. The inspectors observed detailed discussions of three root-cause analyses that had been performed. The inspectors noted that the board discussions and approval of root-cause analyses added value to the analyses because of the diverse disciplines and level of management participation in the board meetings. The inspectors also

noted that management participation in the daily and weekly board meetings facilitated management appraisal and understanding of emergent conditions adverse to quality. The inspectors determined that the condition review board was appropriately fulfilling its responsibilities assigned by Site Procedure W2.501, Revision 5.

The inspectors noted, however, that neither the quality assurance manager, nor a representative from his staff, observed the condition review board meeting that was held on November 7, 1996. The root-cause analyses scheduled for board discussions that day included the analyses for fastener discrepancies and for Updated Final Safety Analysis Report inaccuracies. Extensive discussions by the board on several root-cause analyses resulted in the postponement of the board review of the fastener discrepancies root-cause analyses. The inspectors noted that the quality assurance organization missed significant upper management root-cause analyses discussions that were held, and would have missed discussions of the fasteners discrepancies problem had it been discussed as planned.

#### In-House Events Assessment Group

The inspectors determined that Site Procedure W2.501, Revision 5, assigned responsibility for administering the licensee's corrective action program and for trending condition reports to the in-house events assessment group. The inspectors discussed the group's functions with the in-house events assessments supervisor and various members of the group. The inspectors also observed various activities of the group associated with categorization of identified conditions, tracking and trending, and evaluation of closure of condition reports. The inspectors determined that the group adequately maintained the licensee's condition report database. The inspectors observed participation of group representatives in the condition identification review committee meetings, the condition review board meetings, the licensee's plan-of-the day meetings, and the condition review board root-cause analyses meeting. The inspectors determined that the in-house events assessment group was appropriately fulfilling the responsibilities assigned by Site Procedure W2.501, Revision 11.

The inspectors reviewed the in-house events assessment group's condition report database and determined that over 1600 condition reports had already been initiated in 1996 and 2172 condition reports had been initiated in the 12 months preceding the inspection. The inspectors were informed by the licensee that 346 condition reports were initiated in 1993, 1182 condition reports were initiated in 1994, and 1373 condition reports were initiated in 1995. The inspectors noted the increasing trend of condition reports and the significant increase of condition reports initiated in the past 12 months. The inspectors discussed the trend with various licensee personnel at the working, the supervisory, and the management

level. Licensee personnel consistently attributed the increase to both the revision of the condition report threshold specified by the procedure and the encouraged and indoctrinated management expectations for identification and correction of conditions adverse to quality that was being emphasized by the relatively new site management team.

#### Condition Report Backlog

The inspectors determined that the licensee had a large condition report backlog. Although 1876 condition reports had been closed in the past 12 months, 879 were still open. Engineering was assigned responsibility for 262 of the open condition reports. The inspectors discussed the backlog with the engineering manager and were informed that reduction of engineering backlogs, including the condition report backlog, was being addressed by the "Waterford 3 Focus Plan" which was issued to "revitalize Waterford 3's performance." The engineering manager further informed the inspectors that his current objective was to complete condition report resolution as effectively and accurately as possible. The inspectors noted that the plan addressed engineering backlogs, but also noted that no goals had been set to reduce the condition report backlog. The inspectors reviewed a listing of open condition reports and did not identify any conditions that required more timely closure of the condition reports.

#### Condition Report Trending

The inspectors noted that the in-house events assessment group had issued a condition report trend report every quarter as required by Administrative Procedure UNT-006-018, "Condition Report Trending," Revision 4. The inspectors discussed the third quarter report with the in-house events assessment group supervisor. The inspectors observed that condition report trends were maintained for administrative controls, configuration controls, equipment problems, and work practices in numerous areas including operations, maintenance, and engineering. The inspectors noted that the reports identified adverse and degraded trends in several areas including operations work practices due to the previously discussed Technical Specifications limiting condition for operations problems. The inspectors determined that the condition report trending reports provided a good management tool for recognizing and addressing condition report trends. The inspectors concluded that the in-house events assessments group was appropriately fulfilling its trending responsibilities assigned by Site Procedure W2.501, Revision 5, and Administrative Procedure UNT-006-18, Revision 4.

#### Equipment Failure Monitoring and Trending

The licensee performed equipment failure monitoring and trending in accordance with Administrative Procedure UNT-006-003, "Equipment Failure Trending", Revision 2. The inspectors determined that maintenance engineering maintained trends of rework using a computer program to compare work authorization

documents or condition identification tags issued the current quarter against those for previous quarters. The intent was to look for components that have been worked twice and then to determine whether the existing maintenance performed on the equipment needed to be re-evaluated. The maintenance engineer published a quarterly trend report.

The inspectors reviewed the latest equipment trend data, kept by a maintenance engineer, through the second quarter 1996. The inspectors noted that equipment trend data for the second quarter 1996 identified the auxiliary component cooling water system as being degraded. However, the licensee had already noted this condition and classified this system as A(1) in accordance with the NRC Maintenance Rule. Therefore, the system was already targeted with a recovery plan and was in an enhanced monitoring mode. The inspectors also noted that the maintenance engineering staff was approximately one month late in publishing the latest quarterly trend report. The licensee stated that the engineer assigned this responsibility was detailed to work on preparations for implementation of the NRC Maintenance Rule. The licensee assigned no additional resources to work on equipment trending during this time.

#### Use of Plant Risk Information

The inspectors reviewed the process that the licensee uses to quantitatively determine plant risk on a daily basis. The inspectors observed performance of the calculation of the risk profile for October 24, 1996, by a licensee work scheduler. The scheduler considered data for plant configuration and any expected out-of-service time for equipment. The scheduler incorporated any necessary multipliers for environmental factors, such as scheduled switchyard work, into the plant risk calculation. For example, the safety index for October 24, 1996, was calculated to be 9.6. This number indicated that the anticipated plant configuration due to equipment out of service for maintenance or other activities were acceptable from a risk standpoint. The inspectors noted that the risk factor was posted at conspicuous places throughout the plant, including on the cover sheet for the plan of the day. The inspectors inquired how the licensee incorporated emergent work into the risk calculation. The inspectors were informed that the calculation was re-performed by either the shift supervisor or another cognizant scheduler when emergent work occurred.

#### c. Conclusions

The inspectors concluded that the licensee had established a corrective action program that included many good facets. Condition Review Board activities associated with condition reports and root-cause analyses, and condition report trending, were strengths of the program.

#### 07.4 Operating Experience Feedback

##### a. Inspection Scope (40500)

The inspectors reviewed the implementation of the licensee's operational experience feedback program to determine the program's effectiveness in assessing, documenting, and informing appropriate plant personnel of significant plant events in an effort to prevent their occurrence at the plant. The inspectors reviewed the procedures and operational experience reports listed in the attachment to this inspection report.

##### b. Observation and Findings

The inspectors determined that the administrative procedures provided clear directions for forwarding information regarding events to appropriate licensee review personnel. In addition, the procedures provided instructions for evaluating industry and in-house events. The inspectors determined that Procedure OEEP-103, "Operating Experience Review," specified responsibilities and instructions for screening, evaluating, and followup actions for industry and in-house events.

The inspectors noted that the operational events were screened for applicability to Waterford 3 by the operational experience engineering group. If the event was applicable and/or significant to Waterford 3, then an evaluation was performed by the operational experience engineering group. The inspectors determined that the responsible operational experience engineer performed investigations, interviews, and research as necessary to perform a detailed and thorough evaluation. The inspectors determined that technical input was requested from responsible individuals in other departments. An evaluation report was prepared by the operational experience engineer for each operational experience that was reviewed. The evaluation report for each event included the following information.

- Subject of the event;
- Event analysis as applicable to Waterford 3;
- Operational experience engineering suggestions for improvement, if any; and
- Operational experience engineering recommendations, if any.

The inspectors determined that evaluation followup of events was an integral part of the operating experience review program. The operational experience engineering group tracked all approved recommendations through completion of the recommended action. During interviews with operational experience engineers, the inspectors determined that the operational experience engineer confirmed the adequacy of objective evidence (documentation) to verify completion of recommended actions. The inspectors observed the verification performed by one operational experience engineer. The operational experience engineer checked to ensure that procedures were revised as recommended by the operational experience engineering evaluation report.

The inspectors observed that the operational experience engineering group maintained the status of evaluations and the disposition of operational experience engineering recommendations. The inspectors determined that operational experience engineering issued a status report monthly to the nuclear safety director and responsible directors. The inspectors noted that these monthly status reports listed all evaluations that were out for implementation, or technical review and evaluations that were completed during the month. The inspectors reviewed four of the recent monthly status reports. The inspectors determined that the report was accurate. The inspectors also determined that evaluations and recommended actions were being processed in a timely manner.

The inspectors reviewed several operational events and determined that the operational experience engineers screened applicability for Waterford 3 correctly, and they either evaluated the operational event, or forwarded the event to plant staff for evaluation. The inspectors observed that the evaluations were detailed. The inspectors also observed that the recommendations and suggestions for improvement that were contained in the evaluation reports were appropriate.

The inspectors noted one good example of an evaluation performed by the operational experience engineering group. The event reviewed was a fire that had occurred near the reactor coolant pumps oil collection system at the Arkansas Nuclear One, Unit 1, facility on October 17, 1996. The operational experience engineering group initiated independent Technical Record 96-063, which was a data acquisition and investigation effort to determine Waterford 3's vulnerability to a similar reactor coolant pump oil fire. The inspectors determined that the licensee investigation was prompt and extensive. The conclusions of the review, as documented in the technical record, was that the Waterford 3 reactor coolant pump oil collection system met the requirements of 10 CFR 50, Appendix R. Also, the technical record indicated that the oil collection system, as installed at Waterford 3, when compared to the Arkansas Nuclear One arrangement, was of a superior design. At Waterford 3, accessibility to the collection tank was possible during operation. The record indicated that tank level monitoring allowed for immediate determination if leakage was occurring.

The inspectors attended a plant issues meeting on November 6, 1996, where the conclusions of this technical record were presented. The operational experience engineer's briefing was detailed and provided appropriate conclusions that Waterford 3's reactor coolant pump oil collection system was satisfactory.

c. Conclusions

The inspectors concluded that the operating experience feedback program was being effectively implemented.

## 07.5 Observation of Licensee Work Activities and Plant Material Conditions

### a. Inspection Scope (40500)

The inspectors performed walkthrough inspections of the various areas of the plant and observed licensee work activities in progress. The inspectors observed plant material condition to determine if conditions adverse to quality were being appropriately identified and corrected. The inspectors observed work activities to ascertain that the licensee's corrective action programs were being appropriately implemented. Specifically, the inspectors performed the following activities.

- The inspectors performed walkthrough inspections of the control room to ascertain that conditions adverse to quality were being appropriately identified and corrected. The inspectors observed operations crew shift activities.
- The inspectors accompanied nonlicensed operators during performance of their assigned area tours.
- The inspectors performed a plant walkdown of various areas, including rooms for the safety injection pumps, shutdown cooling pumps and heat exchangers, auxiliary feedwater pumps, emergency diesel generators, and component cooling pumps and heat exchangers. The inspectors performed the walkdowns to observe performance of equipment and to determine if licensee personnel were identifying conditions or defects that may be detrimental to plant safety.
- The inspectors observed performance of the maintenance in accordance with Work Authorization 01151831, "Replace Internal Valves On Charging Pump A," and Work Authorization 01119866, "Replace Pump Packing On Charging Pump A."
- The inspectors performed a walkthrough inspection of the air-start system for both emergency diesel generators with the diesel generator system engineer to determine if the licensee's corrective action program was being appropriately implemented.

### b. Observations and Findings

During walkthrough inspections of the control room, the inspectors observed approximately 20 condition identification tags on various plant equipment. The inspectors determined that the control room crew had good knowledge of the identified conditions and were generally aware of corrective actions for the identified conditions. The inspectors also noted that there were few lit annunciators in the control room. On one occasion, the inspectors noted that the control room had no lit annunciators.

The inspectors observed positive command and control by the control room operations crew. The inspectors noted that permission was needed to enter the control board area. The inspectors observed that the crew announced operation of equipment prior to starting, and observed effective three-way communications between crew members. The inspectors observed that alarm annunciators were acknowledged and announced to the whole control room whether the alarm was expected or routine. However, the inspectors did not observe any operators referring to, and using, the annunciator alarm response procedures. The inspectors discussed this practice with the control room supervisor. The control room supervisor stated that operations management's expectations, and the alarm response procedures requirements, were that the first time a new alarm came in, the operators were required to use the alarm response procedure to ensure the immediate actions were being properly performed. The inspectors also determined that the annunciator response procedure was not required to be used for subsequent annunciator alarms, on the same shift. The inspectors were not able to ascertain that any of the observed annunciator alarms were "new" alarms.

The inspectors observed a pretest briefing conducted by the operations crew for a special test required by Work Authorization O1151879 for component cooling water Check Valve CCW 181. The inspectors noted that the briefing was detailed, provided contingency actions, identified who was in charge of the test (shift technical advisor), and assigned personnel and stations needed during the test. The inspectors observed that all applicable personnel, including craft and operators, attended the briefing. The inspectors noted that the briefing was observed by members of the operations management staff. Operations management participated in the briefing and stated why the test was being performed. The inspectors noted that the briefing concluded with a brief summary of the test and expected actions of personnel. The inspectors noted that the test personnel were provided an opportunity to ask any additional questions. No questions were asked.

During the walkthrough inspections of rooms for the safety injection pumps, shutdown cooling pumps and heat exchangers, auxiliary feedwater pumps, emergency diesel generators, and component cooling pumps and heat exchangers, the inspectors found equipment operability, material condition, and housekeeping to be acceptable. However, the inspectors noted several minor oil and packing leaks on various pieces of equipment. The licensee had installed temporary catch attachments to capture leakage from the various components. The inspectors observed that condition identification tags had been written for the leaking components.

The inspectors identified other minor maintenance items for which no condition identification tags were hanging. One example was a loose bolt and a gap in Junction Box B3284-NB for Containment Spray Pump B motor heaters and

thermocouple leads. The licensee promptly corrected the noted conditions. The inspectors identified no operability concerns associated with the noted conditions. The inspectors determined that the licensee's response for the conditions observed by the inspectors were appropriate.

The inspectors also observed that fasteners on the turbine-driven emergency feedwater pump stop valve MS-416 trip solenoid were missing lockwashers. The inspectors observed no condition identification tag for the missing lockwashers. The licensee prepared a condition identification tag for this item. This item was a concern because licensee personnel had inspected other components on this valve for missing fasteners and had not recognized the missing lockwashers. This item is discussed further in Section O8.1 of this report.

The inspectors found that charging pump maintenance activities performed in accordance with Work Authorizations O1151831 and O1119866 were performed in an acceptable manner. The work packages and vendor manual were present and in active use. The maintenance procedures appropriately included vendor recommended instructions. The inspectors observed maintenance supervisors monitoring job progress. Quality control personnel were present when required. Procedures and drawings were clear and unambiguous. Housekeeping and foreign material exclusion controls were satisfactory.

The inspectors determined that the emergency diesel engine starting system was described in the Waterford Unit 3 Updated Final Safety Analysis Report, Revision 7, and in Cooper-Bessemer Drawing KSV-48-11, "Starting Air Schematic," Revision 11. The inspectors did not identify any differences between the Updated Final Safety Analysis Report description, the vendor schematic drawing and the installed configuration during the walkthrough inspection of the starting air system for both emergency diesel generators. As previously noted in this inspection report, the inspectors observed more than five condition identification tags on the emergency diesel generator systems that identified conditions that the emergency diesel generator system engineer had identified by means of condition identification forms. The inspectors also observed that the diesel generator system engineer had a good understanding of the noted conditions and the status of corrective actions associated with the identified conditions.

During the walkthrough inspection of the emergency diesel generator starting air system on November 6, 1996, the inspectors noted that air receiver pressure gages EGA-IPI-3002A1 and EGA-IPI-3002A2, located on the local emergency diesel generator control panel, indicated a receiver air pressure that was approximately 10 psig lower than the pressure indicated by corresponding gages, EGA-IPI-3001A1 and EGA-IPI-3001A2, located on top of the air receivers. The inspectors noted that local operation of the emergency diesel generators would be performed, when necessary, at the local control panel. The emergency diesel generator system engineer initiated Condition Identification Form 305938 to troubleshoot and determine the cause of the observed condition and to correct the condition. The observed condition adverse to quality had not been previously identified by the licensee by means of a condition identification form or a condition report, and had

not been corrected. This failure constitutes a violation of minor significance and is being treated as a non-cited violation, consistent with Section IV of the NRC Enforcement Policy (50-382/9623-03).

During the walkthrough inspection, the inspectors asked the emergency diesel generator system engineer what moisture or corrosion surveillances were being performed for the carbon steel air receivers. The system engineer subsequently determined and informed the inspectors that operations had a task to drain the receivers every 4 weeks to check for moisture. In addition, the inspectors were informed that the receivers were drained every refueling outage. Because of the inspector's questions regarding receiver corrosion, and other "recent events" (the system engineer did not elaborate what the recent events were), the system engineer requested an ultrasonic test wall thickness measurement of the receivers.

The inspectors determined that Calculation GA-DP-004B was an ASME ND-3324.3 and ND 3324.6 calculation for design wall thickness of the receivers' shell and elliptical heads, respectively. The calculation required the use of 0.500-inch thick plate for the shell and 0.500-inch thick elliptical heads based on calculated minimum design wall thicknesses of 0.4817 inches and 0.4767 inches, respectively. The inspectors noted that the ultrasonic wall thickness measurement was an informational test that determined wall thickness at seven locations horizontally across the bottom of each receiver. The test report noted three locations on Receiver A2 that were less than the specified 0.500-inch wall thickness, 0.470, 0.484, and 0.494 inches. In addition, the inspectors noted that one of the areas measured had a wall thickness that was slightly less than the design minimum wall thickness of 0.4817 inches and was already using up some of the designed corrosion wall thickness allowance of 0.0625 inches.

The licensee determined that the receivers were still capable of performing their functions. The inspectors questioned the design-life capabilities of the receivers based on the reduction of the corrosion margin and the actions that the licensee needed to take to determine and monitor any potential corrosion problem. Subsequent to the inspection, the licensee issued Condition Report 96-1792 to evaluate and resolve the noted conditions. This will be followed as an inspection followup item pending further NRC review of licensee evaluations and corrective actions for Condition Report 96-1792 (50-382/9623-04).

c. Conclusions

The inspectors concluded that conditions were generally being appropriately identified and corrected. However, the inspectors identified three conditions that had not been previously identified and that required evaluation and correction.

## 07.6 Self-Assessment Activities

### a. Inspection Scope (40500)

The inspectors reviewed the quality assurance audit procedures, audit reports, and self-assessment reports listed in the attachment to this inspection report. The inspectors discussed the audits and assessments with quality assurance, operations, and maintenance personnel. The inspectors reviewed the audits and self assessments to determine their effectiveness.

### b. Observations and Findings

The inspectors determined that the procedures provided appropriate requirements for required audits and self-assessment activities. The inspectors determined that Attachment 7.1 of Quality Assurance Procedure QAP-305, Revision 6, provided a schedule of required audits for 1995 and 1996. The inspectors determined that audits were being performed within require frequencies.

The inspectors determined that the Waterford 3 operations assessment conducted in January 15-19, 1996, was self critical and identified many issues. The inspectors observed that the assessment identified the following operations program strengths:

- Creation of a shift support center moved the performance of administrative work outside the control room. This significantly improved control room performance because of reduced work load on control room personnel and traffic in the control room. In addition, it allowed the control room to focus more on those plant evolutions that required heightened awareness, and minimized distractions.
- Peer checks during reactivity manipulations provided defense in depth to errors during power changes. Reactivity changes were required to be monitored by another licensed individual as a part of the STOP, THINK, ACT, REVIEW principle and were used consistently by operators in the control room.
- Overall willingness of the operators to respond positively to criticism.

The inspectors observed that the previously noted operations assessment also identified the following areas for improvement:

- In the operations simulator training, two issues were noted. First, inconsistent critiques were identified during the post-simulator critiques; and second, there was a lack of senior operations management involvement in the simulator training process.

- In the alarm response compliance area of operations, two issues were presented. The announcement of alarm receipt and use of alarm response procedures was inconsistent between crews, and the amount of detail in the alarm response procedures was inconsistent.

The inspectors noted that the team that performed the self-assessment was a multi-disciplined team. The team included senior operations personnel from four different sites, which provided additional insight on how the different sites conduct operations.

In contrast, the inspectors noted that Quality Assurance Service Assessment 96-005, "Operator Assessment of Questioning Attitudes and Plant Ownership," was not rigorous. The inspector determined that the assessment, conducted September 10, 1996, was a survey that had only ten operator respondents. The inspectors determined that the service assessment conclusions about the operators and their attitudes were based on a small sample of operators, and could not be indicative of all operations personnel.

The inspectors interviewed licensee personnel who performed the operations self assessments, as well as audited personnel. During the interviews, the inspectors determined that the self assessments were considered by licensee management to be effective in identifying problems or conditions adverse to quality. As identified in the operations assessment described above, the inspectors noted that operation of the shift support center outside of the control room reduced work load on control room personnel and traffic in the control room.

The inspectors determined that the in house events analysis group conducted "effectiveness of corrective actions" reviews. The effectiveness reviews were conducted to assure that the corrective actions implemented have prevented the event problems from recurring. For example, Quality Assurance Survey QS-96-034, conducted in April, 1996, evaluated the effectiveness of corrective actions for Condition Report 94-0805. The inspectors determined that the Condition Report 94-805 identified that the boron standard used for calibrating chemistry hot laboratory boron autotitrator was found to vary in concentration by as much as 3.1 percent on 1000 ppm standards. The survey determined that the implemented actions were effective in preventing the recurrence. The inspectors verified by a review of the quality assurance condition report database that no repeat or similar problems had occurred.

Quality Assurance Audit SA-96-029.1 was performed from July 15, 1996, through August 20, 1996, in the maintenance area. The inspectors determined that the audit provided a limited assessment since several areas of the maintenance program were in transition. For example, the planning and scheduling functions were in the process of implementing corrective actions in response to findings from other organizations. The ownership and method of gathering and disseminating equipment trend information was likewise in transition. Areas where the program was not in transition were addressed adequately, some better than others. An example of a good discussion where problems were specifically identified was in the

minor maintenance area and in the area of in-process work. An example of a weak discussion was in the discussion of the maintenance backlog. Although the number of corrective maintenance items was stated as totalling 362, there was no discussion on the age of the items or their significance. Further, the licensee did not assess status of any late or overdue preventive maintenance items.

In addition, the inspectors noted examples where the maintenance audit did not address findings by other groups. For example, the maintenance audit report concluded that the maintenance program was being conducted in an effective manner, yet the report did not address adverse trends in work practices and equipment problems as indicated by condition report trending performed and disseminated by the in-house events assessment group. The inspectors also noted that three of the four findings of the maintenance audit attributable to engineering functions. However, the program assessment portion of the report only assessed maintenance effectiveness and did not assess the apparent engineering weaknesses.

The inspectors noted that the maintenance line organization did not attend the exit meetings. In the recent maintenance audit, only one maintenance person, the maintenance department manager, attended the exit meeting. The inspectors learned that up until a few months ago, supervisors and management personnel did not attend quality assurance exit meetings.

The most recent maintenance self assessment was performed in early February 1996 in the planning and scheduling area. This assessment provided limited meaningful information since planning and scheduling program changes have been underway since the self assessment was performed.

c. Conclusions

The inspectors concluded that audits and assessments performed by the quality assurance organization were of mixed quality. Some audits were good while other were narrowly focused, and on occasion, added little value to the effective implementation of the corrective action program and safe operation of the plant.

07.7 Onsite and Offsite Safety Review Committee Activities

a. Inspection Scope (40500)

The inspectors reviewed the review committee procedures and committee meeting minutes listed in the attachment to this inspection report to evaluate the effectiveness of the committees.

b. Observations and Findings

The inspectors determined that Quality Assurance Program Manual, Chapter 1, provided appropriate requirements for the offsite safety review committee, called the Safety Review Committee at Waterford 3, and the onsite safety review

committee, called the Plant Operations Review Committee at Waterford 3. The inspectors determined that the procedure included the requirements previously contained in the Waterford 3 Technical Specifications, Section 6.5, "Review and Audit." The inspectors determined that differences between Quality Assurance Program Manual, Chapter 1, and the requirements previously contained in the Waterford 3 Technical Specifications, Section 6.5, resulted from a change to Quality Assurance Program Manual, Chapter 1, and were administrative in nature. The licensee performed a 10 CFR 50.59 evaluation for the change and determined that the change was not an unreviewed safety question. The licensee's evaluation was appropriate.

The meeting minutes for the Safety Review Committee and Plant Operations Review Committee meeting indicated that the committee's were fulfilling the responsibilities that were assigned to them by Quality Assurance Program Manual, Chapter 1.

c. Conclusions

The inspectors concluded that the safety review committee and plant operations review committee were fulfilling their assigned responsibilities.

08 Miscellaneous Operations Issues (40500)

08.1 (Closed) Follow-Up Item 50-382/9612-03:

The inspectors followed up a previously identified concern regarding the licensee's use of questionable or missing fasteners in various applications. Details on the background and initial licensee response can be found in NRC Inspection Report 50-382/96-12. The inspectors reviewed the results of the licensee's inspections for fastener discrepancies documented in Condition Report CR-96-1528. Also, the inspectors discussed the root-cause analyses and proposed corrective actions developed by the licensee to date. In addition, the inspectors discussed with the licensee preliminary root-cause analyses results to determine if the issue was being fully bounded.

The licensee performed inspections for discrepant fasteners on motor-operated valves, air-operated valves, diesel generators, and other electrical, instrumentation and control, and mechanical components. The licensee looked for discrepant fasteners and missing lockwashers. For fasteners, the licensee looked at whether the fastener was missing, loose, or constructed of the wrong material (as evidenced by failure to attract when exposed to a magnet). For lockwashers, the licensee looked for whether a lockwasher was missing or the wrong size.

Motor-Operated Valves

The licensee examined 1200 fasteners on all 78 safety-related and Generic Letter 89-10, Category 1 motor-operated valves. The scope of the inspection centered on the limit switch housing cover, motor mounting, yoke mounting, top housing, and spring cartridge fasteners.

The licensee found 9 of the 78 motor-operated valves had some type of fastener discrepancy, excluding lockwasher discrepancies. Seventy of the 78 motor-operated valves had discrepancies when lockwasher discrepancies were included. The licensee replaced all critical load-bearing fasteners and had plans to replace all other fasteners at an appropriate time. The licensee performed operability reviews on each motor-operated valve found with questionable fasteners and determined that none of the motor-operated valves were inoperable.

#### Air-Operated Valves

The licensee examined 1900 fasteners on approximately 20 percent of the 233 safety-related air-operated valves. The licensee had plans to inspect all safety-related air-operated valves in the near future. The licensee found 22 missing fasteners on 13 of the air-operated valves, 32 missing lockwashers on 16 air-operated valves, and 37 fasteners with different material than specified on 13 air-operated valves. The licensee was in the process of replacing the discrepant fasteners. The licensee performed operability reviews and found no air-operated valves to be inoperable.

#### Emergency Diesel Generators

The licensee examined approximately 800 fasteners on both emergency diesel generators. The licensee found 35 lockwashers either missing or of different material than specified. The licensee found 7 fasteners loose and 4 more fasteners of different material than specified. The licensee found no operability concerns and was in the process of replacing the discrepant fasteners.

#### Electrical

The licensee examined over 2800 fasteners on various safety-related electrical components. The licensee inspected external fasteners on electrical panels, all fasteners on the station batteries, and all terminations on two Class 1E relay panels. The licensee found 74 missing lock or flat washers, 15 loose fasteners, and 8 fasteners with different material than that specified. The licensee was in process of tightening or replacing the discrepant fasteners and found no operability concerns.

#### Instrument and Control

The licensee examined over 600 fasteners on various instrument tubing and associated mounting hardware. The licensee found 25 missing lock or flat washers, 6 loose fasteners, and 3 fasteners with different material than that specified.

## Mechanical

The licensee examined over 2300 fasteners on 26 components. These consisted of major safety-related pumps, hydramotor valves, supports, and ventilation equipment. The licensee found 7 missing flat washers, no loose fasteners, and 26 fasteners with different material than that specified. The licensee found no operability concerns.

In addition to the above, the licensee's quality assurance organization reviewed a random sample of 157 safety-related work packages from 1990 to the present time. The licensee reviewed the parts list for each work package to ensure that all parts were either safety-related or properly dedicated for use in safety-related equipment. The licensee reviewed approximately 300 parts. The licensee identified one fastener problem related to a nonqualified bolt issued for installation on a coupling guard on a containment spray pump. The licensee replaced the bolt with a qualified bolt. The licensee stated that more material control inspections were planned to determine if a material control problem exists. The quality assurance organization had initiated an action plan to carry out the inspections.

The inspectors performed walkdowns to identify any obvious fastener discrepancies missed by the licensee. During one walkdown on October 25, 1996, the inspectors noticed two missing lockwashers on the turbine-driven emergency feedwater pump stop valve MS-416 trip solenoid. The licensee initiated Condition Identification Tag 305736 to evaluate whether lockwashers should be installed on the trip solenoid. The inspectors were unable to confirm during the inspection whether or not the lockwashers were required by applicable valve drawings or specifications. Pending the inspectors review of the licensee's evaluation, this will be followed as a new inspection followup item (50-382/9623-02).

The inspectors reviewed the licensee's root-cause evaluations and corrective actions for the fastener discrepancies. The licensee was performing final reviews on the root cause analysis report and corrective actions document during the inspection. The report was not approved and issued by the close of this inspection. However, based on discussions with licensee personnel the following preliminary root causes were identified:

- It was difficult for workers to find the correct fastener to use. Plant procedures and valve drawings provided inadequate guidance. Vendor manuals either had no information or difficult to find information.
- No training was given to electricians or instrumentation and control personnel on use of fasteners, particularly lockwashers. Personnel did not know for a given application if lockwashers were required or not. Some training was given to mechanics because of the nature of mechanical work on ASME components.

- There was inattention to detail by workers. The licensee found two motor-operated valves with missing fasteners. Personnel who had worked on the valves did not notice the missing fasteners and did not take action to install a correct fastener.
- Management expectations on use of fasteners were either not enforced or were confusing. Plant work control procedures did not emphasize the importance of using correct fasteners. Workers could use a non-qualified fastener in a safety-related application and not violate work procedures. Also, the licensee's "zone ownership" program provided no specific direction what to do if personnel discovered a missing fastener.

The inspectors determined during discussions of the problem with licensee personnel that the licensee had performed or was planning to perform the following corrective actions:

- The maintenance manager sent a letter to all maintenance personnel, including planners, supervisors, and craft that stated the management expectations regarding use of correct fasteners.
- Formal training on the use of correct fasteners would be provided to new and existing personnel.
- Procedures, drawings, and vendor manuals lacking guidance on use of correct fasteners would be improved.

The inspectors noted that the licensee's root-cause evaluations were not addressing whether or not the licensee's self-checking and independent verification process was adequate or needed to be enhanced. The licensee informed the inspectors that self-checking and independent verification were not required to be performed for the identified discrepant fasteners, and, as such, were not considered as potential root causes of the problem.

c. Conclusions

The licensee's in-progress root-cause analysis and corrective actions for previously identified fastener discrepancies were generally appropriate. Although the licensee did not appear to be fully addressing the adequacy of the self-checking or independent verification process associated with the fastener discrepancies, the licensee had inspected a broad range of fasteners and determined that none of the identified discrepancies adversely affected the equipment's operability.

## V. Management Meetings

### X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on October 4, 1996, and during a conference call conducted October 9, 1996. The final inspection results were also discussed with Mr. Tim Gaudet on January 9, 1997. The licensee acknowledged the findings presented. The licensee did not identify as proprietary any of the information presented to the inspectors during the inspection.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Allen, Manager, Operational Experience Engineering  
R. Azzarello, Manager, Maintenance  
R. Burski, Director, Plant Modification and Construction  
P. Caropino, License coordinator, Licensing  
A. Cilluffa, Supervisor, Maintenance/Plant Engineering  
G. Davie, Manager, Quality Assurance  
F. Drummond, Director, Site Support  
C. Dugger, General Manager, Plant Operations  
G. Fey, Supervisor, In House Events Analysis  
J. Fisicaro, Director, Nuclear Safety  
C. Fugate, Shift Superintendent, Operations  
T. Gaudet, Manager, Licensing  
P. Gropp, Supervisor, Design Engineer Mechanical  
J. Houghtailing, Technical Assistant, Design Engineering  
J. Howard, Manager, Procurement/Programs Engineering  
D. Litolff, Licensing Engineer  
D. Marpe, Maintenance  
D. Matheny, Manager, Operations  
T. Murphy, Manager, Site Services  
O. Pipkins, Engineer, Licensing  
B. Proctor, Supervisor, Systems Engineering Mechanical  
L. Rushing, Manager, Design Engineer Mechanical/Civil  
G. Scott, Engineer, Licensing  
M. Sellman, Vice President Nuclear Operations  
P. Snowden, Engineer, Licensing  
J. Thomas, Supervisor, Licensing  
B. Thweatt, Supervisor, Design Engineering  
T. Tuller, Reactor operator, Operations  
D. Vinci, Manager, Plant Engineering  
A. Wemett, Shift Superintendent, Operations  
A. Wrape, Director, Design Engineering

NRC

D. Proulx, Acting Senior Resident Inspector  
T. Pruett, Resident Inspector  
G. Werner, Project Engineer

## INSPECTION PROCEDURES USED

IP 40500      Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems

### ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

50-382/9623-01	NCV	Failure to Identify and Preclude Conditions Adverse to Quality, two examples, (Section 07.1.b).
50-382/9623-03	NCV	Failure to identify inaccurate EDG air receiver pressure gage, (Section 07.5.b).
50-382/9623-04	IFI	Evaluation of Wall Thickness of EDG Receivers, (Section 07.5.b).
50-382/9623-02	IFI	Missing Lockwasher on MS-416 Trip Solenoid, (Section 08.1).

#### Closed

50-382/9612-03	URI	Missing or Incorrect Fasteners, (Section 08.1).
50-382/9623-01	NCV	Failure to Identify and Preclude Conditions Adverse to Quality, two examples, (Section 07.1.b).
50-382/9623-03	NCV	Failure to identify inaccurate EDG air receiver pressure gage, (Section 07.5.b).

### LIST OF DOCUMENTS REVIEWED

#### Licensee Procedures

- Quality Assurance Program Manual, Chapter 1, "Organization," Revision 11
- Quality Assurance Program Manual, Chapter 18, "Audits," Revision 5
- Quality Assurance Procedure 024, "Conduct of Quality Assurance Process Surveys," Revision 2.0
- Quality Assurance Procedure 026, "Conduct of Quality Assurance Service Assessments," Revision 2.0

- Quality Assurance Procedure 302, "Conduct of Quality Assurance Audits," Revision 15
- Quality Assurance Procedure 305, "Planning and Scheduling Quality Assurance Audits," Revision 6
- Quality Assurance Self-Assessment Instruction, Revision 4
- Operational Experience Engineering Procedure OEEP-103, "Operating Experience Review," Revision 2
- Operational Experience Engineering Procedure OEEP-104, "Assessments," Revision 1
- Site Procedure W2.501, "Corrective Action," Revision 5
- Administrative Procedure UNT-005-002, "Condition Identification," Revision 11
- Administrative Procedure UNT-006-003, "Equipment Failure Trending," Revision 2
- Administrative Procedure UNT-006-018, "Condition Report Trending," Revision 4

#### Licensee Event Reports

- 96-02, "Technical Specification Limiting Condition for Operation Exceeded Due to Nonconservative Application of the Technical Specification"
- 96-03, "Log Power Channel Indicating 5% of Scale Below Actual Power"
- 96-06, "Reactor Trip due to Failure of Control Element Drive Motor Generator Set Voltage Regulator"
- 96-08, "Loss of Chemical Volume Charging Pump Flow"
- 96-12, "Containment Spray Valve 118A Discovered 1.5 Turns Off its Closed Seat"

#### Condition Reports

- 95-0489 - Solenoid valve problems
- 95-1093 - Adverse trend identified regarding compliance with clearance process
- 95-1137 - Incorrect problem code identified by operations assessment
- 96-0234 - Isolation of half the wet cooling tower spray nozzles restricts auxiliary component cooling water flow and places the plant in an unanalyzed condition

- 96-0272 - Valves had not been explicitly tested in the inservice test plan in accordance with Technical Specification 4.0.5
- 96-0468 - Incorrect pump tagged out. Electrically tagged out, but not mechanically
- 96-0490 - Controlled ventilation area system boundary air lock doors were found to have leaking seals
- 96-0497 - Adverse trend identified regarding compliance with Technical Specification limiting condition for operations
- 96-0526 - Adverse trend identified regarding compliance with work control and clearance process
- 96-0577 - Installed configuration of molded case circuit breakers did not match the tested configuration
- 96-0841 - Inservice Test baseline for Emergency Feedwater Pump AB did not appear to be correct
- 96-0878 - Terry turbine supply system piping was being maintained at approximately 215 degrees fahrenheit, which was a degraded condition according to the information in the Final Safety Analysis Report
- 96-1011 - Valves were discovered out of service (inoperable) but were being relied on to fulfill a safety function
- 96-1406 - Five steel plates associated with seismic supports have gaps under them
- 96-1486 - Outer maintenance door on the Q-deck was identified as being held close by a 2-ton chain fall
- 96-1583 - Thirty five fire brigade and licensed operators have not maintained respirator fit qualifications
- 96-1591 - Electrical cable for essential components not protected from tornado generated missiles

#### Root-Cause Analysis Reports

- Root-cause analysis report for Condition Report 96-0497, "Technical Specification Recognition/Implementation," dated June 19, 1996
- Root-cause analysis report for Condition Report 96-0526, "Continuing Problems with the Work Control/Clearance Processes," dated May 6, 1996

### Industry Information Documents

- Information Notice 96-01, "Potential for High Post Accident Closed Cycle Cooling Water Temperature to Disable Equipment Important to Safety"
- Information Notice 96-02, "Inoperability of Power Operated Relief Valves Masked by Downstream Indications During Testing"
- Information Notice 96-03, "Main Steam Safety Valve Setpoint Variation as a Result of Thermal Effects"
- Information Notice 96-06, "Design and Testing Deficiencies of Tornado Dampers at Nuclear Plants"
- Significant Event Record 01-96, "Transformer Explosion and Loss of Off-site Power"
- Significant Event Record 03-96, "Failure to Perform Reactor Scram and Turbine Trip when Test Limits were exceeded"
- Generic Letter 96-04, "Boraflex Degradation in Spent Fuel Pool Storage Racks"

### Quality Assurance Audits, Assessments, and Associated Documents

- Waterford 3 Operations Assessment; performed between January 15-19, 1996
- Waterford 3 Quality Assurance Assessment No. 96-05, "Operator Assessment of Questioning Attitudes and Plant Ownership," conducted September 10, 1996
- Waterford 3 Quality Assurance Process Survey QS-96-034, "Evaluate the Effectiveness of Corrective Actions for Significant Condition Report 94-0805"
- Waterford 3 Quality Assurance Audit Report SA-96-029.1, "Maintenance," conducted July 15, 1996 through August 20, 1996
- Interoffice Correspondence from the quality assurance manager to distribution (including senior site managers), "Update of the QA Audit Schedule," dated November 7, 1996

### Review Committee Meeting Minutes

- Safety Review Committee Meeting 96-01 Minutes, January 1996
- Safety Review Committee Meeting 96-02 Minutes, July 1996
- Safety Review Committee Meeting 96-03 (Unscheduled) Minutes, August 1996
- Plant Operations Review Committee Meeting 96-095 Minutes, September 19, 1996

- Plant Operations Review Committee Meeting 96-096 Minutes, September 20, 1996
- Plant Operations Review Committee Meeting 96-099 Minutes, September 26, 1996

Work Authorizations

- Work Authorization 01151831, "Replace Internal Valves On Charging Pump A"
- Work Authorization 01119866, "Replace Pump Packing On Charging Pump A"