SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE REPORT
WATERFORD STEAM ELECTRIC STATION, UNIT 3
50-382/96-99

I. BACKGROUND

The SALP Board convened on December 4, 1996, to assess the nuclear safety performance of Waterford 3 for the period April 29, 1995, through November 30, 1996. The Board was conducted in accordance with Management Directive 8.6, "Systematic Assessment of Licensee Performance." The Board members included: K. E. Perkins (Board Chairperson), Director, Walnut Creek Field Office, Division of Reactor Projects; K. E. Brockman, Deputy Director, Division of Reactor Safety; and W. D. Beckner, Director, Project Directorate IV-1, Office of Nuclear Reactor Regulation. This assessment was reviewed and approved by the Regional Administrator.

Functional Areas and Ratings

	Current	Previous
Plant Operations	2	2
Maintenance	2	1
Engineering	3	1
Plant Support	2	1

II. PLANT OPERATIONS

Overall safety performance in Operations was good. The training program and the experience of the operating crews were considered to be strengths. Weaknesses were identified with operator tolerance of degraded plant material conditions and poor support from other organizations, difficulty in recognizing situations that required entry into Technical Specification Limiting Conditions for Operation (LCO), and failure to identify misaligned valves and switches. Under the new management team, corrective actions are being implemented to address identified problems and operators have become less tolerant of workarounds and poor quality support.

Management generally assured good support and oversight for safe operation of the facility, but did not consistently assure that problems were identified and resolved. Early in the assessment period, after significant problems were identified by the NRC, several management changes were made using experienced personnel from other Entergy sites. During the latter part of the assessment period, the new management team was clarifying its expectations and implementing initiatives to improve the fundamental operations at the site; however, insufficient time had passed to determine whether these initiatives would be effective.

Operations procedures provided appropriate guidance for performing day-to-day activities and for responding to events. The licensee was in the process of upgrading their emergency operating procedures to more closely comply with the owners group guidelines. Operating crews were staffed with experienced and skilled personnel who were

knowledgeable of the plant and procedures. The licensee established an effective training program with excellent performance during initial and requalification license examinations. However, in one instance, an emergency diesel generator was improperly used as an on-the-job training aid by instructors.

Overall, the conduct of operations was mixed. Operators continued to demonstrate excellent response to offnormal conditions in the control room and simulator as evidenced by the effective response to plant transients and a complicated switchgear fire that occurred early in the assessment period. Similarly, the conduct of nonroutine refueling activities appeared to be sound. However, during routine power operations, operators demonstrated a weak understanding of situations requiring Technical Specification LCO entry. Recently, lapses in configuration management were also noted where operators failed, across several shifts, to recognize a mispositioned switch on the dry cooling tower fans and a misaligned safety injection isolation valve. Management initiatives to reduce operator tolerance for degraded conditions appear to have had some success, as evidenced by recent operator insistence on testing a questionable valve rather than relying solely on an engineering evaluation for an operability determination.

Licensee self-assessments of the operations area performed by line and independent assessment organizations were not fully effective in identifying and correcting program and performance problems before NRC intervention. Significant operability issues with the auxiliary component cooling water (ACCW) system and LCO entry were examples where NRC inspectors raised initial concerns for licensee followup. Operators demonstrated an appropriate threshold for initiating corrective action documents, but did not always recognize conditions that met that threshold. Although there were instances where the resolution of problems was not effective, strong corrective actions were generally implemented when management became aware of the problem. For example, management changed the fire brigade staffing, initiated a modification to eliminate operator workarounds, and reprioritized resources to accelerate Improved Standard Technical Specification implementation in response to identified problems.

The performance rating in the operations area is Category 2.

III. MAINTENANCE

Overall safety performance in the maintenance area during this assessment period was determined to be good. Throughout the assessment period, inconsistencies were noted during the performance of maintenance and surveillance activities. These inconsistencies included problems with attention to detail, configuration control, planning, and procedural adequacy and adherence. Significant problems were also identified with the inservice testing program. The overall material condition of the plant was considered to be good.

Craft personnel were well qualified, trained, knowledgeable, and competent. However, during the conduct of maintenance, there were instances where inadequate communications and inattention to detail resulted in systems not being properly returned to operation and equipment being used in improper applications.

Throughout the assessment period, isolated deficiencies were identified with the adequacy of and compliance with maintenance and surveillance procedures. Problems with the level of detail in both task procedures and work authorizations were noted. Occasional lack of compliance with procedures also contributed to maintenance problems. Taken together, these deficiencies resulted in instances where safety-related systems were unnecessarily challenged, equipment was rendered inoperable, and surveillance tests were not properly completed.

Deficiencies were also noted in some maintenance programs, the most significant being in the area of inservice testing. During this assessment period, significant problems were identified with both the scope and the depth of the inservice testing program. Safety-related valves were found to have not been included in the program, as required, and the original licensing submittals, upon which inservice testing requirement exemptions were based, were found to have been inaccurate. Other programmatic deficiencies included instances of measuring and test equipment not being properly controlled and preventive maintenance tasks not being properly scheduled.

The overall material condition of the plant was good. The corrective maintenance backlog was large, but properly controlled and prioritized. However, there were instances where maintenance-related problems resulted in the plant being placed in an unanticipated operational condition.

Licensee self-assessment and corrective action activities were not fully effective at identifying and resolving issues with the maintenance and testing programs. There were instances where corrective actions implemented in response to identified problems were not effective or were not given the necessary priorities. Most notably, the resolution of the licensee-identified problems with the omission of several valves from the inservice testing program went uncorrected for an excessive amount of time.

The performance rating in the maintenance area is Category 2.

IV. ENGINEERING

Overall, safety performance in Engineering was determined to be acceptable during this assessment period. The significantly lower rating in this functional area, compared to the previous assessment, reflected performance insights gained through the NRC inspection program during this period. The NRC identified several old, existing design problems that the licensee either had not previously identified or effectively corrected. At the end of this assessment period, a new management team was working to direct the engineering organization toward rigorous application of the design and license bases; however, tne licensee was still not consistently applying the bases to emerging issues without involvement by the NRC.

Overall, the engineering staff was technically competent and knowledgeable of plant operations. However, the NRC identified deficiencies with the implementation of design control programs and technical evaluations in support of plant operations. Past engineering

evaluations too often justified operability of systems rather than fixing the deficient or nonconforming condition. The historical lack of rigor when applying design and licensing basis requirements resulted in potential operability concerns. The technical evaluations and calculations to support the design bases were not always available and, in some cases, the actual design values were inconsistent with those stated in the Updated Final Safety Analysis Report (UFSAR). Use of incorrect assumptions in some technical evaluations performed by the engineering staff resulted in weaknesses in both original design and recent engineering work.

Several longstanding design problems were identified by the NRC. For example, a design deficiency that allowed void formation in the ACCW system was known but not corrected for an extended period, and the configuration of the containment vacuum relief system differed from that described in the UFSAR, but no written safety evaluation was performed to determine whether an unreviewed safety question was involved.

Various engineering products lacked sufficient detail and contained inaccurate information that resulted in incorrect operational decisions. Engineering inputs were extensively used to provide plant guidance, but were not controlled, independently verified, or reviewed by supervision for adequacy. The 10 CFR 50.59 evaluations completed for plant modifications were generally adequate; however, examples of inadequate 10 CFR 50.59 evaluations supporting calculations, licensing document changes, and condition reports were identified. The calculation control procedure did not require timely correction of omissions or errors, updating of licensing documents, or conducting 10 CFR 50.59 evaluations if the assumptions and conclusions in the calculation changed design bases documents.

Past quality assurance audits of the corrective action processes were programmatic and not intrusive. For example, problems identified by outside groups were not identified earlier by licensee personnel despite prior opportunities. Similarly, the Entergy corporate assessments were ineffective in identifying adverse trends that had existed for some time.

Earlier root cause and operational experience engineering evaluations did not always prevent problem recurrence. In some cases, corrective actions were not timely or thorough in resolving the deficiencies. However, more recent evaluations appeared to effectively identify and correct problems, and recent engineering support for field work was good. The recent self-assessments of the corrective action processes, engineering, and technical support were good. Many good issues were identified through the safety system self-assessments of the ultimate heat sink and emergency feedwater, although the self-assessments did not identify a number of the issues raised by recent NRC inspections.

The new site management team had implemented several initiatives directed toward improving program and personnel performance in the engineering functional area, but it was too early to determine the effectiveness of the initiatives. The licensee recently implemented a design review committee concept and accelerated the schedule for submitting the Improved Standard Technical Specifications to simplify interpretations for operability determinations.

The performance rating in the engineering area is Category 3.

V. PLANT SUPPORT

Overall safety performance in the plant support area during this assessment period was determined to be good. While the licensee maintained an appropriate focus on safety-related issues, performance declined in the radiological controls and security areas, and inconsistencies were identified with the implementation of otherwise strong programs for emergency preparedness and fire protection. A number of corrective actions have been initiated to re-establish the performance standards of the past, but their effectiveness had yet to be determined.

Generally, good performance was noted in the radiological controls area. An appropriately trained and qualified staff was maintained. The radiation protection program remained sound, but declined from the previous performance level. Problems were noted with material and contamination controls and worker adherence to radiological control requirements. The goals for skin and clothing contamination events were not met during the 1995 refueling outage, and the 3-year average exposure at the site was at the national average. The effectiveness of the ALARA program was good but inconsistent and did not meet management expectations in several cases. Conversely, quality assurance audits were performance-based, included specialists from outside the site, and were part of the licensee's self-improvement efforts.

The emergency preparedness program continued to be an overall strength. Actual events were correctly classified and offsite agency notifications were timely. Quality assurance audits, management controls, and self-critiques were effective. However, there were several exceptions to the superior indicators typical of past performance. Although good performance was observed in all response facilities during the biennial exercise, an exercise weakness associated with communications problems was identified and two poor emergency planning practices at the emergency operations facility were noted. Finally, during the annual program review, declaration of a General Emergency was delayed because two operating crews had difficulty diagnosing fuel integrity status.

Performance in the security area was good but inconsistent. As a result of the preparations for the Operational Safeguards Response Evaluation, coordination between the security and operations organizations improved. Significant changes were made within the management structure of the security organization, partly in response to daily operational and morale issues, such as those associated with the conduct of fire watches and the differentiation of duties between armed and unarmed officers. Deficiencies were also noted in the implementation of the access authorization program, the identification of degraded lighting conditions, and the establishment of compensatory measures. While, overall, there was a decline in security during this assessment period, there was evidence of improvement in the latter part of this assessment period.

The fire protection program was found to be effective. The transition to the updated fire protection system went well; however, examples of inconsistent and questionable conduct

of fire watch rounds detracted from the overall performance. Housekeeping remained at an acceptable level. While several problems were noted early in the assessment period and during outage conditions, performance improved and was considered very good during normal plant operating conditions.

The performance rating in the plant support area is Category 2.