

**SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE REPORT
OCONEE NUCLEAR STATION
50-269/96-99, 50-270/96-99, AND 50-287/96-99**

I. BACKGROUND

The SALP Board convened on May 22, 1996, to assess the nuclear safety performance of Oconee Nuclear Station for the period October 30, 1994, through May 4, 1996. The Board was conducted in accordance with Management Directive 8.6, "Systematic Assessment of Licensee Performance." Board members were E. W. Merschoff (Board Chairperson) Director, Division of Reactor Projects; J. P. Jaudon, Deputy Director, Division of Reactor Safety; and H. N. Berkow, Director, Project Directorate II-2, Office of Nuclear Reactor Regulation. This assessment was reviewed and approved by the Regional Administrator.

II. PLANT OPERATIONS

This functional area addresses the control and execution of activities directly related to operating the plant. It includes activities such as plant startup, power operation, plant shutdown, and response to transients. It also includes initial and requalification training programs for licensed operators.

Performance of the Oconee facility during this assessment period has been characterized by a professional control room with alert, well trained operators. Operator performance during the five reactor trips, three refueling outages, and ten startups indicated the operators were well trained in both routine and abnormal operations and were appropriately sensitive to shutdown risk. Attention to the control boards and operating parameters has been excellent, and verbal communications within the crews has been crisp and professional.

The operations functions have been well planned and managed, with appropriate involvement of the various levels of management in assuring continued safe operation of the facility. Operational decisions are typically conservative and appropriate. The threshold for problem identification was lowered during this period, leading to successful identification and resolution of a number of long-standing deficiencies which, in the past, operators had tolerated. The Plant Operations Review Committee, which was implemented during the latter part of the previous assessment period, has continued to have a positive impact on the safe operation of the facility.

Weaknesses identified during the previous assessment period regarding operator workarounds and procedural adherence and procedural quality have generally shown improvement during this period. Self-checking and the use of innovative Probabilistic Risk Assessment tools such as the Out-Of-Service Risk Assessment Matrix have helped Oconee achieve these improvements. Operations involvement in and ownership of activities

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occurring outside the control room, such as fuel handling, needs strengthening, as does configuration control and event report timeliness and quality.

Self-Assessment has been effective throughout the period and has contributed to the overall improvement noted in the operations area. The routine Self-Assessment program is aggressively implemented, with challenging standards. The off-normal Significant Event Investigation Teams (SEITs) are typically deployed promptly after an event, are staffed with qualified and knowledgeable members, and result in substantive findings and recommendations.

The Plant Operations area is rated Category 1.

III. MAINTENANCE

This functional area addresses activities related to diagnostic, predictive, preventive, and corrective maintenance of plant structures, systems, and components. It also includes all surveillance testing, inservice inspection, and other tests associated with equipment and system operability.

Overall performance in the area of Maintenance was good and, in some respects, improved. Management involvement and oversight were effective in assuring that work was competently planned and scheduled. Maintenance personnel were generally well trained and qualified. Work quality was good with a low rate of rework, and backlogs were well managed and appropriately maintained. During the previous assessment period, challenges had been noted in the areas of preventive maintenance, corrective actions, and procedural adherence. While improvement was noted in the first of these challenge areas, the areas of corrective actions and procedural adherence continue to warrant attention.

The plant has generally operated well during this period, with safety systems operating reliably when called upon. However, as illustrated by the five reactor trips and the number of forced shutdowns and power reductions during the period, random and/or age related equipment failures provided a significant and continuing challenge.

Maintenance of the Keowee facility reached an acceptable level late in the assessment period. This was achieved after a long period that included modification work and other maintenance activities, including testing, which on occasion were found to have problems. The use of predictive maintenance techniques such as lubricating oil analysis, vibration analysis, and thermography kept pace with industry trends in the use of these techniques.

Procedural adherence and the effectiveness of corrective actions continued to provide challenges during this period, particularly in the area of fuel handling; both spent and new fuel handling events occurred.

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In some cases, weaknesses in management oversight, training, and procedural adequacy contributed to the deficiencies noted in fuel handling. Self-assessment, while generally strong, was not effective in identifying and resolving some deficiencies.

The Maintenance area is rated Category 2.

IV. ENGINEERING

This functional area assesses engineering and technical support for plant activities. It includes design control and configuration management; design, installation, and testing of plant modifications; and support for operations, maintenance, outage, procurement, and licensing activities.

Significant overall improvement was evident in the engineering area during this period. With few exceptions, technical support for operations and maintenance was consistently strong. Emergent issues were promptly and effectively addressed. In addition, operator workarounds, some of which were long-standing, had been greatly reduced. The backlog of engineering-related Problem Identification Process reports and work orders were significantly reduced and effectively tracked and managed. Reduction of the drawing change backlog was significant. The drawing change process was also modified and formalized to require timely changes. Because of the many unique design features and the age of the plant, effective management of engineering backlogs and drawing updates will require continued management attention.

The licensee has been especially aggressive during this period in identifying and resolving long-standing design deficiencies, many existing since original construction. A large number of such identified deficiencies and errors received timely, effective, and conservative corrective action, with early involvement of NRC staff when appropriate. The quality of supporting engineering calculations and analyses improved significantly during the period.

The licensee continued to develop and conduct excellent self-assessments as an effective tool for identifying strengths and areas needing improvement. Assessments were comprehensive and objective and made effective use of both site and corporate expertise. Followup of findings was structured and well-managed. Significant Event Investigation Teams provided excellent event analyses and root cause determinations.

Notwithstanding the licensee's generally superior engineering performance, especially in the area of technical support, there were a few instances where engineering support for important plant modifications was deficient. These instances involved calculational errors, failure to verify drawings and procedures, and planning/scheduling deficiencies. While the licensee has taken positive actions to address these identified

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lapses, continued management attention is appropriate to preclude such occurrences in the future.

The Engineering area is rated Category 1.

V. PLANT SUPPORT

This functional area addresses all activities related to the plant support function, including radiological controls, radioactive effluent, chemistry, emergency preparedness, security, fire protection, and housekeeping controls.

Continuing management support for the "As Low as Reasonably Achievable" (ALARA) program was evident from the steady reduction in total dose. The percentage of the radiologically controlled area which was contaminated was also maintained very low. This was also an indication of a well implemented comprehensive radiological controls program.

Gaseous and liquid effluents were only a small fraction of the Technical Specifications-allowed quantities. This fact, coupled with excellent chemistry controls, provided additional demonstration of an effective and integrated approach to controlling radioactivity in the plant. Generated solid waste was also maintained well below goals.

There were some problems noted with worker adherence to radiological work permits, specifically with assuring that tasks were performed while the worker was logged on the appropriate permit. This was more evident early in the assessment period but is an area in which continued improvement is needed. There were also some problems with workers not following procedures for frisking out of radiologically controlled areas. The trend in the number of personnel contaminations was also higher than expected, in that there were more than twice the number in 1995 as were experienced in 1994. These two issues represent an additional management challenge.

The licensee's staff made appropriate emergency classifications for the few opportunities presented, all of which were "Notifications of Unusual Events." Management assured that proficiency was maintained in this area by conducting aggressive drills. There were no adverse trends noted in emergency preparedness drills and exercises. The critiques of drills and exercises were effective, identifying substantive issues, and emergency preparedness audits effectively utilized appropriate expertise. Communications between the licensee and off-site agencies involved in emergency response were excellent.

Management involvement in security did not produce as strong results as in the other areas of Plant Support. While corrective actions taken were generally thorough for the issues identified, there were problems found with the control of information identified as "safeguards." There were also questions about the uniform effectiveness of the access

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authorization program. While training was intense at the working level for the Operational Safeguards Response Evaluation which was scheduled outside of the assessment period, management oversight and direction was not evident. Compensatory measures for detection system problems were generally timely, and security readiness was enhanced by the qualification of additional personnel in multiple weapons.

Housekeeping was generally very good, and there were no significant problems identified in the fire protection area.

The Plant Support Area is rated Category 1.

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