

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE REPORT
MCGUIRE NUCLEAR STATION
50-369/97-99 AND 50-370/97-99

I. BACKGROUND

The SALP board convened on March 26, 1997, to assess the nuclear safety performance of the McGuire Nuclear Station for the period August 13, 1995, through March 8, 1997. The board was conducted in accordance with Management Directive 8.6, "Systematic Assessment of Licensee Performance." Board Members were Johns P. Jaudon, Director, Division of Reactor Safety (Board Chairperson), Bruce S. Mallett, Director, Division of Nuclear Materials Safety, Richard V. Crienjak, Acting Deputy Director, Division of Reactor Projects, and Herbert 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 assesses the control and execution of activities directly related to operating the plant. It includes activities such as plant startup, power operation, and response to transients. It also includes initial and requalification training programs for licensed operators.

The previous SALP noted good overall performance with weaknesses related to control of plant systems that affect reactivity and component mispositioning. Operator licensing performance was not as good as the previous SALP. Good performance was characterized by a low number of plant trips and transients which were well controlled by the operators.

During this current SALP period, performance in the area of Operations was superior with the overall quality of plant operations improving throughout the period. During the first half of the SALP period, two automatic and two manual reactor trips occurred; there were none in the last half of the assessment period. Operator response to these trips and to a variety of transients and off-normal events was excellent, which further demonstrated Operations' superior performance in this area. Operator oversight was excellent with detailed pre-briefs of non-routine situations and control of shut-down plant operations.

Significant configuration control problems, which could adversely affect plant operations, have been virtually eliminated, although the total number of mispositioning and configuration problems have not been significantly reduced. Overall, management attention to resolve and correct problems in the area of configuration control was evident, and the licensee's threshold for identifying these types of issues has been lowered. Continued isolated problems with equipment tagouts and completion of Technical Specification required surveillance warrant additional management attention.

Facility management has developed processes, established and maintained oversight, and promoted operations ownership throughout the plant. Overall, these processes have resulted in improved Operations performance. Management's use of self-assessments and benchmarking were noted as strengths and should result in continued improved, long-term performance in the Operations area. Procedures improved to the excellent level with few errors noted, and no procedural inadequacies were identified during the last six months of the assessment period.

The requalification training program was satisfactory with an excellent, cooperative relationship between the operations and training departments. Questioning during simulator scenarios, Balance of Plant (BOP) light panel usage after a safety injection actuation, and Abnormal Procedure usage were identified as weaknesses early in the assessment period. Improvements were noted in follow-up questioning and in BOP light panel usage later in the assessment period. Written examinations were of good quality, requiring few changes. Weaknesses were noted in the use of annunciator response procedures and inconsistent three-way communications. Overall, improvements were noted in operator training programs by the end of the reporting period.

The Plant Operations area is rated Category 1.

III. MAINTENANCE

This functional area assesses activities associated with 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.

Performance in the maintenance area improved during this assessment period. Although equipment problems and some human performance issues continued to occur, management's continued focus on these issues, and good self-assessments of the maintenance area resulted in a strong, improving trend, which was observed during the latter part of the assessment period.

Licensee management support, involvement, and conservative decision making in the maintenance area were evident. Planning and execution of on-line work tasks were effective, and daily risk assessment of maintenance activities was well utilized. Conservative plugging criteria were used for steam generator tubes. After significant problems became evident in the welding area at a sister plant, management was effective at applying the lessons learned. Good planning and attention to detail were evident in the performance of maintenance activities. The licensee's Leak Reduction Program effectiveness improved, and previous problems in the maintenance of motors were being effectively addressed.

The maintenance work order backlog continued to be managed well, with the backlog being significantly reduced during this SALP period. There

was a continuing adverse trend noted in the planning and scheduling of retest activities. There was an instance in which equipment was declared operable prior to the successful completion of post-maintenance testing to confirm operability. This presented the challenge to continue and sustain the improvement noted in work control activities.

Personnel errors and procedural inadequacies remained as issues and resulted on some maintenance problems and operational challenges. There also were other problems noted with poor maintenance practices and missed surveillances.

Plant material condition was very good during this assessment period. The licensee continued to focus resources in this area, and improvements were observed. However, some equipment failures caused unit transients and challenged plant operators unnecessarily.

The Maintenance area is rated Category 2.

IV. ENGINEERING

This functional area assesses activities associated with the design, installation and testing of plant modifications and engineering support for operations, maintenance, surveillance testing and licensing activities. It also assesses configuration control, design basis maintenance and information retrieval and design change and 10 CFR 50.59 processes.

Support to Operations and Maintenance was a continued strength during this period, as evidenced by numerous staff observations and by plant performance. Notwithstanding this overall good performance, there were several instances during the SALP period where the quality of this support was not sustained.

The licensee showed continued good progress in backlog management, including the number of outstanding station modifications, the age and number of engineering Problem Identification Process (PIP) items, non-outage corrective work orders, drawing updates and temporary modifications.

Engineering had a strong operations-oriented focus, as evidenced by ownership of issues and problems, the Action Register Problem Resolution program, participation in the Top Equipment Problem Resolution Process, the Mechanical and Electrical Councils and a key role in outages.

Engineering self-assessments were effective in identifying strengths and challenges in engineering performance. Corrective actions for identified deficiencies were implemented and tracked through the PIP process.

Major equipment reliability is still a challenge at McGuire. The licensee has continued to implement several initiatives to deal with the challenge and has made progress but is still in a reactive mode. Of

special concern is the number of emergency diesel generator (EDG) failures late in the last SALP period that continued during this SALP period. Engineering has the lead responsibility in addressing this and other equipment reliability challenges (such as motors and vital batteries). Additional challenges remained at the end of this SALP period for ensuring reliable operation of feedwater containment isolation valves.

The Cold Weather Protection Program (CWPP) represents another Engineering challenge. Events late in the last SALP period and during this SALP period have highlighted program weaknesses and the need for focused management attention on the problems. Corrective actions have been taken, but continued management attention is needed. At the end of this SALP period, a significant design control problem was identified by the NRC concerning the sizing of heaters that protect the safety-related, Refueling Water Storage Tank (RWST) level transmitters. Failure to identify this design control problem was indicative of a lack of engineering focus on this area. It should be noted that failure of multiple RWST level transmitters, which are covered by the CWPP, is safety significant.

Management at McGuire has aggressively addressed the need to improve root cause analyses and followup. However, several examples of inadequate root cause follow-up were identified, indicating that continued emphasis is necessary to assure that these efforts are successful.

The licensee's 10 CFR 50.59 program is generally effective and in compliance with the regulations. However, there were instances where reviews were not sufficiently thorough or where the threshold for screening was too high.

Licensing submittals were generally of high quality and the licensee is responsive to staff review needs. On occasion, an inadequate understanding of the licensing process and bases was exhibited; for example core offloading practices were not consistent with the Updated Final Safety Assessment Report (UFSAR) and the licensee did not immediately understand how to correct the discrepancy.

The Engineering area is rated Category 2.

V. PLANT SUPPORT

This functional area assesses activities related to the plant support function, including radiological controls, radioactive effluent and radiation waste, chemistry, emergency preparedness, security and housekeeping programs.

There was continued strong performance in maintaining collective radiation dose and doses to individuals as low as reasonably achievable (ALARA). Management and staff were proactive in looking for ways to

reduce radiation source terms. Program controls and day-to-day operations were focused on controlling radioactive contamination at the source.

Housekeeping practices were good in all areas of the facility. Established controls were generally successful in preventing clutter of unnecessary equipment and materials in areas that were not designated for storage.

Self-assessment programs remained aggressive in identifying and correcting issues. Audits and critiques were thorough. Root cause analyses and corrective actions were successful in improving performance.

The radiological effluent and environmental radiation protection programs effectively maintained radioactive releases well below regulatory limits. Proactive steps were taken to reduce significantly the amount of material generated as radioactive waste. There was marked improvement in the availability of environmental and radiation effluent monitoring equipment versus performance during the previous assessment period.

The control of primary and secondary chemistry parameters was exceptional. Chemistry support of plant operations and radiological controls was excellent. Inadequate communications between chemistry and operations resulted in some plant problems.

Emergency response continued at the superior level. Management was proactive in providing well qualified responders and maintaining state-of-the-art response facilities. Classification of events, command and control of response teams and response to emergent issues were strengths in the performance of exercise and drill teams.

Fire protection program performance was good with high availability and reliability of equipment. Management and staff were proactive in reducing the potential fire risks for plant operations. Controls for ignition sources and transient combustibles were effective in holding fire risk to a minimum.

Security exercised strong controls for daily operations. Equipment performance was exceptionally good. Management and staff set superior standards for performance and timeliness in correcting trends of negative performance.

The Plant Support area is rated Category 1.