

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE REPORT

NORTH ANNA POWER STATION

50-338/97-99 AND 50-339/97-99

I. BACKGROUND

The SALP board convened on January 29, 1997, to assess the nuclear safety performance of the North Anna Power Station for the period December 25, 1994, through January 11, 1997. The board was conducted in accordance with Management Directive 8.6, "Systematic Assessment of Licensee Performance." Board Members were E. W. Merschoff (Board Chairperson), Acting Deputy Regional Administrator, J. P. Jaudon, Director, Division of Reactor Safety, and F. M. Reinhart, Acting Director, Project Directorate II-1, 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 facility. 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 in the plant operations area while remaining superior overall, has declined in the area of operator performance. In general, plant operations have been characterized by a strong focus on safety, excellent management oversight, and conservative decision making.

Overall, operations personnel conducted plant activities in accordance with NRC requirements, management expectations, and procedural requirements. Operations personnel exhibited strong ownership of systems which were properly aligned and available to perform their safety function. Plant operators maintained strong command and control of plant shutdown evolutions. Refueling activities were well planned and effectively implemented. Unit start-ups were consistently well controlled in that operating crews demonstrated good communications and supervisory oversight was effective. Operations personnel maintained plant awareness and performed well during a variety of plant evolutions including power reductions and a reactor trip. Tagging activities were generally well controlled and successfully performed.

Occasional operator errors have continued throughout the assessment period. Examples of these errors include an operator error which led to spillage of contaminated water and a mode change made with an inoperable heat tracing circuit. Human errors in breaker manipulations led to a brief freezing of a Refueling Water Storage Tank level transmitter and

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to disabling the only operable charging pump during shutdown operations. Additionally, on several occasions, operations personnel did not identify or question degraded equipment conditions. The licensee has been successful in keeping the errors low in safety significance, as demonstrated by the fact that no plant transients or significant violations were caused by personnel errors. Additionally, efforts conducted in the latter part of the assessment period to reduce the number of operator errors have had limited success.

Programs and procedures were typically comprehensive and appropriately implemented and self-assessment activities were thorough, timely, and focused in appropriate areas. Event notifications were consistently prompt and complete, and the licensee's response to events, such as severe weather was appropriate.

The Plant Operations area is rated Category 1.

III. MAINTENANCE

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

Strong management involvement and support was evident in the area of maintenance. This involvement was demonstrated by the effective outage planning of the Unit 2 steam generator replacement outage and Units 1 and 2 short duration refueling outages. Additionally, plant material condition remained superior as evidenced by the high availability of safety systems throughout the period and the excellent performance of systems and components during most of the two-year assessment period.

The effective use of the maintenance organization was demonstrated by excellent planning and high quality work. Maintenance backlogs were relatively low and were well under the licensee's goals. Maintenance personnel performing work were experienced and well trained and qualified.

The licensee continued to implement the inspection and test programs effectively. Surveillance activities were well planned and successfully conducted. The in-service inspection and test programs were effectively implemented. Special testing was controlled and properly planned.

Occasional human performance deficiencies continued to be a challenge during the assessment period. Additionally, recent equipment failures have challenged the operators and caused several plant transients. Management attention is needed to address the recent decline in equipment reliability and to ensure effective implementation of the Maintenance Rule.

The Maintenance area is rated Category 1.

IV. ENGINEERING

This functional area addresses activities associated with the design of the plant and plant modifications as well as engineering support for operations, refueling, maintenance, surveillance, testing, procurement and licensing activities. It also includes configuration management, design basis information and retrieval, design and design change installation and testing, engineering training, and the 10 CFR 50.59 process.

Engineering performance in major activities was excellent and indicative of strong management oversight and control which typically resulted in successful completion of the major projects. Safety assessment and quality verification were effective. There were no reactor trips or power reductions directly attributable to engineering performance; operator workarounds were aggressively resolved with backlogs kept low; and no significant engineering related regulatory issues were identified during the period.

Weakness were noted, however, in the areas of commitment management and assurance of compliance with the facility's design and licensing basis. Specifically, instances were noted where procedures were neither changed nor clearly written to assure commitments were appropriately satisfied. Additionally, knowledge of and compliance with the design and licensing bases were weak. Instances were noted where NRC intervention was necessary to identify an unreviewed safety question, motor operated valve stem coefficient of friction problems, and failure to assure design basis were incorporated in procedures. Lack of clear ownership of responsibility for maintaining the Updated Final Safety Analysis Report (UFSAR) contributed to instances where the facility was operated differently than described in the UFSAR.

Performance deficiencies were noted in the area of configuration control. While, in general, the design configuration of the facility is well known and effectively controlled, engineering errors, such as improper fasteners on a recently installed safety related pump, introduced deficiencies into the plant. Engineering errors also resulted in an improperly revised in-service test criteria and incomplete seismic review of a safety-related tank. Such errors were due to a lack of rigorous oversight and attention to detail on other than major engineering activities.

Engineering has been effective in assuring the reliability and availability of assigned systems, and has provided strong day-to-day support to operations and maintenance. The coordination and communications associated with the development of the Maintenance Rule implementation program was an exception to this consistently strong performance. Significant programmatic deficiencies with the corporate level program development activities have emerged which require prompt management attention.

Submittals for amendments and exemption requests were well written and included sound engineering evaluations to support the proposed changes. Responses to NRC Generic Letters appropriately addressed issues of concern.

The Engineering area is rated Category 2.

V. PLANT SUPPORT

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

The radiological control program continued to function effectively in limiting radiation exposure to plant workers and members of the public. Aggressive implementation of the As Low As Reasonably Achievable program goals and initiatives significantly contributed to dose reduction. The effluent control program was also effective in limiting exposure to members of the public by maintaining radionuclide concentrations in liquid and gaseous effluents, and the radiation doses from those releases, at a small percentage of their regulatory limits. The effectiveness of the effluent controls was confirmed by the results of the environmental monitoring program in that only trace amounts of activity were detected in the samples collected from the environs of the plant. Good quality assurance for analyses of environmental samples was demonstrated by the results of the licensee's participation in the Environmental Protection Agency cross-check program. The chemistry control program also functioned well in maintaining high quality primary and secondary water. Self-assessments were effective in identifying and correcting problems in the radiological control program area. Challenges exist for procedural adherence in the areas of contamination control and transportation.

Emergency response capability was being maintained at a proficient level of operational readiness. An observed annual emergency response exercise was successfully completed by the licensee during 1996. A program strength included the consistency of the administration of the emergency response organization's performance. Problems with emergency sirens due to severe weather were promptly resolved.

The licensee continued to implement and support the Physical Security plan, procedures and associated programs in a superior manner. The organization and administration of the security program reflected the high level of professionalism and dedication exhibited by the security management and security force. The protected area access control equipment was modern, reliable, efficient, and effective. Plant and security management was proactive in recognizing and correcting potential problems. Control of Safeguards Information continues to be a challenge at both the site and the corporate office.

The Fire Protection Program was effectively implemented during this SALP cycle. Organization and administration of the fire protection program were good. The fire protection and prevention procedures and implementation, including controls for ignition sources, transient combustibles and housekeeping, were excellent. Maintenance, surveillance testing and performance of the fire protection systems and equipment were superior. The fire brigade training program and performance of the fire brigade during drills were typically good. Quality assurance audits, self-assessment and insurance company inspections of the fire protection program were thorough with correction of identified problems resolved in a timely manner.

Overall, plant housekeeping was excellent. Occasionally, standards were not met in less frequently toured areas.

The Plant Support area is rated Category 1.