BIG ROCK POINT SALP 12

REPORT NO. 50-155/94001

## I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) process is used to develop the NRC's conclusions regarding a licensee's safety performance. The SALP report documents the NRC's observations and insights on a licensee's performance and communicates the results to the licensee and the public. It provides a vehicle for clear communication with licensee management that focuses on plant performance relative to safety risk perspectives. The NRC utilizes SALP results when allocating NRC inspection resources at licensee facilities.

This report is the NRC's assessment of the safety performance at the Big Rock Point Nuclear Plant for the period January 1, 1993, through April 30, 1994.

An NRC SALP Board, composed of the individuals listed below, met on May 10, 1994, to review the observations and data on performance and to assess performance in accordance with the guidance in NRC Management Directive 8.6, "Systematic Assessment of Licensee Performance."

Board Chairperson

E. G. Greenman, Director, Division of Reactor Projects, RIII

Board Members

W. L. Axelson, Director, Division of Radiation Safety and Safeguards, RIII
R. V. Crlenjak, Acting Deputy Director, Division of Reactor Safety, RIII
L. B. Marsh, Director, Project Directorate III-1, NRR

## II. PERFORMANCE RATINGS

The current SALP process will assess performance in four functional areas instead of the previous seven. The four areas are Operations, Maintenance, Engineering, and Plant Support. Safety Assessment/Quality Verification will be considered for each of the four functional areas rather than as a separate functional area. The Plant Support functional area will assess radiological controls, emergency preparedness, security, chemistry, and fire protection. Three category ratings (1, 2, and 3) will continue to be used in the assessment of performance in each functional area. Performance trends, improving or declining, have been eliminated as part of the ratings.

Current Functional Areas and Ratings:

| Functional Area | Rating This Period |
|---|---|
| Operations | 2 |
| Maintenance | 2 |
| Engineering | 2 |
| Plant Support | 2 |

Previous Functional Areas and Ratings:

| Functional Area | Rating and Trend Last Period |
|---|---|
| Plant Operations | 2 |
| Maintenance/Surveillance | 3 Improving |
| Engineering/Technical Support | 3 |
| Radiological Controls | 2 |
| Emergency Preparedness | 2 |
| Security | 2 |
| Safety Assessment/Quality Verification | 2 |

## III. PERFORMANCE ANALYSIS

### A. Operations

Overall performance in the Operations area was good. Operators performed complex evolutions and controlled unexpected plant transients in an excellent manner. It was evident that management changes and program improvements were beginning to affect a culture change as shown by the now routine use of good team briefings. However, configuration-control problems caused by inattention to detail and the lack of an overall aggressive safety focus continued to exist through the end of the assessment period.

Management's focus on safety was mixed. Weaknesses were noted in applying "lessons learned," in accepting weak and narrow-scope root-causes, and in ensuring proper procedure usage. However, later in the assessment period, safety focus had improved as evidenced by strong emphasis on shutdown risk evaluations and the additional emphasis placed on ensuring evolutions were done right the first time, such as operators' attentive monitoring of plant parameters that identified two degraded components. Additionally, planning and scheduling was maturing into a good total activity planning system.

Management involvement in operations was good. After the NRC noted foreign material control and plant cleanliness problems, management instituted improved controls and scheduled periodic self-inspections, resulting in significant plant cleanliness and material condition improvements. Continued emphasis on repairing leaks resulted in a tight plant and greatly reduced the weekly water usage. Additionally on-site senior management presence during all outages and non-routine evolutions demonstrated good involvement. However, weaknesses were noted in management's indecision about applying resources to repairs on the stack gas monitoring system and in mixed plant review committee (PRC) performance. In one case, the PRC was initially willing to allow plant startup before repairing degraded containment-isolation valves.

Control of plant operations was good. Operator response to unexpected plant transients, like reactor feed pump trips, was excellent. However, there have been continuing problems with configuration-control and equipment tagouts. Examples included the loss-of-containment through an improper valve lineup and the failure to properly verify a sensing valve's position. In addition, management was slow to identify lessons learned from the Palisades control rod uncoupling event. As a result, weaknesses in command and control and in real-time use of technical knowledge were not corrected until a plant pressure test was improperly performed. In response, management implemented a "quiet time" during shift turnovers and started to develop a total activity planning methodology. These changes resulted in good evolution briefings and good information exchange during shift-turnovers. Additionally, communications between operations and other departments improved. The startups and shutdowns performed near the end of the assessment period were excellent.

Identification and resolution of technical issues was good overall. Once an issue was identified, management used an excellent team approach to resolve it. However, most issues were self-disclosing. An example included repair of a cut fuel line vice preparing a contingency plan in advance. Programs and procedures were good with better self-assessment efforts noted in critical-path planning and scheduling and in shutdown-risk assessment. Operator training was successful with all candidates passing their examinations. Additionally, all committed actions to resolve emergency operating procedure weaknesses, noted in the report for the previous assessment period, were completed as scheduled.

The performance rating is Category 2 in this area. During the previous assessment period, this area was rated Category 2.

B. Maintenance

Overall performance in the Maintenance area was good. The main focus of the maintenance program was worker and public safety. Improvements were noted during the assessment period in outage management and work planning, which demonstrate an increased emphasis on safety. Furthermore, the plant manager had extended outages and voluntarily shut down the reactor to allow additional maintenance on plant equipment.

Management involvement improved with the arrival of the new plant manager, who maintained a greater presence in the plant. However, the communication and teamwork between some of the department managers still needed improvement. Furthermore, there was some reluctance to accept the new programs and initiatives that were instituted by the Maintenance Manager. Management involvement was inadequate for the resolution of maintenance problems with the emergency diesel generator (EDG), the standby EDG, and with some motor-operated valves.

Identification and resolution of technical issues was adequate. There were some examples of non-aggressiveness in resolving technical issues. These included taking an excessive amount of time (16 months) to implement corrective actions dealing with overloading the EDG during testing and failing to document unacceptable conditions identified by the quality verification process. However, on balance, an improvement was noted in analyzing and correcting problems.

Performance was mixed regarding programs and procedures. Two relatively new programs initiated to correct deficiencies identified by the NRC in the previous assessment period, the preventive maintenance validation program and periodic and predetermined activity control program, significantly improved the preventive maintenance program and reduced the backlog of overdue preventive maintenance activities. Also, during the assessment period, the licensee began including system and roving engineers in the review process for maintenance procedures. However, some examples of loss of independence in the peer inspection program resulted in inadequate quality verification.

The equipment and material condition of the plant was good. Plant availability significantly improved this cycle. Housekeeping improved, but some areas still needed attention. For example, the turbine deck and machine shop areas remain cluttered, and several areas of the plant accumulated plastic bags and debris which should have been removed. The enhanced preventive maintenance activities improved the overall equipment condition. The licensee had commenced painting areas of the plant to improve overall appearance.

The quality of the work done by the Maintenance Department was very good. The maintenance staff was highly conscientious toward their work.

The performance rating is Category 2 in this area. During the previous assessment period, the Maintenance and Surveillance area was rated a Category 3 with an improving trend.

C. Engineering

Overall performance in the Engineering area was good. Communication and cooperation improved as a result of management initiatives. These initiatives included a roving engineer and the initiation of a system-engineer program. Engineers were more involved with plant problems than during previous assessment periods.

Overall, management involvement and focus on safety was mixed. Examples of good safety focus included the preventive measures taken for zebra mussels and the stub tube replacement effort, where additional corrective actions were taken beyond those necessary. Management also supported positive initiatives to improve engineering with the roving-engineer program and prioritizing engineering projects. However, several areas, including inadequate review of operating experience reports and incomplete engineering assessments, demonstrated weak management oversight. An assessment weakness was the failure to evaluate whether to incorporate appropriate valve closure-time criterion into testing and operating procedures.

Identification and resolution of technical issues was mixed. On the positive side the core spray system was declared inoperable after identifying motor operated valve (MOV) motor operator thrust capability concerns. On the negative side, many problems were not identified before they became self-evident either by a plant equipment problem or by being identified by the NRC. Examples included not addressing emergency condenser operability concerns and not completing the root cause analysis for three inoperable containment valves before making a non-conservative startup decision. However, good corrective actions were performed after problems were identified. An example was the proactive valve replacements for MOV problems.

Engineering was supportive of both maintenance and operations programs and initiated appropriate corrective actions where problems were noted. Electrical distribution safety functional inspection follow-up items were appropriately addressed. Similarly, for the most part, engineers maintained a good understanding of system design as indicated by good corrective actions for most plant problems.

Engineering provided good support to other organizations during the latter part of the assessment period. The roving engineer initiative provided direct engineering assistance to other staff in the plant and contributed substantially to operations and maintenance support and communications. There was good engineering support for the fuel channel replacement. The one notable example where engineering support was insufficient concerned the lack of a contingency plan for a cut emergency diesel fuel line prior to drilling.

The performance rating is Category 2 in this area. During the previous assessment period, the Engineering and Technical Support area was rated Category 3.

D. Plant Support

Overall performance in the Plant Support area was good. Management provided strong support toward maintaining good radiation protection, security and fire protection programs and excellent support towards the emergency preparedness and radiological environmental monitoring programs. This support was reflected in improved teamwork and resulted in the lowest total dose since early in plant life and excellent implementation of the new 10 CFR Part 20 requirements.

Strong management support of the as-low-as-reasonably-achievable (ALARA) program and improvements in inter- and intra-departmental communication resulted in a low total collective dose (157 rem (1.57 sieverts)). This support included better work request planning and scheduling, use of cameras and other ALARA tools, and several source term reduction initiatives, including replacing the feedwater regulator valve and flushing systems for dose rate reduction. Continued good reactor water chemistry aided source term reduction efforts and helped maintain low effluent releases. Significant progress towards reducing containment contaminated areas resulted in a low number of personnel contamination events (94). However, weaknesses were noted regarding the control of contaminated material and high radiation areas. Several examples of uncontrolled contaminated material and unposted high radiation areas were identified. Additionally, the failures to repair the stack gas monitoring heating system, to calibrate the stack flow rate meter, and to effect timely inline chemistry instrumentation repairs indicated the need for increased management attention towards maintenance of these systems.

Management support for the security program continued to be good as indicated by security force performance. Contingency response and new-hire training was good. Procedural guidance (except for alarm inactivation guidance) was generally of excellent quality and self-assessment efforts were good. Although housekeeping was good, the material condition of alarm stations and identification station control consoles needed improvement. Incomplete monthly management reviews of the need for continued unescorted access authorization resulted in several personnel's unescorted access training being eliminated. Additionally, security management was not timely in eliminating compensatory measures nor aggressive in resolving lighting deficiencies. Effective actions by station management were needed to reduce the number of security incidents from personnel errors.

Overall, the emergency preparedness (EP) program was considered excellent. The new EP coordinator/instructor received strong management support and demonstrated excellent performance in fulfilling the responsibilities of the position. Classroom training and lesson plans were excellent as was management effectiveness in ensuring quality. With the exception of the operational support center, facilities operational readiness was good. The new, proposed computerized notification system demonstrated a continued effort to improve the EP program. Excellent performance was also noted during the challenging 1993 exercise.

Overall, the fire protection program was considered good. The staff was knowledgeable of the program and had taken appropriate corrective actions for most issues and problems. Good communication was noted among staff members and the various departments responsible for performing fire protection duties. The staff was vigilant in attempting to control zebra mussels pending completion of a plant modification. Equipment was generally in good condition and there was a low backlog of fire protection open items and impairments. However, weaknesses were noted regarding holes in the fire barrier between the reactor depressurization system batteries and a portion of the machine shop and in a number of fire hoses that recently failed surveillance pressure tests.

The performance rating is Category 2 in this area.