

SALP Report - River Bend Station  
Report No. 50-458/94-99

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. This report is the NRC's assessment of the nuclear safety performance at the River Bend Station for the period September 27, 1992, through January 29, 1994. A board was convened to assess nuclear safety performance on February 2, 1994, pursuant to NRC Management Directive 8.6, "Systematic Assessment of Licensee Performance." Board members were A. Bill Beach (Chairperson), Director, Division of Reactor Projects, Region IV; Samuel J. Collins, Director, Division of Reactor Safety, Region IV; Dwight D. Chamberlain, Acting Director, Division of Radiation Safety and Safeguards, Region IV; and Suzanne Black, Project Director, Project Directorate IV-2, Office of Nuclear Reactor Regulation.

The performance category ratings and the assessment functional areas used below are also defined and described in NRC Management Directive 8.6.

II. PERFORMANCE RATINGS

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

<u>Current</u> <u>Functional Area</u>	<u>Rating</u>	<u>Previous</u> <u>Functional Area</u>	<u>Rating</u>
Plant Operations	2	Plant Operations	2
Maintenance	3	Maintenance/Surveillance	2
Engineering	3	Engineering/Technical Support	2
Plant Support	2	Radiological Controls	2
		Emergency Preparedness	1
		Security	2
		Safety Assessment/ Quality Verification	2

### III. PERFORMANCE ANALYSIS

#### A. Plant Operations

This functional area consists of overall performance in plant operations and has shown some improvement. Conduct of operations during this period generally demonstrated good teamwork, a nuclear safety focus, and professionalism. Management presence in the control room for both routine and infrequent operations has notably increased over the SALP period. However, management expectations of performance have not always been clearly defined and oversight has sometimes been deficient. In addition, the licensee has not been fully effective in eliminating human performance deficiencies.

The operators demonstrated improved and sustained performance in command, control, and communication activities in the control room. Although these improvements were observed, there were several instances where, as a result of poorly human factored and discrepant procedures and the failure to self-check and pay the appropriate attention to details, procedure noncompliance and Technical Specification violations occurred. Examples include:

(1) inadvertently entering Technical Specification 3.0.3 in June and again in November 1993 when one emergency core cooling system was taken out of service while another was inoperable; (2) a licensed operator violated procedural sequence during a surveillance test of the Division III diesel generator; and (3) licensed operators air-rolled the wrong emergency diesel generator when they performed the 24-hour postsurveillance air-roll. Although plant management has been correcting this situation by placing additional resources on procedure improvements and by counseling operators, there have been other recent occurrences of personnel errors and procedure noncompliances.

The operations staff perform routine and day-to-day activities well. However, long-standing degraded equipment problems throughout the plant have forced the operators to work around these conditions. Steam pressure regulator drift, recirculating pump seal failures, reactor water cleanup pump seal failures, leaking reactor fuel pins, and main steam isolation valve maintenance and surveillance problems caused plant events and transients. Throughout the SALP period, both licensed and nonlicensed operators did not demonstrate the requisite of plant equipment ownership and appeared reluctant to demand the repair of degraded equipment. As a result, operators were frustrated in getting equipment fixed and lacked a sufficient questioning attitude when dealing with operational issues resulting in the tendency to accept and work around equipment problems. Management has recently designated the Operations Department as the "customer" for the other site staffs, with the expectation that the supporting organizations will focus their efforts in the support of plant operations to fix long-standing equipment problems.

Throughout the appraisal period, the licensee has not been effective in identifying and correcting the root cause of issues. The stated root cause of many of the Licensee Event Reports (LERs) for 1993 indicated a root cause of either personnel error or inadequate procedures. It appears that the licensee had not gone beyond the point of determining why a personnel error had

occurred or why procedures which are subjected to several levels of review are subsequently found to be inadequate after an event. NRC management discussed this concern with licensee management several times during the appraisal period but LERs submitted in the latter months of the appraisal period showed no apparent indication of improvement. Licensee management has recently devoted extensive resources to implement a "Quality Action Team" to more effectively determine root causes and to identify corrective measures necessary to achieve a better level of employee performance.

The performance rating is Category 2 in this area.

#### B. Maintenance

The functional area of maintenance addresses activities related to equipment condition, maintenance, surveillance performance, and equipment testing. During this assessment period, the overall performance in the Maintenance area declined from the previous good level to an acceptable level of safety performance requiring continued licensee management attention. Weak procedural controls continued to adversely affect the quality of maintenance and surveillances. Failure to take effective corrective actions also resulted in a number of recurring equipment problems.

Maintenance personnel were dedicated and skilled; however, the performance of effective tasks were hindered by poor planning, inadequate procedures, and, at times, a failure to follow the intent of procedures. Additionally, a lack of management guidance for procedural adherence contributed to maintenance performance weaknesses. These weaknesses were evident during safety-related pump troubleshooting and thrust bearing replacement and motor-operated valve inspections.

Inadequate or inappropriate maintenance activities caused unnecessary challenges to plant systems and operators. These maintenance activities caused repetitive equipment failures that resulted in a significant contribution to unplanned radiological exposure. Examples of these maintenance activities which impacted overall plant performance include turbine control troubleshooting and testing that resulted in reactor safety system actuation, and maintenance rework activities such as multiple recirculation pump seal replacements and main steam isolation valve repairs.

Weaknesses were apparent in the maintenance planning and coordination process. Instances were noted where retest and postmaintenance test requirements were removed from the work package without engineering approval and troubleshooting and work activities were not always fully considered for their effect on Technical Specification requirements.

Similar procedural and planning weaknesses were evident in the surveillance test program. Examples were noted of procedures that could not be performed as written or where surveillances were missed or were ineffective, such as inoperable main steam isolation valves which were not detected by surveillance testing.

There appeared to be a reluctance by plant staff to use the nonconforming condition identification and corrective action program and a lack of worker understanding of the corrective action program. This was contributed to by a lack of sensitivity by management to fix degraded equipment and by operations staff accepting and working around equipment problems. Although degraded equipment continued to challenge the operations and maintenance staffs, within the last 6 months of the assessment period the general material condition of the plant improved but remained below expectations in many areas. Management changes at the corporate and plant levels occurred and short-term results from improvement plans and initiatives have been positive. At the end of the assessment period, the licensee was evaluating priorities associated with the maintenance backlog as well as preparing for a planned outage, while continuing to be challenged by emerging issues.

The performance rating is Category 3 in this area.

### C. Engineering

Performance in the area of engineering was acceptable. However, the NRC staff is concerned that there are some significant weaknesses that are indicative of ineffective engineering support for the routine operation of the plant. The NRC is encouraged by recent initiatives, such as the Engineering Review Committee, which are intended to improve the quality and timeliness of engineering products.

The licensee demonstrated good engineering response to issues related to restoring regulatory compliance or to concerns threatening continued plant operation. The licensee handled a detected fuel failure proactively and thoroughly. The licensee responded well to the discovery of surveillance testing deficiencies by expanding the logic system functional testing program. Likewise, after discovering that a main steam isolation valve was inoperable the engineering effort to identify the root cause and corrective actions was good. The licensee's response to these and other major issues is consistent with other staff observations regarding the ability of licensee engineering personnel to produce quality evaluations and designs.

The licensee has not been as effective in providing effective engineering support for routine plant operation. Engineering has apparently suffered from strained resources and changing priorities during this SALP period. Large backlogs have developed in such key engineering products as plant drawings, equipment vendor manuals, modification requests, and condition reports. Of particular concern to the NRC were such backlog issues as those identified during the Operational Safety Team Inspection in which equipment operability had not been determined for long-standing deficient conditions. Although the licensee has initiated programs to reduce the inventory of outstanding work items, these programs have not yet achieved their goals.

Some specific engineering issues show weaknesses in the licensee's ability to provide effective support for plant operation. These issues include an initially incomplete resolution of the labeling of electrical breakers as

installed spares although electrical loads were connected, a poor root-cause evaluation of containment airlock seal failures, and a failure to address other long-standing or repetitive plant deficiencies. Routine design changes have occasionally failed to resolve the deficiency or have involved inadequate review of the consequences of the design change. For example, a modification to the liquid radioactive waste discharge piping did not consider the effect of the changed effluent stream on the main cooling tower blowdown radiation monitor.

Although the licensee tried to enhance engineering responsiveness by forming a systems engineering organization, significant weaknesses have been identified in that program. Generally, systems engineers were not proactive and had limited involvement with maintenance and surveillance activities on assigned systems. Efforts were often limited to resolving emergent issues or day-to-day concerns. Management did not provide expectations or clear direction to the systems engineers regarding their responsibilities. Development of detailed systems knowledge, performance histories, and other measures to enable the systems engineers to become effective in providing the desired technical support have not been achieved for many plant systems. The licensee has recently initiated efforts to address these concerns.

Another example of poor engineering performance was the licensee's control of its contractor's review of the plant's ability to reach safe shutdown following a fire. The licensee has been slow in upgrading its fire protection program and at times has been ineffective. The licensee will continue to be challenged in this area as it addresses the extensive applications of Thermo-lag fire barriers at River Bend Station.

The problems with procedures and processes that have been observed in engineering are similar to those seen in other areas of River Bend Station operation and support activities. The licensee has undertaken initiatives, including management changes, to improve engineering processes, reduce backlogs, and provide improved plant support. The NRC will review the results of these improvement efforts during future inspections, including reviews of the 10 CFR 50.59 process and engineering drawing control.

The performance rating is Category 3 in this area.

#### D. Plant Support

A number of weaknesses, some significant, were identified early in the SALP assessment period in the areas of Radiological Controls, Fire Protection, and Security. Increased management attention, particularly near the end of the period, to programmatic controls and implementation resulted in improved performance in most areas during the last 6 months.

The licensee demonstrated generally good performance in the radiological controls program toward the end of the period. Licensee efforts to control the extent of contaminated areas and personnel contamination incidents have generally been good. Weaknesses with the control of radioactive material

which occurred early in the period were appropriately addressed. Excellent programs were implemented in radiological effluents controls, water chemistry, radiochemistry, radwaste management, and transportation of radioactive materials. High person-rem exposure continues to be a challenge and will require continued management emphasis in all areas which contribute to exposure. This includes emphasis on improved maintenance performance as well as ALARA initiatives, including source term reduction. Source term reduction initiatives implemented to date had resulted in some success in reducing the radiation exposure source term. Corrective actions and trending of problems identified in Radiological Deficiency Reports were very good. Radiological protection management requested a corporate evaluation of the ALARA program and an excellent evaluation was performed with strong recommendations for improvements in the ALARA area.

Continued generally strong performance was demonstrated in the emergency preparedness area although some weaknesses were noted during the annual emergency exercise. Emergency response facilities and equipment were maintained in an excellent state of operational readiness. Overall performance during the annual emergency exercise was good and the self-critique process was successful in identifying areas in need of corrective action, such as the weaknesses noted by NRC.

The licensee demonstrated generally weak performance in the security area through much of the period, with ineffective management oversight. Multiple instances of failure to protect safeguards information occurred during the period. Problems were identified with the failure to report or untimely reporting of security events. Weaknesses were identified with security implementing procedures and maintenance of cardreaders and vital area doors. Two security plan change submittals were of poor quality and were subsequently withdrawn. Improvements were noted late in the period and excellent performance was noted during an Operational Safeguards Response Evaluation. Organizational and personnel changes implemented late in the period appeared to have a positive impact on performance. Challenges continue in the security area with the adequacy of procedural guidance and a need for continued emphasis on effective management oversight and individual performance improvement.

The licensee demonstrated generally good implementation of the fire protection program. Fire brigade training and qualifications of personnel were considered strengths, and actual performance during a drill was good. Challenges continue in this area, including long-term resolution of Thermo-lag fire barrier installation adequacy and completion of corrective actions related to the fire hazards analysis.

Housekeeping performance throughout the period was mixed. Those areas identified for emphasis showed significant improvement and some overall improvement was noted late in the SALP period. Continued emphasis on housekeeping is warranted to ensure overall improvements are continued and sustained.

The performance rating is Category 2 in this area.