UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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September 4, 1997

S. K. Gambhir, Division Manager
Engineering & Operations Support
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
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Hwy. 75 - North of Fort Calhoun
Fort Calhoun, Nebraska 68023-0399

SUBJECT: SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE (SALP) REPORT 50-285/97-99

Dear Mr. Gambhir:

The U. S. Nuclear Regulatory Commission (NRC) has completed the Systematic Assessment of Licensee Performance (SALP) for the Fort Calhoun Station. The facility was assessed for the period of January 26, 1996, through August 2, 1997. The results of the assessment are documented in the enclosed SALP report. A public meeting to discuss this report with you and your staff has been scheduled at the Fort Calhoun Station Training Center Auditorium on September 24, 1997 at 9 a.m. (CDT). During this meeting you are encouraged and expected to candidly comment on this report. Although this meeting is a forum between Omaha Public Power District and the NRC, it will be open to observation by members of the public and other interested parties.

In accordance with NRC policy, I have reviewed the recommendations of the SALP Board and concur with the ratings and views. The Plant Operations, Maintenance, and Plant Support functional areas were assigned Category 2 ratings, reflecting overall good safety performance, while the Engineering area was assigned a Category 1 rating, reflecting superior safety performance. We are concerned, however, that an overall decline in performance has been noted in three of the four areas.

Overall, performance in the plant operations area remained good, and has been characterized by safe and conservative operations. However, human performance deficiencies have continued to occur throughout the period and represent an important challenge to improved performance.

Performance in the maintenance area declined but remained good overall. There were notable instances in which the conduct of maintenance challenged plant operations. In addition, maintenance planning sometimes impacted equipment availability and as-low-as-reasonably-achievable principles.

Performance in the plant support area declined from a superior level of performance but remained good overall. Actions taken in response to fuel failures were considered noteworthy; however, inconsistent performance during the biennial emergency exercise,

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weaknesses in implementing the access authorization program, and a number of fire protection hardware and programmatic problems were indicative of an overall decline in performance.

Performance in the engineering area also declined but remained excellent overall. Typically strong performance in identifying problems was not consistent as was evident in the fire protection and process piping erosion/corrosion areas. Continued attention to this area is appropriate to ensure sustained excellent performance.

In a number of areas, line organization self-assessments were frequently performed and were effective in identifying performance improvement enhancements. In contrast, some independent audits conducted by the quality organization were not as effective in identifying performance problems.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Title 10, Code of Federal Regulations, a copy of this letter and the SALP report will be placed in the NRC's Public Document Room.

Should you have any questions or comments, I would be pleased to discuss them with you. While no written response is required to the SALP report, if you wish, you may provide written comments within 30 days of the public SALP meeting.

Sincerely,

Ellis W. Merschoff
Regional Administrator

Docket No.: 50-285
License No.: DPR-40

Enclosure:
NRC SALP Report 50-285/97-99

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E-Mail report to T. Frye (TJF)
E-Mail report to NRR Event Tracking System (IPAS)
E-Mail report to Document Control Desk (DOCDESK)
E-Mail report to Richard Correia (RPC)
E-Mail report to Frank Talbot (FXT)

bcc to DCD (IE40)

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FORT CALHOUN STATION
SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE (SALP)
Report 50-285/97-99

I. BACKGROUND

The SALP Board convened on August 6, 1997, to assess the nuclear safety performance of Fort Calhoun Station for the period of January 26, 1996, through August 2, 1997. The Board was conducted in accordance with Management Directive 8.6, "Systematic Assessment of Licensee Performance." The Board members included: A. T. Howell (Board Chairperson), Director, Division of Reactor Safety, Region IV; T. P. Gwynn, Director, Division of Reactor Projects, Region IV; and W. H. Bateman, Director, Project Directorate IV-2, Office of Nuclear Reactor Regulation. This assessment was reviewed and approved by the Regional Administrator.

Functional Areas and Ratings:

	Current	Previous
Plant Operations	2	2
Maintenance	2	2
Engineering	1	1
Plant Support	2	1

II. PLANT OPERATIONS

Operations performance has been generally good. Operations were characterized by a good safety focus with good management involvement and oversight. Programs and procedures were generally good but a number of deficiencies were identified. Performance during transient and emergency conditions continued to be excellent with some exceptions noted. Performance during steady state and routine but infrequently performed evolutions was good with some improvement noted later in the assessment period. Operations training remained excellent. Self-assessment and corrective action programs were generally effective.

Management was involved in operations activities on a daily basis with senior management setting high standards. Particular attention was given to the elimination of operator workarounds and to the prompt resolution of control room deficiencies. The response to identified deficiencies was usually very good; although, there were occasions in which corrective actions were not initiated until the NRC became involved. The estimated critical position event and the disabling of low temperature over-pressure protection event are examples. Oversight of major evolutions was generally good, with first line supervisors maintaining good control of plant evolutions.

Overall, the licensee demonstrated a good safety focus, with a conservative, safety-conscious approach to activities. This was particularly apparent during plant transient and upset conditions. The conservative decision to emergency borate the plant after the rupture of an extraction steam line was notable.

Programs were generally well implemented. However, a few deficiencies were identified by NRC related to the respiratory protection program for operators and to the control of operator overtime. Procedure quality was generally good. Nevertheless, several instances were identified by both the licensee and the NRC in which insufficient guidance was provided and negative consequences resulted.

Operator performance during transient/abnormal conditions continued to be generally excellent. However, there were a few occasions in which operators failed to adhere to procedures or demonstrated unfamiliarity with procedure requirements. For example, during a reactor startup, operators failed to revise the controlling procedure to document the actions taken when reactor criticality did not occur as expected. In another instance, actions to stop an unnecessary fire protection sprinkler actuation were delayed after the rupture of an extraction steam line because of operator unfamiliarity with procedure requirements.

Operator performance during routine operations was good, but instances of inattention to detail continued to occur. This was particularly evident when operators disabled low temperature over-pressure protection, which was not identified during the shift turnover. Communications, although generally good, exhibited mixed results both within operations and between operations and other organizations. Some improvement was noted during the latter part of the assessment period, as operations management actively reinforced shift turnover and communication standards, and the organization transitioned from two to three-way communication techniques.

Operations management remained involved in operator training. The training organization provided strong support to the plant, with excellent results observed by NRC for both initial license and requalification training. At the conclusion of the assessment period, the licensee was emphasizing improved on-the-job training for non-licensed operators.

The licensee's self-assessment activities were self-critical, with good management response. Corrective actions for identified deficiencies were usually effective.

The performance rating in the area of Plant Operations is Category 2.

III. MAINTENANCE

Safety performance in the maintenance area declined but remained good. The conduct of maintenance was generally good with notable exceptions. There was a questioning attitude and generally strong craft skills but there continued to be instances of inattention to detail that detracted from overall performance. The surveillance test program functioned well. Maintenance planning was generally good but there were exceptions that

unnecessarily impacted equipment availability and as-low-as-reasonably-achievable (ALARA) principles. Plant material condition was generally good, but a decline was noted in some areas of the plant and painting and plant preservation needed improvement.

The conduct of maintenance was generally good but declined during the assessment period. Although many maintenance activities were well performed, there were notable instances in which plant operations were challenged by poor maintenance practices. For example, an extraction steam line rupture occurred as a result of inadequate predictive maintenance. In addition, two forced power reductions occurred as a result of poor maintenance. The first involved a check valve in a reactor coolant pump lube oil line that was installed backwards, resulting in the failure of the pump anti-rotation device. The second involved the failure of a gasket that had been replaced with the wrong material, resulting in a steam leak in a main turbine control valve drain header.

Human performance in the maintenance area was characterized by a questioning attitude and generally strong craft skills. However, there were several instances of individual inattention to detail during maintenance that detracted from overall performance. In particular, NRC identified that configuration control practices in the performance of maintenance sometimes resulted in either premature or unintended modifications to plant equipment. For example, post accident sampling system equipment was removed from the plant prior to written authorization by the design authority. In another instance, a component cooling water pump was reassembled without all the parts required by the design and installation instructions.

The surveillance test program functioned well. Surveillance activities were generally well performed, in accordance with the appropriate procedures, with few problems noted. Communications during test performance were typically good. Some isolated instances of inattention to detail and procedure adherence problems were noted. Additionally, there were instances in which safety-related pump surveillance acceptance criteria did not fully conform with design basis requirements.

Maintenance planning activities included good consideration of risk with strong support provided by engineering in this area. Schedule adherence improved substantially during the assessment period. However, there were notable instances of poor maintenance planning. For example, a containment spray pump was taken out of service for maintenance without the parts available to support the planned work, resulting in the unnecessary loss of safety system availability. On another occasion, workers were sent into containment without the necessary tools to verify reactor coolant pump oil levels, resulting in unnecessary radiation exposure to the workers. There were also instances in which the lack of schedule adherence challenged safety barriers. For example, containment integrity was lost during refueling outage fuel handling activities as a result of concurrent maintenance activities that were not performed according to the original schedule. At the end of the assessment period, the licensee was aggressively pursuing improvements in the planning and scheduling of both on-line and outage maintenance activities but the results of these efforts remained to be determined.

Material condition was generally good, but declined in certain areas of the plant. Painting and preservation needed improvement throughout the plant. The deterioration of floor coatings impacted the ability to decontaminate certain plant areas, resulting in unnecessary impacts on plant operations and radiological housekeeping.

Maintenance personnel were appropriately certified and knowledgeable. The licensee was pursuing a program for further enhancing the training of the maintenance crafts.

Safety assessment and quality verification were generally good. Maintenance self-assessments were frequent and resulted in good recommendations for improvement. However, the audit of the maintenance program was not as effective in the identification of performance issues as the maintenance self-assessment which was subsequently performed. The licensee was appropriately focused on maintaining a low threshold for reporting problems, but there were a few instances in which personnel did not document deficient conditions.

The performance rating in the area of Maintenance is Category 2.

IV. ENGINEERING

Performance in the engineering area declined but remained excellent. Management involvement and oversight continued at a high level as demonstrated by effectively communicating goals, expectations, and priorities to the engineering staff. Engineering programs were very well established and continued to be a strength. Engineering procedures were generally good, but there were instances of inadequate reviews and inappropriate changes. Engineering support to operations and maintenance remained excellent, with a few notable exceptions. Self-assessments continued to be of high quality.

Management maintained a strong engineering focus on issue resolution as evidenced by the accuracy of design basis documents, technically detailed root cause analysis of incore detector failures, in-depth assessment of the extraction steam line rupture, and aggressive strategies to eliminate projected fuel failures. Management was also effective in addressing weaknesses with the condition reporting system that were noted in the previous SALP period. There were some issues that were not initially recognized and aggressively pursued, such as the reactor coolant pump lube oil leak.

Engineering program strengths were apparent in the plant modification process, temporary modification program, 10 CFR 50.59 process, and implementation of Updated Safety Analysis Report commitments. In contrast, there were some procedural weaknesses that detracted from overall performance, such as the inadequate technical review that resulted in the inadvertent volume control tank dilution.

Design engineering assumed a more active role in plant activities. High-quality performance was typical in various areas, including modification safety reviews and engineering action requests. Station engineering continued to perform well in most instances, providing high quality operability evaluations to justify system and component

performance functionality. There were a few minor engineering performance shortcomings, such as a failure to update the Updated Safety Analysis Report for the auxiliary feedwater fuel oil day tank.

Overall engineering support for operations and maintenance was excellent as evidenced by the ability to identify issues, propose recommendations, and provide proper resolution to engineering related condition reports. There were some notable weaknesses, however, that indicated a decline in this area. Examples include poor implementation of aspects of the fire protection program and the analytical model for predicting pipe wall degradation.

Overall, the training program for engineering was excellent. Engineers were qualified, knowledgeable and interfaced well with other plant staff on various issues. Self-assessments were critical, detailed, and properly focused. These assessments resulted in good findings, root causes, and corrective actions.

The performance rating in the area of Engineering is Category 1.

V. PLANT SUPPORT

Overall safety performance in the Plant Support functional area declined from a superior level to a good level. Performance in the radiological controls area continued to be good. In general, performance in the emergency preparedness area was good, but a number of performance problems were identified during the biennial emergency exercise. Overall safety performance in the security area was very good, having declined from a strong level of performance because of access authorization program implementation problems. While acceptable overall, safety performance in the fire protection program declined significantly. The level of plant housekeeping was generally good but inconsistent. Audits and assessments were usually comprehensive and effective, with one notable exception.

Good performance was noted in the radiological controls area during this assessment period. The radiation protection organization responded well to the fuel problems and aggressively addressed radiological issues. Even with a substantial increase in personnel exposures resulting from the fuel failure source term, the collective radiation exposure was maintained less than the industry average for pressurized water reactors. The ALARA program was appropriately implemented, and efforts to reduce radioactive effluent releases from the plant were effective. Controls of radioactive materials, surveys, and personnel monitoring were good. However, there were a number of isolated human performance problems that occurred during the assessment period. There were a large number of contaminated areas within the radiological controlled area that impacted plant operators. Additionally, some hot-spot reduction program implementation weaknesses detracted from the program's overall effectiveness.

A good respiratory protection and air sampling program was established. Effective programs were implemented in the areas of chemistry, radiological waste effluent management, radiological environmental monitoring, solid radioactive waste management, and transportation of radioactive materials.

In general, safety performance in the emergency preparedness area was good. Performance during simulator walkthroughs was very good; however, performance during the biennial emergency exercise was inconsistent. For example, while control room staff performance was good, exercise weaknesses were identified regarding the staffing of the emergency response facility and potassium iodide administration. The operational readiness of the emergency response facilities were effectively maintained. The emergency preparedness organization staff was properly qualified and staffing was maintained at a sufficient level. Emergency response organization training records were maintained and personnel training status was properly tracked.

Performance in the physical security area was very good. However, a number of problems involving the access authorization program were indicative of a decline in overall performance. An excellent records and reports program was maintained and the security staff was properly reporting security events. Security equipment was maintained and repairs were completed in a timely manner. The vehicle barrier system was generally consistent with the summary description previously submitted to the NRC, and was capable of protecting plant vital equipment. An excellent security training program was implemented.

While overall implementation of the fire protection program was acceptable, performance significantly declined as a result of both hardware and programmatic problems. For example, the reactor coolant pump lube oil collection system was ineffective in collecting all leakage sources, and the alternate shutdown procedure did not provide sufficient guidance to the operators for responding to a cable spreading room fire. Multiple instances of inadequate control of transient combustibles, an issue noted in the previous SALP report, were also identified during this assessment period.

The level of plant housekeeping was generally good but inconsistent. Additional housekeeping administrative controls were implemented during the latter part of the assessment period to address inconsistent performance.

Audits and assessments were comprehensive and effective in identifying problems in most areas; however, past audits of the fire protection program had not been effective in identifying significant performance problems. A comprehensive and critical self-assessment of the fire protection program was conducted following the NRC's identification of a number of fire protection issues.

The performance rating in the area of Plant Support is Category 2.