UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
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AUG 25 1994

Docket: 50-285
License: DPR-40

Omaha Public Power District
ATTN: T. L. Patterson, Division Manager
Nuclear Operations
Fort Calhoun Station FC-2-4 Adm.
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Fort Calhoun, Nebraska 68023-0399

SUBJECT: SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE (SALP) REPORT

Enclosed for your review is the SALP report for the Fort Calhoun Station for the period of January 31, 1993, through July 30, 1994. The Nuclear Regulatory Commission (NRC) made this assessment under the revised SALP process implemented on July 19, 1993. A meeting to discuss this report with you and your staff has been scheduled for 1 p.m. on September 19, 1994, at the training center auditorium at the Fort Calhoun Station.

During this meeting, you are encouraged and expected to candidly comment on our 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 the views. The functional areas of operations and maintenance were rated as Category 2, which indicates good safety performance. The functional areas of engineering and plant support were rated as Category 1, which reflects superior safety performance. Overall, you continued to operate the plant safely, and I consider the conduct of activities at Fort Calhoun Station to be strong.

- In plant operations, operator performance in routine conditions and in response to plant events was generally strong and demonstrated a conservative approach to safety. However, several events occurred during the last half of the appraisal period that demonstrate inconsistent performance in knowledge of plant status, in exercising a questioning attitude, and in exhibiting ownership of plant and procedures. Examples include the unplanned boron dilution event, the inoperability of two auxiliary feedwater pumps, the failure to operate the control room ventilation in recirculation mode, and the unmonitored withdrawal of a control element assembly. The operations performance enhancement program which was developed to address these problems, has not been fully effective, as indicated by the operators subsequently improperly aligning the nonsafety monitor tank pump that resulted in overheating the motor. Plant and operations management need to assure

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that their operations performance enhancement program expectations are clearly communicated and met to achieve consistently strong performance.

- In maintenance, we noted strong performance by maintenance workers with excellent craft skills, involved supervision, and good management support. The implementation of the integrated schedule and the ongoing maintenance procedure upgrade program have the potential to further improve maintenance performance. Additional attention was needed to assure that management expectations are clearly delineated and that risk significant balance-of-plant equipment is given timely maintenance.

- In engineering, it is worth noting that, while the board found the overall performance superior, with effective support to operations and maintenance, and effective implementation of strong programs, it also noted several examples of a decline in performance from the previous SALP period. This report documents the extent of these examples to emphasize the areas where management attention is needed to sustain superior performance. Specifically, management attention is needed to assure system engineers spend adequate time in the plant, to assure there is adequate attention to detail on engineering work, and to assure that there is an appropriate program for postmodification testing.

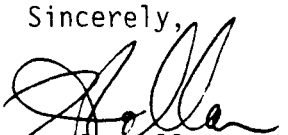
- Overall performance in plant support was superior. Recent efforts to establish more effective radiological access control appear to be positive, but this area warrants continued attention to assure that implementation meets management expectations. Performance in security, emergency preparedness, and fire protection was considered to be very strong. Housekeeping was generally excellent, although management attention would assure greater consistency.

Your nuclear quality and oversight organizations continue to be very effective. They performed probing and critical oversight assessments and evaluations. Your corrective actions were generally good.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, 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.

If you have any questions about the SALP report, we would be pleased to discuss them with you. While no written response is required, you may submit written comments within 30 days of the SALP meeting.

Sincerely,



L. J. Callan
Regional Administrator

Enclosure:
NRC SALP Report 50-285/94-99

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WJohnson	TPGwynn	RScarano	EAdensam	KPerkins mod to cover ltr 8/25/94
8/22/94	8/22/94	8/24/94	8/23/94	8/24/94

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8/ /94	8/25/94			

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FORT CALHOUN STATION
SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE (SALP)
Report 50-285/94-99

I INTRODUCTION

The SALP process develops 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 relative to safety risk perspectives and communicates the results to the licensee and the public. The NRC uses SALP results when allocating NRC inspection resources at licensee facilities.

This report is the NRC's assessment of the safety performance at the Fort Calhoun Station from January 31, 1993, through July 30, 1994.

An NRC SALP Board, comprising the individuals listed below, met on August 3, 1994, to review and assess performance, in accordance with the guidance in NRC Management Directive 8.6, "Systematic Assessment of Licensee Performance." The Board developed this assessment for the Region IV Administrator's approval.

Board Chairperson

K. E. Perkins, Director, Walnut Creek Field Office, Region IV

Board Members

T. P. Gwynn, Director, Division of Reactor Safety, Region IV
R. A. Scarano, Deputy Director, Division of Radiation Safety and Safeguards, Region IV
E. G. Adensam, Assistant Director for Region IV Reactors, Office of Nuclear Reactor Regulation

II PERFORMANCE RATINGS

This assessment was conducted under the revised SALP process implemented by the NRC on July 19, 1993. Under the current SALP process, performance was assessed in four functional areas instead of the previous seven functional areas. The four areas are plant operations, maintenance, engineering, and plant support. Safety assessment and quality verification were considered for each of the four functional areas rather than as a separate functional area. Radiological controls, emergency preparedness, security, housekeeping, and fire protection were assessed under the plant support functional area. The SALP category ratings continue to be used in the assessment of licensee performance in each functional area. Improving or declining performance trends have been eliminated from the ratings.

Current Functional Areas and Ratings:

Functional Area	Rating This Period
Plant Operations	2
Maintenance	2
Engineering	1
Plant Support	1

Previous Functional Areas and Ratings:

Functional Area	Rating Last Period
Plant Operations	2
Maintenance/Surveillance	2
Engineering/Technical Support	1
Radiological Controls	2
Emergency Preparedness	1
Security	1
Safety Assessment/Quality Verification	1

III PERFORMANCE ANALYSIS

A. Plant Operations

Overall, performance in plant operations remained strong. Several strengths were noted in the conduct of plant operations. These included a conservative operating philosophy, strong management support for operations, and a continuation of excellent operator response to events. However, a decline in the routine operator performance was noted during this assessment period. This was demonstrated by occasions when operators were not knowledgeable of the plant, did not exercise a questioning attitude, and did not exhibit ownership of plant equipment and procedures.

The licensee demonstrated a conservative operating philosophy. This was evident with the plant in power operation and also during the refueling outage. A thorough review of the potential concerns and consequences of the Missouri River flooding was performed and compensatory measures were promptly implemented. A similar, proactive approach was noted in preplanning the

refueling outage. Shutdown risks were appropriately identified and disseminated to plant personnel. The plant operators demonstrated that they fully understood the limitations and precautions for midloop plant operations.

Management support for plant operations was very good. The licensee had effectively implemented several initiatives which provide for the prompt identification and resolution of plant equipment problems. The plan-of-the-day and emergent work meetings were very successful in identifying and resolving operations department concerns including work-around problems and reducing the number of control board deficiencies. The implementation of the outage control center during the refueling outage was a notable accomplishment which significantly reduced the control room staff's administrative burden associated with maintenance work. This function was then effectively transitioned into power operation as the operations control center.

Operators' response to events and offnormal conditions continued to be excellent. The operators' performance during the refueling outage was very good. An example involved the operators initiating an emergency boration based on an indication which showed an increasing source range count. Additionally, the operators' response to a failed engineered safety feature relay, which resulted in a reactor trip and isolation of components, was notable. Recovery actions were well prioritized and executed in a controlled manner.

Although many areas within plant operations were strong and in some cases improved, declining performance was noted in the conduct of routine operations. At times, operators demonstrated a less than adequate knowledge of plant status and a lack of a questioning attitude. Three significant examples were the failure to promptly identify the unplanned control element withdrawal with the plant shut down, a secondary system water hammer event which resulted from an operator stopping the only operating feedwater pump without appropriately verifying that the second feedwater pump was operating, and the failure to identify and resolve the foreign particles in the refueling canal. Later in the assessment period, a monitor tank pump was operated without a suction flow path which resulted in the failure of the pump motor. In the first two examples, separate control room indications were available to verify the status of the components.

Operators, at times, demonstrated casual procedural adherence. An inadvertent boron dilution occurred with the plant in full power operations because operators failed to understand and implement specific procedural guidance. In addition, both auxiliary feedwater (AFW) pumps were rendered inoperable during the performance of a surveillance test.

In assessing the apparent decline in operator performance a concern was identified that operators were not consistently demonstrating the level of equipment and procedural ownership required to ensure excellence in plant operations. It was noted that operational activities were permitted to occur without clear operations control or cognizance. Early in the assessment

period, a reactor trip resulted from switchyard activities of which the operators were not adequately cognizant and did not effectively control. Two other examples involved the manipulation of valves by plant personnel within danger tag boundaries without establishing rigorous controls to ensure they were properly repositioned and permitting plant personnel to acknowledge main control board annunciators without specific guidance and limitations. During the review of these events, it was not evident that operators had consistently received supervisory oversight and feedback of management's expectations regarding ownership of plant equipment and procedures. Such consistent oversight and feedback are necessary to achieve and maintain excellence in operations.

The operations performance enhancement program was developed by the licensee to address many of the weaknesses and concerns identified in plant operations. However, additional operational events which occurred subsequent to the program being implemented indicated that it was not fully effective. This warrants continued management attention.

The corrective action process was effective in identifying and correcting plant deficiencies and significant conditions adverse to quality. However, a weakness with the program implementation was noted because of several separate corrective action processes with divided ownership. The licensee's self-assessment activities were effective in identifying that not all plant personnel understood the corrective action program and its discrete processes. This frequently resulted in plant personnel utilizing only the corrective action process to which they were regularly exposed. It was identified that the licensee was effective in incorporating the corrective action processes at management level; however, additional efforts were needed to ensure that the corrective action program was consistently utilized at all levels within the organization.

The performance rating is Category 2 in plant operations.

B. Maintenance

Overall, maintenance performance at Fort Calhoun Station was very good. Management involvement was strong. A more self-critical approach was apparent within the maintenance department. Some management expectations for maintenance performance needed to be documented and reinforced. Craft skills and work ethic were high with excellent adherence to maintenance procedures. Maintenance programs were well developed and implemented with very good work planning. The implementation of an integrated planning process had the potential to further improve maintenance work coordination. Additional management attention was needed for risk significant balance of plant equipment.

Management was involved in assuring the quality of maintenance at Fort Calhoun. Craft supervision was in the plant and involved in assuring the quality of maintenance work. The new maintenance manager was viewed as working to instill a more self-critical approach to maintenance operations.

Performance monitoring tools were appropriately adjusted to be consistent with industry norms. Support from the quality assurance organization was used to assess potential improvement areas and the results of the assessments were used to improve maintenance performance.

Management expectations for maintenance performance could be enhanced. For example, expectations for the implementation of the Operations Control Center were not documented in plant procedures. Another example involved the lack of understanding of management expectations concerning implementation of the corrective action process by most maintenance personnel. In addition, expectations for the control of valve positioning inside danger tag boundaries and for the acknowledging of control room annunciators by craft personnel were not clearly delineated.

The performance of maintenance crafts at Fort Calhoun Station was high, with a strong work ethic and excellent craft skills. Adherence to procedures by plant workers during the conduct of maintenance and surveillance activities was a strength. Maintenance personnel demonstrated a healthy questioning attitude that resulted in the identification and correction of damage to a power operated relief valve. Very good maintenance training facilities were well utilized in the training of maintenance workers. Maintenance personnel demonstrated good adherence to radiation work requirements, knowledge of as low as reasonably achievable principles, and excellent communications with operations and quality control personnel.

Maintenance programs were well developed and provided a strong basis for work performance. The preventive and predictive maintenance programs were well planned and implemented resulting in few challenges to plant operations. The Operations Control Center contributed to the effective implementation of maintenance activities during routine plant operations. The inservice inspection program was effectively implemented with good management involvement and recent program improvements apparent. Problems were occasionally identified with detailed maintenance and surveillance test procedures as the procedures upgrade program proceeded.

Maintenance job planning was very good with some work coordination problems evident. Excellent pre-job briefings were provided for the more complex maintenance tasks. An integrated planning process that was scheduled for implementation at the end of the assessment period had the potential to further improve the coordination of maintenance work.

A weakness was noted in the attention provided to balance of plant equipment that had importance to safe plant operations. Of particular note was the lack of timely attention provided to the diesel-driven auxiliary feedwater pump, FW-54. Although Pump FW-54 had the potential to reduce significantly the risk during a loss of off-site power event, the work needed to address Pump FW-54 quality and vibration problems was not promptly completed.

The performance rating is Category 2 in maintenance.

C. Engineering

Overall, engineering performance was superior, but some areas warrant management attention to avoid a decline in this level of performance. Engineering support of plant activities was very effective, and many of the licensee's engineering programs were strong and were effectively implemented. However, engineering was not always effective in assuring plant conditions were adequately controlled. There were several instances where a lack of attention to detail was evident in the development of some modification/maintenance packages. Additionally, instances were observed where the development and implementation of some engineering programs was determined to be weak.

Engineering support of operations and maintenance was considered one of the strongest assets of the engineering department. The strength is rooted in the system engineers. The system engineers' performance of the maintenance engineering and the consolidation of all engineering activities at the plant site has resulted in better communications. The system engineers are effective in their role as the interface between the operations department and the design engineering group. Some examples of their exceptional support included: (1) the determination of the potential for premature change to the recirculation mode of emergency core cooling injection during design basis events, (2) the corrective action taken after an undersized circuit breaker was discovered, (3) the corrective actions taken when the grounds in the control rod drive system were identified, (4) the scheduling efforts related to maintenance activities such as the radiation monitor upgrade, and (5) the knowledge of their systems.

Although engineering support was considered a strength, there are some examples of weaknesses in support of the facility that were noted. Examples of these include: (1) a deficient surveillance test procedure which caused both auxiliary feedwater pumps to be inoperable simultaneously during a portion of the surveillance test, (2) an engineer who failed to promptly notify operations of a damaged safety-related raw water valve, and (3) a failure to trend a boric acid pump circuit breaker problem adequately due to inefficient use of maintenance history. It was concluded that management expectations were not properly communicated in this last instance.

Several noteworthy examples of well developed and implemented engineering programs were identified. The design control program, along with its calculations to support modifications, was considered a strength, as was the pressure relief valve program with its qualifications and training plans. Additionally, the motor-operated valve (MOV) program was considered strong in that a high percentage of MOVs were tested dynamically, high differential flows and pressures were attained during testing and dynamic testing is conducted periodically. Another strength of the MOV program was its fidelity to the generic letter. Lastly, the erosion/corrosion program, the station blackout program, the inservice inspection program, and the 10 CFR 50.59 program all demonstrated well developed and implemented programs within the engineering department.

There were, however, some instances where engineering programs were determined to be lacking in their development and implementation. A weakness was identified in the corrective action program as a result of not documenting operability considerations for a repaired check valve. The design basis reconstitution program was determined to have a limited scope in relation to the design basis deficiency discovered in the engineered safety feature supervisory relays. Also, while the 10 CFR 50.59 program was well developed and implemented, there were some examples of lack of attention to detail within the engineering department.

In addition, a certain lack of attention to detail was demonstrated by the engineers responsible for the development of modification/maintenance packages. In the area of postmodification testing there were several examples of this lack of attention to detail: (1) the electrohydraulic control system modification, (2) the component cooling water relief valve unions, (3) the swagelok fitting to the AFW pump turbine, and (4) the temporary modification to the reactor protection system that resulted in the swapped channels. Other problems in program implementation included the failure to provide the proper drawings to the document control center, not having proper operability acceptance criteria in a package, specification of improperly sized power cables, and labelling and drawing problems in some packages.

Management attention is evident in many facets of the engineering department including the strong programs that have been discussed and the safety philosophy that was demonstrated in the strong proactive approach in preparing for a refueling outage and maintaining awareness of shutdown risk. This is also demonstrated in the high quality of submittals for license amendments or other approvals. Good interdepartmental communication and quick responsiveness to NRC questions and concerns ensured a quality product was submitted to the NRC with respect to no significant hazards considerations and license amendment requests.

Despite these strengths, there are some areas of concern with respect to management attention to the safe operation of the plant - attention to detail, use of historical data to evaluate the root cause of various events, and the workload of the system engineers. The system engineers have always been thought of as an excellent strength at Fort Calhoun Station. Management attention is needed to assure that they have the time to make routine inspections and walkdowns of systems. Management focus on the system engineers and all of engineering needs to be strengthened to assure that expectations are adequately communicated and to monitor the effectiveness of all engineering personnel to maintain a superior level of performance.

The performance rating is Category 1 in engineering.

D. Plant Support

The plant support functional area consists of activities including radiological controls, emergency preparedness, security, chemistry, fire protection, and housekeeping controls.

Generally excellent performance was noted in the radiological controls area which includes radiation protection, radwaste management, radioactive effluents, radiochemistry confirmatory measurements, solid radioactive waste, and transportation of radioactive material. Plant staff experienced a very low person-rem exposure during this SALP period due in large part to an effective as low as reasonably achievable (ALARA) program. Appropriate staffing, training, and qualifications were maintained for personnel responsible for implementing radiological control activities. Also during this SALP period, transition to the new 10 CFR Part 20 requirements was effectively implemented. Improved performance was noted in the control and training of contract radiation protection technicians and maintenance workers. The radiochemistry program was well managed and implemented. Performance in the radiochemistry confirmatory measurements area was outstanding. Management should continue to provide attention to the persisting problems related to poor radiation protection practices, including entering controlled areas without required dosimetry and workers reaching into contaminated areas. In addition, the operations department should be made a more active participant in ALARA committee meetings.

An effective program has been established for the self-identification and documentation of radiation protection problems. Audits and surveillance were performed by qualified staff and provided good program evaluation.

Performance in the emergency preparedness area continued at a high quality level. Emergency response facilities were well maintained and ready for rapid activation. An excellent depth of trained personnel have been assigned to the emergency response organization. Operating crews evaluated in the control room simulator performed well during walkthrough scenarios in detecting and classifying simulated emergency conditions. Weaknesses identified during the full-scale exercise included the lack of appropriate and timely notification of offsite authorities, the lack of timely notification of plant personnel of emergency conditions and poor information flow. These weaknesses were identified by an outstanding self-assessment of the exercise. Some problems were also identified regarding activation of the emergency response organization in response to an actual Notification Of Unusual Event. A hydrazine spill occurred in the plant during the latter part of the SALP period. The licensee's response to the incident is currently under NRC review.

Strong upper management support coupled with effective management within the security organization is a program strength. All program elements continue to be maintained at a superior level. The security force continues to be well trained and proficient.

With the exception of the access authorization program, the security program audits were timely and performance oriented. The corrective action program for security issues indicated prompt, in-depth analyses of all identified issues and the implementation of effective measures to prevent recurrence.

Performance in the fire protection area was superior. An effective fire protection/prevention program had been established and maintained. Maintenance of the material condition of the systems and equipment required to support the program was very good.

Generally, housekeeping and overall state of plant physical conditions were excellent. Management attention should be given to what appeared to be a downward trend in housekeeping during the latter part of the period.

The performance rating is Category 1 in plant support.