

In Reply Refer To:  
Docket: 50-285/88-14

NOV 14 1988

Omaha Public Power District  
ATTN: Mr. Kenneth J. Morris  
Division Manager - Nuclear Operations  
1623 Harney Street  
Omaha, Nebraska 68102

Gentlemen:

This forwards the final report of the Systematic Assessment of Licensee Performance (SALP) for the Fort Calhoun Station for the period October 1, 1986, through April 30, 1988. This final report includes:

1. The SALP Board Report
2. A summary of our August 19, 1988, meeting at the Fort Calhoun Station Emergency Operating Facility to discuss the SALP Board Report
3. Your September 19, 1988, response to the SALP Board Report

I consider the actions discussed in your August 19, 1988, SALP management meeting and in your September 19, 1988, written response to the SALP Board Report to be responsive to NRC concerns and recommendations.

Although you did not include commitment dates in your letter, it is our understanding that these dates have been incorporated in your integrated schedule which was forwarded to the NRC on October 28, 1988, and which is currently under review by the staff.

It is also our understanding based on a November 1, 1988, conversation between Mr. Fisicaro of your staff and Mr. Harrell of this office that you also plan to submit a revision to your September 19, 1988, SALP response that will include commitment dates and further revision to your commitments. We will continue to review and inspect the implementation of your actions during the new SALP period.

/s/  
Robert D. Martin  
Regional Administrator

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Fort Calhoun Station  
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Omaha Public Power District

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SALP BOARD REPORT.

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

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SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

NRC Inspection Report 50-285/88-14

Omaha Public Power District

Fort Calhoun Station

October 1, 1986, through April 30, 1988

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## I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) program is an integrated Nuclear Regulatory Commission (NRC) staff effort to collect available observations and data on a periodic basis and to evaluate licensee performance based upon this information. SALP is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. SALP is intended to be sufficiently diagnostic to provide a rational basis for allocating NRC resources and to provide meaningful guidance to the licensee's management to promote quality and safety of plant operation.

An NRC SALP Board, composed of the staff members listed below, met on June 7, 1988, to review the collection of performance observations and data, and to assess licensee performance in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance." A summary of the guidance and evaluation criteria is provided in Section II of this report.

This report is the SALP Board's assessment of the licensee's safety performance at Fort Calhoun Station for the period October 1, 1986, through April 30, 1988.

### SALP Board for Fort Calhoun Station:

- A. B. Beach, Deputy Director, Division of Reactor Projects, Region IV (Board Chairman)
- T. F. Westerman, Chief, Division of Reactor Projects, Section B, Region IV
- P. H. Harrell, Senior Resident Inspector, Fort Calhoun Station, Region IV
- J. L. Milhoan, Director, Division of Reactor Safety, Region IV
- M. R. Knapp, Acting Director, Division of Radiation Safety and Safeguards, Region IV
- R. E. Hall, Deputy Director, Division of Radiation Safety and Safeguards, Region IV
- P. D. Milano, Project Manager, Fort Calhoun Station, NRR
- J. A. Calvo, Director, Project Directorate IV, NRR
- R. P. Mullikin, Project Engineer, Fort Calhoun Station, Region IV

### Other personnel who participated in all or part of the SALP Board were:

- J. M. Montgomery, Deputy Regional Administrator, Region IV
- L. J. Callan, Director, Division of Reactor Projects, Region IV
- W. C. Seidle, Chief, Test Programs Section, Division of Reactor Safety, Region IV
- I. Barnes, Chief, Materials and Quality Programs Section, Division of Reactor Safety, Region IV
- J. B. Baird, Technical Assistant, Division of Reactor Projects, Region IV
- T. Reis, Resident Inspector, Fort Calhoun Station, Region IV

- R. J. Everett, Chief, Security and Emergency Preparedness Section,  
Division of Radiation Safety and Safeguards, Region IV
- S. L. McCrory, Operator Examiner, Division of Reactor Safety,  
Region IV
- N. M. Terc, Emergency Preparedness Inspector, Division of  
Radiation Safety and Safeguards, Region IV
- L. D. Gilbert, Reactor Inspector, Division of Reactor Safety,  
Region IV
- H. F. Bundy, Reactor Inspector, Division of Reactor Safety, Region IV

## II. CRITERIA

Licensee performance was assessed in 11 selected functional areas. Functional areas normally represent areas significant to nuclear safety and the environment.

One or more of the following evaluation criteria were used to assess each functional area:

- A. Management involvement and control in assuring quality
- B. Approach to the resolution of technical issues from a safety standpoint
- C. Responsiveness to NRC initiatives
- D. Enforcement history
- E. Operational events (including response to, analysis of, and corrective actions for)
- F. Staffing (including management)
- G. Training qualification and effectiveness

However, the SALP Board is not limited to these criteria, and others may have been used where appropriate.

Based upon the SALP Board assessment, each functional area evaluated is classified into one of three performance categories. The definitions of these performance categories are:

Category 1: Reduced NRC attention may be appropriate. Licensee management attention and involvement are aggressive and oriented toward nuclear safety; licensee resources are ample and effectively used so that a high level of performance with respect to operational safety is being achieved.

Category 2: NRC attention should be maintained at normal levels. Licensee management attention and involvement are evident and are concerned with nuclear safety; licensee resources are adequate and are reasonably

effective so that satisfactory performance with respect to operational safety is being achieved.

Category 3: Both NRC and licensee attention should be increased. Licensee management attention or involvement is acceptable and considers nuclear safety, but weaknesses are evident; licensee resources appear to be strained or not effectively used so that minimally satisfactory performance with respect to operational safety is being achieved.

### III. SUMMARY OF RESULTS

Overall, we find that your performance was generally acceptable and directed toward safe facility operation. However, weaknesses were identified in the functional areas of Radiological Controls, Quality Programs and Administrative Controls Affecting Quality, and Training and Qualification Effectiveness. Management oversight and involvement were the major concerns identified by the SALP Board.

The functional area of Security was found to have improved due to the reorganization of the security organization and placement of a security professional in the position as the first-line supervisor.

The performance in the functional area of Plant Operations declined from the previous SALP assessment. The licensed operators were noted to be conscientious and professional, but licensee management, with respect to the operation of the plant, appeared to take a nonconservative approach in response to the intrusion of water into the instrument air system.

The functional area of Maintenance declined based on the need to upgrade the quality of maintenance procedures, the lack of programmatic controls for vendor technical information, and deficiencies which were observed in the implementation of the maintenance program.

A decline in the functional area of Surveillance was noted because of the number of surveillances not performed within their required frequency, the lack of a timely review of test results, and the use of unqualified personnel in the performance of surveillance tests.

Performance in the functional area of Fire Protection also has shown a decline due to the lack of prompt corrective action taken on some NRC identified concerns. However, a positive trend was noted toward the end of the period.

The lack of responsiveness to water intrusion in the instrument air system event was the main reason that the rating in the functional area of Licensing Activities declined.

The licensee's performance is summarized in the table below, along with the performance categories from the previous SALP evaluation period.

<u>Functional Areas</u>	Previous	Present
	<u>Performance Category</u> <u>(03/01/85 to 09/30/86)</u>	<u>Performance Category</u> <u>(10/01/86 to 04/30/88)</u>
A. Plant Operations	1	2
B. Radiological Controls	2	3
C. Maintenance	1	2
D. Surveillance	1	2
E. Fire Protection	1	2
F. Emergency Preparedness	2	2
G. Security	3	2
H. Outages	2	2
I. Quality Programs and Administrative Controls Affecting Quality	2	3
J. Licensing Activities	1	2
K. Training and Qualification Effectiveness	2	3

Fifty-four NRC inspections were conducted during this SALP assessment period involving 4,795 direct inspection man-hours, of which 62 man-hours were attributed to an NRC Headquarters inservice testing program inspection and 465 man-hours were attributed to a Headquarters/Region IV team inspection to follow up on issues identified by the NRC Headquarters safety systems outage modification inspection.

#### IV. PERFORMANCE ANALYSIS

##### A. Plant Operations

##### 1. Analysis

The assessment of this area consisted of the activities of the licensee's operations staff and the activities of licensee management related to operation of the plant. This functional area includes activities such as plant startup and shutdown, power operation, system lineups, logging plant conditions, responding to off-normal conditions, manipulating the reactor and auxiliary controls, plant housekeeping, and control room professionalism.

This area has been inspected on a continuing basis by the NRC resident inspectors and periodically by other NRC inspectors. The inspections included reviews and observations to verify facility operations were performed in accordance with the Technical Specifications, NRC requirements, and the licensee's operating procedures.

The plant was operated during this assessment period without a manual or automatic reactor trip. The licensee has experienced only one automatic and one manual plant trip since July 1984. At the end of the assessment period, the licensee had completed 328 days of continuous power operation since starting up from the last refueling outage that ended on June 7, 1987.

The licensee continued to maintain an experienced group of licensed senior reactor operators (SRO) and reactor operators (RO). The operations staff was stable during this assessment period with a very small turnover rate of licensed onshift operators. Staffing was at a level that permitted the licensee to maintain a six-shift rotation, except during heavy vacation schedules in the summer months.

The licensee currently has 24 individuals that hold an SRO license and 8 individuals that hold an RO license. However, compared to industry averages, this represents a small pool of licensed personnel. The size of the licensed staff has been of concern to the NRC during the assessment period and it continues to be of concern since five licenses have been dropped, at the request of the licensee, since June 1987. The licensee is in the process of adding an additional license to the operator staff and upgrading two ROs to SROs, and adding three instant SROs. The additional licenses and upgrades are scheduled to be completed in 1988.

In addition, the licensee has increased the number of operations positions. The increase was implemented toward the end of this assessment period and the licensee was in the process of filling these new positions.

In addition to the concern of the small licensed operator staff at the Fort Calhoun Station (FCS), the NRC staff perceived during this assessment period that operator attitude has been adversely affected by the lack of a career path advancement program. However, licensee management apparently has also recognized the lack of an advancement program for onshift operators and has established a goal of transferring two operators off of the operating shifts to another organization every 6 months. In this assessment period, the licensee transferred two licensed individuals to the training department. The NRC also recognizes that the planned increase in staffing discussed in the paragraphs above will also allow licensee



management to better implement a program for transferring onshift licensed operators to other positions in the licensee's organization. In addition, changes made in the operations management staff have had a positive impact on operator attitude.

During this assessment period, the NRC has observed that the licensed onshift operators generally exhibited a strong and dedicated commitment to procedural compliance with a good understanding of the technical issues associated with the operation of the plant. These strengths were observed during numerous tours of the control room, during response to minor transient plant conditions, and during the annual emergency preparedness exercise. Log keeping and other documentation maintained by plant operators was performed in an accurate and highly professional manner.

However, during this assessment period, minor weaknesses have sometimes been identified in the performance of the operations staff. On one occasion, the operations staff failed to identify the loss of containment integrity during a refueling shutdown. Containment integrity was lost when isolation valves were left open after the performance of a surveillance test by the electrical staff. On another occasion, the NRC resident inspectors identified that the operations staff failed to notify their supervisory staff that the procedure used for lineup of the breakers on the 480-volt motor control centers was not correct and up to date, even though it was their responsibility to do so.

The NRC also found that the overall execution of evolutions by the plant operations staff has been performed in a professional manner, although two events indicate minor weaknesses in the licensee's program. Licensee event reports submitted during this assessment period indicated that the operations staff, on two occasions, failed to provide the appropriate attention to the details of evolutions performed. Specifically, this was evidenced by the inadvertent initiation of a ventilation isolation actuation signal and by the discharge valve on a fire water pump remaining shut when it should have been opened. In both cases, the events were caused by personnel error.

The NRC resident inspectors have observed instances when the shift supervisors have been hesitant to exercise their authority because of an apparent perception of a lack of management support. In one instance, overcrowding of the control room was observed. The shift supervisor's hesitancy to take action to remove personnel appears to relate to a previous instance when a shift supervisor had not been supported by management in the removal of an individual that was causing a disturbance in the control room. Once the plant manager learned of this condition, he

initiated scheduled meetings with the shift supervisors to stress management's support regarding control room access and his actions appear to have been effective.

On a number of occasions, the NRC resident inspectors witnessed response by the operations staff to minor plant perturbations. The response taken by the operators was performed immediately and prevented the perturbation from escalating into a more significant problem that may have caused challenges to safety-related systems. The perturbations included two occasions of loss of offsite power during the refueling outage and one occasion where the pressurizer spray valves failed open due to valve circuitry problems.

In July 1987 the licensee experienced an event where water from the fire main was introduced into the instrument air system. The instrument air system supplies the motive force for operation of safety-related, air operated valves that are required for safe plant shutdown. At the time of the event, licensee management did not know the amount of water that was introduced into the instrument air system, nor did management perform an analysis to determine how the introduction of water affected the operation of the air operated valves. Licensee management initially performed random blowdowns of the instrument air system to remove the water, but a formal program to implement blowdown of the air system was not initiated until 2 days after the occurrence of the event. During the water intrusion into the instrument air system event, licensee management failed to take the conservative approach and analyze plant systems for operability to ensure maximum protection for the health and safety of the public. The plant was, for a period of time, in an unanalyzed condition since no analysis had been performed to determine the affect of the introduction of water into the instrument air system.

Based on interactions with licensee personnel following the instrument air event and subsequent followup discussions, it was perceived by the NRC that licensee personnel had developed a culture oriented toward "keeping the plant on the line." This perceived culture was evident when the licensee continued to operate the plant in an unanalyzed condition without performing the appropriate analysis for system operability after water entered the instrument air system.

It is not apparent that the capabilities of the shift supervisor are being fully recognized. As an example, during the water intrusion into the instrument air system event, the shift supervisor on shift at the time was not consulted to obtain his recommendations. The NRC expects that the shift supervisor will have a significant input into the decision as to whether the

plant should be shut down following any event that affects plant safety.

Subsequent to the event in July 1987, the licensee performed followup activities to verify the adequacy of the instrument air system. During these followup activities, the licensee identified several air-operated valves that could not perform their intended design function as defined by the Updated Safety Analysis Report. The licensee took actions to correct the identified deficiencies or issue an evaluation addressing why the plant could continue to operate safely. However, the NRC consistently found that when a deficient condition was identified, licensee management was hesitant to make a determination as to whether or not the deficient component was considered to be operable. Once an operability determination has been made, the NRC expects the licensee to take prompt actions to ensure that the component is in an operable status. The hesitancy to make the determination of operability is another example of the perceived culture that exists related to the "keeping the plant on the line" attitude.

The NRC's concerns involving the authority of the shift supervisor, the hesitancy observed in the performance of operability determinations, and the "keeping the plant on the line" culture at FCS raise questions as to how the licensee would perform when faced under stress with an actual plant emergency condition. The NRC recognizes the operating record of the FCS during the assessment period and its high performance indicators. It also recognizes however, that a more conservative culture needs to be implemented by the licensee. Efforts were noted at the end of this assessment period that the licensee was striving to implement a more conservative culture at the end of this assessment period.

In the last assessment period, it was noted that plant housekeeping and labeling of components, equipment, and piping were marginally acceptable. During this assessment period, the licensee has provided additional management attention in these areas. However, the NRC resident inspectors noted several examples where additional housekeeping attention was needed. The licensee has implemented a program to upgrade the plant appearance and to improve the labeling of plant equipment. The program was initiated in this assessment period and is expected to be completed in 1990.

## 2. Conclusions

The overall performance level by the onshift operations staff was very good during this assessment period. Although various minor weaknesses with the performance of the staff were

identified, it was not apparent that a decrease in the performance level was significant.

The number of licensed operators on the licensee's staff is low when compared to industry averages for plants of similar sizes. The NRC is concerned that a relatively small staff will require excessive overtime be performed by the licensed operators which will reduce the overall effectiveness of the onshift operations personnel.

The approved increase in the staffing level for the operations department should allow present members of the operating staff to be transferred to other organizations. The transferring of operators from shift work to other positions is seen as a positive step toward improving the attitude of the onshift operations staff and an upgrade of other organizations by placement of individuals with a strong operations background into the organizations.

Review of events that occurred during this assessment period indicates that the professionalism and conscientious efforts of the operations staff have prevented the plant from experiencing safety system challenges and reactor trips because of the immediate actions taken for minor plant perturbations.

The instances of apparent lack of management support for the shift supervisor are of particular concern since this individual represents the only management onsite representative during off-normal working hours. This was evident when management failed to support the shift supervisor in controlling access to and behavior in the control room. Management also did not actively solicit recommendations from the shift supervisor following the instrument air event.

The performance of licensee management with respect to the operation of the plant appears to be nonconservative, based on the actions taken in response to the instrument air water intrusion event. Actions taken by management indicate that too great a consideration is given toward keeping the plant operating at power. In addition, management has indicated, on several occasions, a hesitancy toward determining the operability of components or equipment. This was evident when the licensee failed to make timely operability determinations for components and equipment affected by the instrument air event.

The licensee is considered to be in Performance Category 2 in this functional area. This rating is lower than the Performance Category 1 rating that was given for the last assessment period. The reduced rating can be attributed to the types of action taken by licensee management personnel during this assessment

period to create an apparent "keeping the plant on the line" culture when consideration should be given to a plant shutdown. The NRC is concerned that the licensee's actions under stressed conditions might not be conservative. The NRC does recognize that the licensee was striving to implement improvements in its programs for a more conservative culture at FCS toward the end of the assessment period.

### 3. Board Recommendations

#### a. Recommended NRC Actions

NRC attention should be consistent with the basic inspection program with respect to performance of the operations staff. Additional NRC attention should be focused on the action of management personnel in response to identified events.

An operational safety team inspection should be performed to verify that the onshift operations staff is receiving an appropriate level of support from the other licensee organizations.

#### b. Recommended Licensee Actions

Licensee management needs to develop an attitude that demonstrates, in response to an event, that they are concerned with safe plant operation and that they are willing to take a conservative approach. Inherent with the development of a conservative approach to safe operation of the plant, management should also develop and implement a philosophy that addresses the need to make an operability determination as soon as possible after a component or equipment has been identified as deficient.

Licensee management should increase their efforts to ensure that the operations staff receives the necessary support to ensure that the plant is operated in a safe manner. The licensee should take whatever steps are necessary to ensure that the shift supervisors have the appropriate level of authority to fully implement their assigned responsibilities. Actions should be taken to place significant emphasis on the recommendations made by the shift supervisor with respect to the safe operation of the plant following an event.

## B. Radiological Controls

### 1. Analysis

The assessment of this functional area includes the following areas of activity which are evaluated as separate subareas to arrive at a consensus rating for this functional area:

- (a) occupational radiation safety, which includes controls by the licensee and contractors for occupational radiation protection, radioactive materials and contamination controls, radiological surveys and monitoring, and ALARA programs;
- (b) radioactive waste management, which includes processing and onsite storage of gaseous, liquid, and solid waste;
- (c) radiological effluent controls, which includes gaseous and liquid effluent controls and monitoring, offsite dose calculations and dose limits, radiological environmental monitoring, and the results of the NRC's confirmatory measurements program;
- (d) transportation of radioactive materials, which includes procurement and selection of packages, preparation for shipment, selection and control of shippers delivery to carriers, receipt/acceptance of shipments by the receiving facility, periodic maintenance of packagings, and for shipment of spent fuel, point of origin safeguards activities; and
- (e) water chemistry controls, which includes primary and secondary systems affecting plant water chemistry, water chemistry control program and program implementation, chemistry facilities, equipment and procedures, and chemical analysis quality assurance.

#### a. Occupational Radiation Safety

This area was inspected four times by NRC region-based inspectors during this assessment period. Three of these inspections included one special team inspection, one inspection during routine plant operations and one refueling outage inspection.

The numerous violations identified in the radiation protection program was an indication of a lack of management involvement in assuring quality. Two escalated enforcement actions have resulted in two penalties being assessed based on three Severity Level III violations for a total of \$187,500. Corrective action was not effective and generally addressed symptoms rather than root causes since several events were repetitive. Management/supervision performed routine reviews of work activities at the job sites within the radiation controlled area, but these reviews did not ensure that radiation protection controls were being properly implemented. An aggressive, comprehensive licensee audit/review program had not been implemented regarding radiation protection activities.

Weaknesses in the radiation protection program were identified in that radiation protection personnel were not familiar with basic regulatory requirements and plant procedures. Station radiation protection procedures are fragmented, difficult to follow, and generally not being used by plant personnel. There appeared to be a lack of cooperation between radiation protection and other plant groups at the supervisory level. A programmatic breakdown was indicated. The licensee's responsiveness to NRC initiatives were often viable, but these responses were lacking in thoroughness and depth. Many of the same weaknesses identified during this assessment period had been identified during the previous assessment period.

Two enforcement conferences were held in October 1987 and March 1988. During the later enforcement conference, the licensee made commitments to the NRC regarding a radiation protection improvement program plan. This plan, known as the Radiation Improvement Project (RIP), is to be directed toward the upgrade of the radiation protection program and will require approximately 2 years to complete. The licensee had not completed all aspects of the RIP, such as identification of major milestones and completion dates. The licensee will provide bimonthly updates to the NRC on the progress of the RIP.

The size of the radiation protection staff was adequate to support plant operations but does not allow sufficient time for training/retraining of personnel. A low personnel turnover rate within the radiation protection group was experienced during this assessment period. The licensee's approach concerning the resolution of technical issues indicated a clear understanding of each issue and included a generally sound and thorough solution.

The licensee continued to be near or below the national average regarding personnel exposures. The person-rem exposure for 1986 was 74 (no major outages), as compared with the PWR national average of 392, and for 1987 was 388.5 compared to the PWR national average of 376. The licensee established a goal of 320 person-rem for 1988. Personnel radiation exposure totals do not necessarily reflect the effectiveness of the radiation protection program.

During the refueling outage, the licensee hired a foreign contractor to perform steam generator sludge lancing. The language barrier and an inexperienced crew caused the licensee to supplement the contractor before the job was completed. The significance of this poorly coordinated effort was that a major outage evolution scheduled to be

accomplished with the expenditure of 7.76 person-rem resulted in a total expenditure of over 25 person-rem. Additionally, the original contractor could not complete the entire job and was eventually assisted by a contractor experienced in the sludge-lancing process for the plant steam generators. Other ramifications of the use of this crew has been discussed in the Outage Section of this assessment (paragraph 4).

b. Radioactive Waste Management

The licensee's program concerning the processing and onsite storage of solid radioactive waste was inspected twice during the assessment period. No violations or deviations were identified.

The licensee implemented a well defined program for the processing of solid waste. Key positions had been identified and responsibilities were defined. No particular problems were identified in this area.

c. Radiological Effluent Control and Monitoring

This area includes gaseous and liquid effluent controls and monitoring, offsite dose calculations and dose limits, radiological environmental monitoring, radiochemistry program, and radiochemistry confirmatory measurement results. Three inspections were conducted during the assessment period. Together, they encompassed the complete program area. One violation was identified for the incorrect valve lineup of the waste gas sampling system after sampling, which was attributed to inadequate procedures.

The radiochemistry program was inspected once which included onsite confirmatory measurements with the NRC Region IV mobile laboratory. The results of the radiological confirmatory measurements indicated 97 percent agreement. This level of agreement was an improvement over the 84 percent agreement during the previous assessment period.

The licensee experienced a large turnover, approximately 50 percent, of personnel assigned to the radiochemistry laboratory program. This resulted in no detrimental effect on the program.

The offsite radiological environmental monitoring program was inspected once during this assessment period. No violations were identified. The radiological environmental monitoring program is effectively managed from the



licensee's corporate office and implemented by assigned station personnel.

d. Transportation of Radioactive Materials

This area was inspected twice during the assessment period in conjunction with the solid radioactive waste management program. Two violations were identified by the licensee's quality assurance department. One violation involved the prompt notification and survey of incoming radioactive material packages, and the second related to the storage of these packages in the warehouse. Corrective action taken by the licensee was timely and effective in this case.

The licensee had established an adequate quality control/quality assurance program for low-level radioactive material shipments. Transportation activity records were complete. The licensee has made a significant reduction in the volume of low-level radioactive waste generated.

e. Water Chemistry Controls

This area was inspected once during the assessment period. The inspection involved the use of prepared water chemistry standards for confirmatory measurement evaluations. The results of the initial water chemistry confirmatory measurements indicated 97 percent agreement between the licensee and the NRC's reference laboratory. These results are considered above the expected industry performance level. The inspection also identified two concerns involving calibration standard verification and not using quality control charts to trend and evaluate instrument quality control data.

One item of particular concern was identified by the NRC resident inspectors during this assessment period. The item concerned the failure of an onshift chemistry technician to answer eight communication pages from the control room during the lunch period. The failure to answer the pages is an indication that nonoperating personnel are not properly supporting the needs of the operations staff. In discussions with licensee personnel, the NRC inspectors determined that chemistry and health physics personnel did not routinely answer pages during the lunch period. The attitude of these support personnel in not answering pages is an indication that management has not developed the appropriate attitude among plant personnel. Support personnel should realize that their prime function is to support the needs of the operations staff.

The licensee has subsequently taken actions to ensure that onshift chemistry and health physics technicians provide timely support to the operations staff. The actions included addition of the names of the onshift personnel to the operations watchbill, institution of a requirement that the onshift technicians visit the control room at least once per shift, and emphasizing the need to answer pages at all times. No problems were noted by the NRC resident inspectors since the licensee implemented the corrective actions.

## 2. Conclusions

The following conclusions were made concerning the functional area of radiological controls. Several weaknesses were identified involving management oversight and support, inadequate procedures, unclear training requirements, ineffective corrective actions, and an overall lack of attention to detail, in the occupational radiation safety programs. The licensee maintained a high level of quality in the water chemistry controls, radiological environmental monitoring, and effluent release control programs. The areas of radiochemistry and radioactive waste management were deemed to be satisfactory.

While audits of the various radiological control program areas was evident, a programmatic problem existed in that the audits were generally of insufficient scope and detail to identify procedure and program weaknesses. It was noted that some licensee personnel did not have a good understanding of regulatory requirements and plant procedures which is an indication of an ineffective training program.

The area of occupational radiation safety mostly effects the health and safety of personnel assigned to perform work at the licensee's facility. This area is the heaviest weighted in determining the licensee's performance.

The licensee has proposed a radiation improvement plan which will require approximately 2 years to complete and will provide bimonthly updates to the NRC on program progress.

The licensee is considered to be in Performance Category 3 with an overall declining trend in this functional area.

## 3. Board Recommendation

### a. Recommended NRC Actions

The NRC inspection effort should be at an increased level in the area of occupation radiation safety to ensure the proposed radiation improvement program is being

aggressively pursued and implemented. The NRC inspection effort for the other areas should be consistent with the basic inspection program.

b. Recommended Licensee Actions

The radiation improvement program should be finalized with major milestones identified and completion dates established. Management/supervision should ensure that the radiation controls are being properly implemented. The training/retraining program should be fully implemented to ensure personnel have a good understanding of regulatory requirements and plant procedures.

C. Maintenance

1. Analysis

The assessment of this area includes all licensee and contractor activities associated with preventive or corrective maintenance of instrumentation and control equipment, and mechanical and electrical systems.

This area was inspected periodically by NRC region-based inspectors and on a routine basis by the NRC resident inspectors. The inspections included verification that maintenance activities were performed in accordance with the licensee's procedure and regulatory requirements.

During this assessment period, the licensee maintained a very stable and well-qualified maintenance work force with little turnover. The maintenance group maintained plant equipment in good working order. For this reason, the licensee did not experience any forced plant shutdowns due to maintenance problems.

During this assessment period, the licensee held daily meetings between the operations and maintenance departments. The meetings were held so that operations personnel could identify maintenance activities that require completion on a priority basis. Based on these meetings, the maintenance group established its priorities to ensure that repair of equipment was performed as identified by the operations department.

The licensee's backlog of corrective maintenance activities for all crafts dropped during this assessment period. The level of backlog was approximately 4500 person-hours for safety-related equipment, very little of which would have a significant impact on safety. The current level of backlog decreased from approximately 5500 person-hours at the end of the last assessment period.

The licensee is in the process of constructing a new warehouse and expanding the maintenance shop. These two capital projects will increase the overall efficiency of the maintenance groups. More maintenance shop area will provide more room for each group to function and a new warehouse will provide greater ease of access to parts and materials for maintenance personnel. The current warehouse is located outside the protected area fence and requires a significant amount of time for maintenance personnel to obtain parts. The new warehouse will allow access to spare parts without maintenance personnel leaving the protected area. This addition of the new warehouse should increase the efficiency of the maintenance staff and provide for a reduction in the maintenance order backlog. These projects will be completed in 1988.

During this assessment period, the number of first-line supervisors for the maintenance department was increased from two to six. This reorganization was done to provide for greater supervisor presence in the field for overseeing maintenance activities. The reorganization was established late in this assessment period; therefore, no conclusions could be established as to how the reorganization affected the performance of the various maintenance groups.

One area of concern was identified by the NRC resident inspectors during this assessment period. The area was related to postmaintenance testing of components and equipment to verify operability. The licensee was performing postmaintenance testing for equipment and components required to safely shut down the plant. However, regulations require that all safety-related equipment be tested after the completion of maintenance activities to verify operability. Upon notification by the NRC resident inspectors of this problem, the licensee immediately instituted a revised program for postmaintenance operability testing of all safety-related equipment. No specific equipment or component problems have been noted due to a lack of postmaintenance testing.

An inspection was performed of maintenance activities by a NRC region-based inspector and a consultant during this assessment period. This inspection identified the failure of the licensee to update and incorporate the latest applicable vendor technical information in the maintenance procedures for safety-related equipment, systems, and components. There were examples of inadequate maintenance procedures; e.g., missing and/or improper acceptance criteria for torquing of installed bolts, meggering of electrical equipment, the tightness of electrical connections and instrument accuracy.

During the inspection, it was also noted that maintenance personnel were performing maintenance tasks but were not

following the procedure designated to be used to performance of the task, or were using the incorrect procedure. These type of activities are an indication of an apparent weakness in management supervision of personnel performing maintenance activities.

The NRC staff has recognized that the licensee instituted a maintenance improvement program based upon the results of an INPO assessment. The licensee issued a maintenance improvement plan for improvements in the preventive maintenance area. The effects of this program has been the reduction in the number of maintenance backlog items.

## 2. Conclusions

The licensee has implemented an effective maintenance program as indicated by the establishment of maintenance priorities. By establishing priorities, the licensee ensures that safety-related equipment is repaired and maintained in a timely manner.

Licensee management attention was evident in that no maintenance forced outages occurred during this assessment period. However, the lack of maintenance problems was attributed to the stable, well-qualified work force and is not a reflection of the quality of the maintenance procedures used by the work force nor is it a reflection of the adequacy of maintenance supervision. The maintenance inspection performed by the regional-based NRC inspector indicated weaknesses in both of these areas.

The licensee is considered to be in Performance Category 2 in this functional area.

## 3. Board Recommendations

### a. Recommended NRC Actions

The NRC inspection effort in this functional area should be consistent with the basic inspection program. A maintenance team inspection should be scheduled during the next assessment period to look at the overall performance of the licensee's maintenance program.

### b. Recommended Licensee Actions

Licensee management should increase their involvement in this functional area to ensure that performance in this area returns to its previous high level. Management should continue to reduce the quantity of the maintenance order backlog. Programmatic controls for vendor/technical manual

should be established, and upgrading of the content of maintenance procedures should be actively pursued.

D. Surveillance

1. Analysis

This area covers all surveillance testing and calibration control activities. Examples of activities included are instrument calibrations, equipment operability tests, system functional tests, core physics tests, core thermal power evaluations, and special tests.

This functional area was inspected on a routine basis by the NRC resident inspectors and periodically by NRC region-based inspectors.

The NRC resident inspectors verified during numerous observations of surveillance test activities that the testing was properly completed, that the latest revision of the testing procedure was used, and that the test data were reviewed for compliance with established acceptance criteria. Minor inadequacies in performance of test procedures were occasionally observed by the NRC resident inspectors and promptly corrected by the licensee. However, these inadequacies were not considered significant relative to the thousands of surveillance tests performed during this assessment period. The primary basis for the observed level of performance was the licensee's stable work force and the experience of the personnel performing the tests. Surveillance test results were reviewed at the completion of tests to verify that acceptance criteria were met. If the results indicated that the test was unsatisfactory, the equipment and/or component was repaired and a retest performed in a timely manner.

During this assessment period, the licensee submitted reports that described events in which surveillance tests were not performed within the frequency required by the Technical Specifications. It appeared, from a review of the event reports, that surveillance tests were not being performed because of errors in scheduling or by personnel oversight. The number of these events increased during this assessment period which is an indication that the licensee has not exhibited the strict control for scheduling of tests that has been apparent in past assessment periods.

The NRC resident inspectors noted, on two separate occasions, that the licensee failed to establish surveillance tests as required by amendments issued to the Technical Specifications. In one case, an amendment established testing requirements for postaccident monitoring instrumentation. The licensee failed to

issue surveillance tests to implement the testing within the time period specified by the amendment. This error was identified by the NRC resident inspectors. In follow-up to this problem, the licensee identified another instance where the surveillance test performed on the emergency diesel generators did not comply with the Technical Specification amendment. The amendment changed the length of time that the diesel was to be run fully loaded. The licensee did not include the length of operation change into the surveillance procedure within the time specified by the amendment.

Based on a review of this area by the NRC resident inspectors, it appears that interface between the organization receiving the Technical Specification amendments and the organization responsible for implementing the changes prescribed in the amendment was weak. The amendment was received at the corporate offices, but was not forwarded to the responsible plant personnel in a timely manner.

Review of other event reports indicated that the licensee also experienced problems with inadequate testing instructions and with personnel not following procedures. Inadequate procedures, failure to follow procedures, or a combination of both, resulted in the inadvertent actuation of safety-related equipment on seven separate occasions. It appeared that one factor contributing to these events was the over-familiarity of plant personnel with the surveillance activities. Because of the stability of the work force, individuals have performed each surveillance test many times and this tended to result in personnel errors because of an inattention to procedural details.

The licensee has taken remedial actions to ensure that surveillance testing is performed at the frequency specified in the Technical Specifications and that surveillance tests are performed in accordance with documented instructions. These actions included a review of the scheduling of tests and the method used to verify timely test completion. To address the problem of inadequacy of surveillance instructions, the licensee issued a memo to all personnel, which stated that compliance with instructions is mandatory and that a procedure change be processed whenever a procedure cannot be performed as written. The memo was issued based on the identification of a violation by the NRC resident inspectors for failure to follow procedures. The action was initiated approximately two months prior to the end of the assessment period. No further problems have been identified since the licensee's actions were implemented; however, this period of time is too short to thoroughly evaluate the impact of the corrective actions. Evaluation of the corrective actions will be continued into the next assessment period.

Violations involving the failure to promptly resolve test deficiencies and the evaluation of a surveillance test by an examiner not having the correct qualification level were identified late in the assessment period. Also, there was a deviation identified from a previous commitment to promptly complete the reviews and to disposition completed surveillance test records. The 11 test records involved in this deviation dated from August 1986 to the 1987 refueling outage. This failure to take timely action on identified deficient test records indicated inadequate management involvement and followup in this functional area.

## 2. Conclusions

The licensee continued to implement an acceptable surveillance testing program. The experience level of the staff is above average because of the low personnel turnover rate. Event reports issued by the licensee indicated negative trends in effective scheduling of the performance of surveillance tests, in the performance of the tests by personnel, and in the content of the instructions provided in the tests. Although apparent negative trends have been established, the licensee has taken actions to prevent a continuation of the trends. The existence of a substantial number of test records on the deficiency list for review for a lengthy period of time and failures in commitment tracking were indicative of a downward trend in management involvement and oversight in this functional area.

The licensee experienced difficulties in implementing new or revising established surveillance test procedures in response to changes dictated by Technical Specification amendments. These problems indicate a weakness in the interface between the organization that receives the amendments from the NRC and the organization that ensures that the appropriate documentation is changed or generated, as appropriate.

The licensee is considered to be in Performance Category 2 in this functional area. It appears that the level of performance in this area has declined relative to past performance.

## 3. Board Recommendations

### a. Recommended NRC Actions

The NRC inspection effort in this functional area should be consistent with the basic inspection program.

### b. Recommended Licensee Actions

Licensee management should take actions to ensure timely scheduling and completion of surveillance tests, personnel



compliance with the surveillance instructions, and correction of the negative trends identified in this functional area. Licensee management should also increase their involvement and oversight to ensure that completed test records are promptly reviewed and dispositioned. Management should also take the actions necessary to ensure that the changes made by amendments to the Technical Specifications are promptly implemented into the appropriate documentation.

## E. Fire Protection

### 1. Analysis

The assessment of this area includes housekeeping and fire protection/prevention program activities.

This functional area was inspected by NRC region-based inspectors and on a continuing basis by NRC resident inspectors. During these inspections it was found that the control of transient combustibles has been effective and general housekeeping was good. The program for fire brigade training and drills was found to be effective. Technical Specification required surveillances were found to be performed as required with the exception of a small number of overdue or missed surveillances. Records were well maintained and readily available.

The NRC has, in previous assessment periods, stressed the need to have a dedicated fire protection engineer for fire protection duties. It is felt that fire protection duties are so demanding that a full-time engineer dedicated only to fire protection is required. The licensee has, at times, dedicated their fire protection engineer to certain fire protection tasks. However, this individual still had other duties at the end of the assessment period.

The NRC inspectors identified two issues of concern during this assessment period that required licensee action. These concerns are discussed below.

- a. The NRC resident inspectors identified fire doors that were non-functional (unlatched). These were brought to the attention of the licensee over a period of several months. Corrective action was not initiated until the number of identified instances had reached the level where a violation was issued.
- b. An NRC region-based inspector noted that an oily substance, determined by the licensee to be tendon grease, was being secreted through the seismic gap fire seal in the upper

electrical penetration room. The potential consequences of this caused a degraded fire barrier.

An NRC region-based inspector discovered that some electrical conduits passing through a fire barrier were not internally sealed. When this was brought to the licensee's attention, they took immediate corrective action by instituting fire watches, sealing those identified conduits, and performing a walkdown to identify other nonsealed conduits. The licensee's aggressive action to increase safety in this instance was commendable.

## 2. Conclusion

Generally, the licensee has an adequate fire protection/prevention program. The licensee has not pursued some concerns as aggressively as they should have. This could be attributable to the lack of a dedicated fire protection engineer.

The licensee is considered to be in Performance Category 2 in this functional area.

## 3. Board Recommendations

### a. Recommended NRC Actions

The NRC inspection effort in this functional area should be consistent with the basic inspection program. It is recommended that the postfire safe shutdown capability reverification team inspection be performed early during the next assessment period.

### b. Recommended Licensee Actions

The licensee should dedicate a qualified individual to perform only fire protection duties, and resolve NRC identified concerns in a more timely manner.

## F. Emergency Preparedness

### 1. Analysis

The assessment of this area included the licensee's preparation for radiological emergencies and response to simulated emergencies (exercises). Thus, it encompassed the areas of emergency plan and implementing procedures; emergency facilities, equipment, instrumentation, and supplies; organization and management control; training; independent reviews/audit; and the licensee's ability to implement the emergency plan.

During this assessment period, four emergency preparedness inspections were conducted by NRC region-based and contract personnel. One of these inspections was the observation and evaluation of annual emergency response exercise by a team of NRC and contractor inspectors. During the exercise, eight deficiencies were identified and four deficiencies from a previous exercise were closed. Three routine inspections resulted in closure of 3 violations, 2 deviations, 17 deficiencies, and 6 unresolved items. One violation and eight deficiencies were identified during the same period. The violation pertained to inadequate training of senior reactor operators who would assume emergency coordination, and chemistry technicians who would perform dose assessment during accidents. These emergency responders failed to demonstrate adequate proficiency during walk-through examinations. The eight deficiencies identified during the 1987 exercise, and a series of scenario incongruences that detracted from the realism of the exercise, indicated that management involvement in this area was inadequate. After these deficiencies were identified, the licensee appears to have been active in writing the 1988 exercise scenario. In addition, the licensee has requested information from various sources on how to improve the quality of the scenario. The licensee's actions will be evaluated during the next exercise.

## 2. Conclusions

The number of deficiencies observed during the exercise and the violation observed during a routine inspection indicate that training methods and emergency implementing procedures require additional improvements. Special management attention should be devoted to training and qualification of emergency responders, in particular senior reactor operators and chemistry technicians, and other persons who would assume a vital role during emergencies. Management attention should also be directed toward developing an adequate exercise scenario, and to correcting emergency procedures. The inspection findings for this evaluation period indicate, overall, that the licensee's emergency preparedness program is adequate to protect the health and safety of the public.

The licensee is considered to be in Performance Category 2 in this functional area.

## 3. Board Recommendations

### a. Recommended NRC Actions

The NRC inspection effort in this functional area should be consistent with the basic inspection program. Particular attention should be paid to the proficiency of emergency

response personnel during the upcoming exercise, to the adequacy of the exercise scenario, and to the adequacy of emergency implementing procedures.

b. Recommended Licensee Actions

The level of management attention to the implementation of the emergency preparedness program should be increased to ensure effective response to NRC identified items.

Licensee management needs to ensure that emergency preparedness training and the verification of the proficiency of emergency response personnel are adequate. In addition, the licensee needs to review and correct emergency implementing procedures and to ensure that exercise scenarios provide the necessary realism during the annual exercise.

G. Security

1. Analysis

The functional area of security includes all activities related to the security of the plant. Specifically, it includes all aspects of the security program including ancillary efforts such as fitness for duty, fingerprint background investigations, and the quality assurance audit program. The category also includes management effectiveness in developing, implementing, and supporting security programs.

This area was inspected on a continuing basis by the NRC resident inspectors and on a periodic basis by NRC region-based inspectors. In addition to the NRC resident inspectors' routine security inspections, five inspections were conducted by NRC region-based physical security inspectors during this assessment period. Nine violations were issued. Of the violations cited, three were significant in that they were repeats from the previous assessment period.

These violations involved the licensee's failure to control vehicles inside the protected area and failure to properly implement compensatory measures.

During this assessment period, the licensee reorganized the security organization and changed the security management. A major security upgrade is in progress, which includes improvements in closed-circuit television assessment aids and intrusion detection aids. A new alarm station was established in another location. There appears to be a general improvement in most security areas, except those areas mentioned above. The licensee has developed an outstanding program for reviewing and

further investigating the results of the FBI criminal history checks.

## 2. Conclusion

The licensee is steadily improving security programs, but has been slow in completing the security improvements. These delays have required long-term compensatory measures be implemented. Action to upgrade security systems commenced in the previous assessment period.

The licensee is considered to be in Performance Category 2 in this functional area.

## 3. Board Recommendations

### a. Recommended NRC Actions

The NRC inspection effort in this functional area should be consistent with the basic inspection program until the security system upgrades are completed and the new security management has established their performance.

### b. Recommended Licensee Actions

The licensee is encouraged to focus on long-term corrective actions to ensure that repeat violations do not recur and complete the security program improvements in progress.

## H Outages

### 1. Analysis

The assessment of this area includes all licensee and contractor activities associated with major outages. It includes refueling, outage management, major plant modifications, repairs or restoration to major components, and all post outage startup testing of systems prior to return to service.

During this assessment period, the licensee had one major outage for refueling. The outage was from March 6 to June 7, 1987.

This functional area was inspected periodically by NRC region-based inspectors and on a routine basis by the NRC resident inspectors. The inspections included verification that refueling activities outage management, repairs and modifications to equipment, and preoperational startup testing were performed in accordance with the Technical Specifications, regulatory requirements, and the licensee's procedures.

On two occasions during the 1987 refueling outage, offsite power was lost due to personnel errors. In one case, a contract individual was cleaning inside the switch box for the on-line transformer when he inadvertently tripped the pressure switch used to sense transformer low oil pressure. The tripping of the switch caused a transformer breaker to open and resulted in a loss of all power to the plant for approximately 5 minutes. Power was restored by operations personnel by manually starting an emergency diesel generator. Confusion existed in attempts by operations personnel to restore offsite power in that operations personnel were not aware that housekeeping was being performed on the transformer. In addition, operations personnel did not know how to reset the pressure switch due to deficiencies in operating procedures. The relay was reset by an electrician. Subsequent to this event, the licensee implemented corrective actions to ensure that this event did not recur.

In the other case, personnel were preparing to perform maintenance on Transformer T1A4. Station personnel inadvertently pulled the fuses on Transformer T1A2 which was supplying the plant with offsite power. The pulling of the fuses caused Transformer T1A2 breakers to open, resulting in a loss of all power to the plant. Power was restored in 4 minutes by reinstalling the fuses and shutting the breakers for Transformer T1A2. Review of this event by the licensee indicated that inadequate labeling of transformer fuses contributed to this event.

The two events described above are indications of the minimally acceptable level of outage management provided for routine maintenance activities. The failure to notify the shift supervisor of cleaning activities on the on-line transformer indicates a lack of communication between operations and the personnel performing plant activities that could affect the status of plant systems.

The NRC resident inspector observed the movement of fuel by operations personnel on numerous occasions. The movement of fuel was performed without incident. All fuel handling activities were performed in accordance with the Technical Specifications and the licensee's procedures. The operations staff and other personnel involved with fuel movement activities appeared to be well trained and qualified.

Prior to the refueling outage, the licensee published a refueling operations guide. This guide provided instructions for licensee employees and contractors involved in the outage. The instructions included a listing of the individuals responsible for each outage activity, a brief description of the radiation work permit and maintenance order processes, and a listing of the procedures applicable to the outage for

reference. The guide was prepared for easy reference by individuals to obtain assistance with refueling activities when needed.

The NRC resident inspector observed selected activities performed by operations personnel during plant startup from the refueling outage. The activities observed included obtaining reactor criticality and the postoutage testing of safety-related systems. The plant startup was performed in an orderly manner and no problems were noted. Compliance with the Technical Specifications and regulatory requirements was maintained throughout the plant startup evolutions.

During this assessment period, the licensee performed sludge lancing of the secondary sides of the steam generator during the refueling outage. A foreign contractor was hired to perform the task. Many of the team members sent to perform the job spoke little or no English. Several were appropriately denied access to the site for their inability to complete general employee training. The resultant team admitted to the site to perform the job was untrained and inexperienced on the equipment that was to be used. Two foreign speaking engineers who were denied access to the site were to instruct the team on the proper operation of the equipment.

Compounding the problem with the language barrier and the inexperienced crew was the fact that the contractor's mockup was not representative of the steam generators installed at Fort Calhoun. According to a contractor representative, the contractor did not receive the drawings of the steam generators until approximately 10 days before they were to leave their country. The mockup was designed, fabricated, and used for training in this short time.

Once the contractor began cleaning the steam generators, numerous technical difficulties with hardware complicated and prolonged the task. The difficulties were attributed to the contractor's unfamiliarity with the equipment. The licensee realized that the foreign contractor was having difficulty cleaning the steam generators and hired another contractor experienced in performing sludge-lancing operations. The foreign contractor completed the cleaning of one steam generator while the other contractor completed cleaning the second steam generator.

An inspection of plant repairs and modifications identified weaknesses in the area of control of special processes. The three areas of concern identified were inadequate welder and welding qualifications, inadequate welding and inspection instructions, and incorrect radiographic examination techniques.

## 2. Conclusions

During the last refueling outage, the licensee experienced a loss of offsite power on two occasions. On one occasion, power was lost due to the tripping of a pressure switch for the on-line transformer. On the other occasion, power was lost due to personnel inadvertently pulling fuses for the on-line transformer. The two loss-of-offsite power events is an indication of minimally acceptable outage management oversight. The failure to notify operations personnel of outage activities that may affect plant systems is of particular concern. When power was lost during housekeeping activities on the transformer, the shift supervisor was not aware the cleaning activity was in process.

The use of a foreign contractor for sludge-lancing of the steam generators led to numerous difficulties as discussed above. The licensee found it necessary in a second contractor with experience.

The licensee demonstrated a weakness in the control of special processes. The weakness identified was attributed to poorly stated and ill understood instructions, procedures, and drawings for control of plant modifications and repairs to plant equipment.

The licensee is considered to be in Performance Category 2 in this functional area.

## 3. Board Recommendations

### a. Recommended NRC Actions

The NRC inspection effort in this functional area should be consistent with the basic inspection effort. Additional NRC attention should be focused on outage management oversight. Licensee management attention and involvement are evident and are concerned with nuclear safety. Licensee resources are adequate and reasonably effective so that satisfactory performance with respect to operational safety is being achieved.

### b. Recommended Licensee Actions

Licensee management attention should be increased for activities associated with special process control to ensure that these activities are performed in accordance with requirements. The licensee should provide better oversight of outage activities to ensure that offsite power is maintained and to ensure that the operations staff is continually informed of outage activities that could affect plant systems.



## I. Quality Programs and Administrative Controls Affecting Quality

### 1. Analysis

This functional area was inspected by NRC resident inspectors and by region-based inspectors. Inspections performed in this functional area included review of the administration of quality assurance (QA) and quality control (QC) activities, operations QA program, QC program, safety review committees (onsite and offsite), document control, records, procedures, IE Bulletin followup, and procurement controls.

#### a. Review of the Quality Assurance and Quality Control Organizations

During this assessment period, this area was inspected twice by NRC region-based inspectors. In addition to a general review of the QA/QC programs, the offsite review committee, audit, records, document control, procurement, and material receipt and storage programs were reviewed. There were no adverse findings in these inspections.

During tours of the plant, the NRC resident inspectors noted that QA personnel regularly tour the plant. The NRC inspectors also noted that QA personnel regularly visit the control room to review plant and equipment status.

During review of the instrument air event and subsequent concerns identified due to design problems of the instrument air system, NRC personnel noted that QA personnel were not actively involved in assessment of the event or design problems. The instrument air event and design problems are discussed in the following section.

Subsequent to the instrument air event, evaluations were performed by the licensee to determine the operability status of air operated, safety-related components and equipment. The safety analyses for operability were not reviewed by QA personnel to provide an independent assessment of the quality and acceptability of the analyses. A review by QA personnel would provide an independent evaluation that would ensure all aspects of the QA program were considered during preparation of the analyses.

#### b. Management Oversight

During this assessment period, items in the areas of health physics, chemistry, and security were identified by NRC inspectors that required attention by licensee personnel. At the time the items were identified, violations had not

yet occurred, but the potential for violating a regulatory requirement existed. Because management did not take the appropriate actions to resolve the identified deficiencies, violations subsequently occurred. The appropriate corrective actions were taken by management only in response to the resulting notices of violation. The failure of management to take timely actions is considered a potential weakness in the attitude of management toward resolving NRC identified issues.

During this assessment period, the licensee continued to experience problems with the completion of commitments made to the NRC. For this reason, NRC inspectors issued six deviations during this assessment period. Since this problem was identified approximately 2 years ago, it doesn't appear that licensee management has been able to establish a commitment tracking system that will ensure commitments are completed in a timely and accurate manner. Based on the apparent lack of appropriate actions, it appears that management has not provided sufficient attention and oversight to effectively resolve this continuing concern.

During this assessment period, three instances were noted where management failed to implement an acceptable corrective action program in response to identified plant events. One instance involved the control of access to very high radiation areas and one instance involved the operability of fire doors. Due to an inadequate corrective action program, the licensee was issued a civil penalty for the failure to control access to very high radiation areas and a violation for the operability of the fire doors.

The other instance, involving the failure of an adequate corrective action program, was related to the intrusion of water into the instrument air system in July 1987. See Section IV.A of this report for details of the event. In response to this event, management failed to take appropriate corrective actions in that the root cause of the event was not identified and immediately corrected. The event was caused by the failure of two check valves in series to properly seat. After occurrence of the event, management failed to verify the adequacy of the check valves, and also failed to remove the interconnection between the fire water and instrument air systems. No action was taken by the licensee to determine if other instrument air/water interfaces existed in the plant. When the licensee identified that water had entered the instrument air system, a formal program for blowdown of the instrument air system for removal of the water was not established until 2 days after the event. In addition, the

licensee did not take the appropriate measurements to verify that the air system quality met the design basis requirements specified in the Updated Safety Analysis Report.

The discussion provided above with respect to corrective actions taken by management in response to an event is considered a potential weakness in management's ability to thoroughly analyze an event, determine the proper actions to take to correct the identified deficiencies, and to implement the actions in a timely manner. It was noted during review of the instrument air event, that the licensee failed to preserve data that was obtained by field personnel. In one case, the substance found in the accumulators for the emergency diesel generator dampers was tossed out. Had the substance been retained, it could have been chemically analyzed and may have provided an insight into the source of the material. Without the capability to perform the analysis, due to the licensee not retaining the substance, the source of the substance could not definitely be established. This marginally acceptable approach to event analysis and the retention of postevent data require immediate management attention.

To address the concerns of the licensee's corrective action program identified by the NRC, licensee management has established a review team to independently assess the response to an event. The Management Investigative Safety Team (MIST) concept was implemented in April 1988 by the licensee in response to concerns identified by the NRC. The MIST is composed of three designated management individuals and other members as deemed appropriate by the team leader. During this assessment period, the MIST was involved in the followup of an event where containment integrity was lost due to the failure to install a tubing cap on a test tee. The performance of the MIST on this event was good; however, the event was uncomplicated and did not provide a sufficient data point to evaluate the performance of the MIST.

In an effort to make the overall licensee's organization more sensitive to plant operations, the licensee is currently in the process of an overall reorganization. These organizational changes are viewed as a positive move toward providing the plant with the necessary support required to ensure continued safe operation.

c. Engineering and Technical Support

In the followup performed by the NRC on the water intrusion into the instrument air system event, weaknesses were noted

in the area of responsibility of the engineering department. The followup identified violations related to the inadequate preparation of a 10 CFR Part 50.59 evaluation, the failure to periodically test the check valves that were installed at the instrument air/fire water interface connection, and the failure to provide accurate technical information in plant operating and abnormal operations procedures. The violations were identified for a modification that was installed in 1985 to connect the instrument air and fire water systems.

In the latter part of 1985, an inspection was performed by the safety systems outage modification inspection (SSOMI) team from NRC headquarters. During this inspection, the SSOMI team identified numerous violations associated with the performance of the engineering organization. Specific concerns were identified as related to the adequacy of design installation instruction packages. The SSOMI team noted that the packages lacked the appropriate scope and depth to ensure that modifications were adequately installed. In response to the SSOMI team concerns, the licensee has continued throughout this assessment period to upgrade their performance in this area. During this assessment period, violations were identified with the implementation of design installation instructions; however, the violations were identified early in the assessment period. In the latter part of this assessment period, no problems were noted with the installation of modifications; therefore, it appears that the licensee's efforts to improve the quality and scope of the packages are having a positive effect.

One function of the technical support group that is a concern to the NRC is the quality of the technical information supplied for plant procedures. NRC inspectors identified several technical information problems with the abnormal operating procedure used for the mitigation of a loss of instrument air system pressure event. A review of the procedure identified technical information that had been included in the procedure that did not have an adequate technical basis. Licensee management should take actions to establish and implement a program that will ensure that the technical information provided to the operations staff for operation of the plant is correct and that the information is based on an acceptable technical basis.

During reviews performed by the NRC resident inspectors in performance of their routine duties, it was noted on a number of occasions that the documentation issued by the

engineering and technical support departments does not factor in the review comments made by operations personnel.

One example is the review performed by operations personnel of the modification that was installed to cross connect the instrument air and fire water systems. Operations personnel commented that under no circumstances should these two systems be cross connected. Contrary to the comment made by operations, the systems were cross connected and the cross connection resulted in the intrusion of water into the instrument air system.

During this assessment period, a safety analysis for operability (SAO) was generated by the technical support organization to address continued plant operation. The SAO was generated in response to design deficiencies that were identified as a result of the SSOMI team findings and a design review of the instrument air system. The SAO was reviewed by the NRC resident inspectors and by NRC headquarters personnel. During the reviews, it was noted that the level of detail of the information provided in the SAO was insufficient to permit the reader to perform an evaluation. The level of information was insufficient in that the basis used by the technical staff to reach the conclusion was weakly developed and did not contain enough substance. The reader could not evaluate the information without discussing the information provided in the SAO with the licensee's technical staff.

## 2. Conclusions

Licensee management has demonstrated weaknesses in the capability to introspectively review operational events and occurrences to ensure that prompt and effective corrective actions are established and promptly implemented. This was evident by management's response to the instrument air event and the three incidents related to the failure to control access to very high radiation areas.

Licensee management continued to experience problems with the implementation of an effective commitment tracking program. This concern was identified during the last assessment period and had yet to be adequately resolved. The existence of a minimally acceptable commitment tracking system was evident in that six deficiencies were issued during this assessment period for not meeting commitments made to the NRC.

The QA and QC organizations performed their responsibilities satisfactorily during this assessment period. However, it was noted that there appeared to be a lack of QA involvement in the review of analyses performed by the technical staff to address

plant operability. A review of the analyses performed by the technical staff indicated that the information provided in the analyses was weakly developed and did not contain sufficient detail to permit the reviewer to determine the basis for the stated conclusions.

The licensee is considered to be in Performance Category 3 in this functional area.

### 3. Board Recommendations

#### a. Recommended NRC Actions

The NRC inspection effort in this functional area should be increased with special attention in the areas of management's ability to adequately analyze the significance of events and implement effective and timely corrective action, the content of the analyses for continued plant operation prepared by the technical staff, and the involvement of the QA organization in providing an independent review of staff actions in response to plant events and problems.

#### b. Recommended Licensee Actions

Licensee management should ensure that plant events are reviewed and that an effective corrective action program is implemented. Management involvement in the area of commitment tracking should be increased to provide a tracking system that will ensure that commitments made to the NRC are timely and accurately completed. Management should take action to ensure that the analyses performed by the technical staff to address operability of plant components and equipment provide an in-depth description of the basis for the conclusions provided by the analyses.

## J. Licensing Activities

### 1. Analysis

The assessment of this area includes all activities supporting the NRC review of the application for and the issuance of the operating license and amendments thereto.

The assessment of the licensing activities for the Fort Calhoun Station represents the integration of inputs from the operating reactor project manager and the technical reviewers who provided significant effort on the licensing actions during the rating period. Using the guidelines in NRC Manual Chapter 0516, specific evaluation criteria were applied to the relevant licensee performance attributes and an overall rating category

was assigned for each attribute. This information was provided to the project manager as an enclosure with the safety evaluation reports completed for each licensing activity. The project manager utilized this information by combining it with the assessment of licensee performance and by using appropriate weighting factors based on the complexity of the submittal. From this combination, a rating for the licensee's performance in the functional areas was attained.

As stated, the basis for this assessment is the licensee's performance in support of significant licensing actions that were either completed or had a substantial level of activity during the assessment period. These licensing actions are presented in the supporting data.

a. Management Involvement and Control in Assuring Quality

The management attention toward the assurance of quality in the resolution of issues of major significance remained at an acceptable level. During this period, licensee management was specifically required to be actively involved in the resolution of concerns arising from reportable events. In addition to having to direct this activity, licensee management was required to make detailed presentations on the impact of the events and corrective actions. These presentations were not initially successful in answering the basic information necessary for the NRC to make a determination of the significance and impact on plant operations. This was an indication that the licensee management had not taken an aggressive approach toward an understanding of the implications of the event and its outcome, and that the evaluation of the basic data was not fully controlled. Subsequent meetings were then required to obtain the necessary information.

In the area of more routine preparation of licensing actions, the basic documentation appears to be promptly developed and controlled. The quality of the documentation prepared to support licensing amendments and actions has been technically adequate in addressing the issues involved. While the amendment for the Cycle 11 Reload was well developed, other documentation such as the extension of the operating license duration and the emergency diesel generator surveillance testing and reliability did lack some essential considerations which the licensee provided later. Also, the amendment requesting technical specification changes involving radioactive effluents was partially denied due to the potential concerns with exceeding concentrations on an instantaneous basis. Additional management attention or oversight may have

prevented the concerns or the reiterative process for answering questions.

After the events surrounding the instrument air problem and the NRC inspection into the design modification processes, the licensee has implemented several key programs which may aid in the improvement in these areas. An evaluation of the licensee management organizational relationships is being conducted by an independent agent to determine actions which can increase the efficiency and function of the organization. Also, a design basis reconstitution program is in process. This multiyear program will regain the necessary control over the design control process and reverify the design basis and margins that may have been changed by plant modifications. In the interim until completion, the licensee is taking a conservative approach toward future changes that may further effect these margins. Finally, of note, is the decision by the licensee to improve the reliability of the auxiliary feedwater (AFW) system with the addition of a third AFW pump.

b. Approach to Resolution of Technical Issues from a Safety Standpoint

As a result of the findings raised by the SSOMI team, a comprehensive review of the design basis of safety-related air operated valves was implemented. From this review, a number of safety issues were raised about the sustained operability of various valves after a design basis event. These issues required the licensee to evaluate the impact on continued safe operation of the facility. The documentation to support this operation was generally not well detailed. While the NRC staff reviews of selected decisions did not disagree with the licensee's conclusions, further information was needed from the technical preparer to reach the same conclusion.

During the instrument air event and the subsequent problems associated with the operation of the emergency diesel generators, the licensee's approach toward resolution of the problems and understanding the significance of the safe operation of the facility was minimally acceptable. The licensee made nonconservative decisions which allowed continued operation during a period when the status of many air operated components required for safe operation were of a questionable operability. The licensee did not recognize the significance of the potential common-mode failure conditions that existed. This item was the focus of an escalated enforcement action by the NRC.



c. Responsiveness to NRC Initiatives

The licensee continues to make progress on several significant safety issues. As previously stated, the AFW reliability will be enhanced by the completion of the commitment to install a third pump. Also, progress has been made toward the resolution of generic issues on the control room design and safety parameter display system. Further, the design basis reconstitution program taken based on the SSOMI findings was a significant endeavor towards upgrading the control of the design of the facility.

In the area of licensing actions, the response of the licensee to questions raised which required direct contact with the technical preparer has been generally well coordinated and timely.

During this assessment period, the position of onsite licensing engineer was twice turned over to new individuals. Although the transitions themselves were uneventful, the NRC resident inspectors feel that the turnovers have created discontinuities in the interfacing between the licensee and NRC personnel when onsite.

d. Reporting and Analysis of Reportable Events

The single factor most affecting the licensee's performance in this area was the event surrounding the water ingress into the instrument air system. The NRC review of the analysis found that the licensee took a less than conservative approach toward determining operability for components and systems. The design basis reconstitution program also has generated findings that are determined to be reportable. The analysis of the findings and the decision to report has been adequate. Since these findings and their analyses have determined specific conditions which could affect operability of equipment, the licensee has had to analyze the impact on continued operation. These have been prepared and received the required reviews by the plant review committee and the safety and reliability committee. However, the documentation of the basis for the determination has been found in several cases to not be fully detailed in the report. Otherwise, the licensee's event reports appear to be comprehensive and well documented.

e. Staffing

The results of significant events and the findings of NRC inspections have created an intensive workload for periods

of time. The licensing and technical support staff appear to be adequately staffed to handle the normal workload. During the periods of increased unplanned activity, the technical support for the analysis effort has appeared to be overtaxed. The temporary assignment of technical assets to areas working on resolutions of concerns and problems may be a means of alleviating shortfalls in staffing during these periods. The outcome of the independent management review will be watched to see if changes are recommended in the staffing and management of this area.

## 2. Conclusions

The circumstances surrounding the events noted above were a major criticism of the activity that lead to the lowering of the previous rating in this area. Historically, the licensee has maintained a responsive licensing interface with the NRC and management control over the various licensing inputs. This has resulted in no need to request emergency relief for requirements and allows for routine review and amendment processing. The licensee must, however, ensure that closer reviews are conducted prior to submittal of documentation to the NRC to preclude the need for further requests for information. While not significant for the final determination, the review processing time could, thus, be improved.

The licensee is considered to be in Performance Category 2 in this functional area.

## 3. Board Recommendations

### a. Recommended NRC Actions

The staff should increase its efforts toward review of licensee decisions on plant operability as related to questionable seismic qualifications of certain equipment.

### b. Recommended Licensee Actions

The licensee should continue with established programs for reconstitution of the design and evaluation of staffing and management. Technical reviews must be conducted in a more detailed manner and documented such that an independent review can be successfully accomplished.

## K. Training and Qualification Effectiveness

### 1. Analysis

This functional area includes all activities related to the effectiveness of the training, retraining, and qualification

programs conducted by the licensee's staff and contractors. This area was the subject of three inspections conducted by NRC inspectors in early 1987, late 1987, and early 1988, respectively. The first of these inspections was performed early in this assessment period to evaluate the effectiveness of the training of both the licensed and nonlicensed staff. The inspection performed in late 1987 evaluated the training of the nonlicensed staff. The inspection in early 1988 reviewed only the training of the licensed staff. During the assessment period, licensing examinations were administered by the NRC to three RO candidates and five SRO candidates. All of the RO and SRO candidates passed the examinations and were subsequently issued licenses.

The licensee achieved full INPO accreditation for its licensed training program in February 1987 and for its nonlicensed training program in April 1988. The licensee's requalification program has been rated as unsatisfactory since November 1985. Early in the assessment period (November 1986), requalification examinations were administered to three licensed ROs and to five licensed SROs. The ROs passed the examination, but three of the SROs failed the examination. As a result of this unsatisfactory performance by the operators, special followup examinations were given in March 1987, and again in June 1987, after the licensee had implemented an extensive upgrade program. All of the operators passed the special examinations. In March 1988, the NRC and the licensee administered written requalification examinations under the NRC's new pilot requalification program.

The examinations were prepared under a new format which required the licensee to be heavily involved in the examination preparation. The examination was administered to two ROs and six SROs. Two of the SROs failed the examination. The simulator portion of the examination was conducted the week of May 30, 1988.

Some of the problems which have contributed to the past poor test performance were still in evidence during the March 1988 requalification training program preparation and evaluation.

Licensee management involvement in, and understanding of, the requalification process was weak in certain areas. This was evidenced by the following.

- ° The lack of a development plan at the beginning of the evaluation process.
- ° Failure to meet commitments on item development.

- ° Failure to maintain examination security, which resulted from a potentially compromised exam situation through misuse of examination items specifically designated for NRC evaluation purposes.

The licensee did demonstrate skill in the development of the job performance measures (JPM) used to evaluate operators' ability to perform specific system operations. During the development of the JPMs, numerous procedural deficiencies were identified. The licensee took prompt corrective action to revise those procedures; however, procedural deficiencies continued to be uncovered during the evaluation while using the JPMs. These deficiencies may be a significant contributor to poor operator performance during testing.

The licensed operator requalification program inspection performed early in the assessment period found that three of the six items which had been identified in the previous assessment period had not been corrected. It took as long as 20 months for the licensee to correct some of these issues. However, the licensed operator requalification program inspection performed in April 1988, indicated improvement in the licensee's training program and the oversight of the program. The performance of several licensee audits and self-assessments were conducted on the training program which indicated that management's attention and oversight was increasing. The plant feedback and operating experience feedback mechanisms appeared to be working effectively except for NRC inspection reports. LERs, SOERs, and SERs were being factored into operator training.

In the latter part of 1987, two management personnel did not meet the requirements for maintaining an active license in that they failed to stand the requisite number of onshift watches. Since the requisite watches were not performed, the operator licenses for the individuals became inactive. Subsequent to the license becoming inactive, the individuals performed duties that were designated to be performed by a licensed operator with an active license. The duties performed included signing the jumper and lifted lead log, maintenance orders, and procedure changes. The licensee performed a review and identified each case where the individuals improperly signed as a licensed operator. In each case, the improper signature was countersigned by an operator with an active license.

An inspection also disclosed that the updating of lesson plans was not timely, instructor inplant training was not effectively tracked or controlled, and that a small percentage of the operators were not completing their review of "hotline" issues in a timely manner.

In the area of nonlicensed training, no deficiencies were identified. The NRC resident inspector reviewed the program master plans for five categories of nonlicensed staff training. In each case, the curriculums exceeded the requirements that the licensee is committed to by the Technical Specifications, the Updated Safety Analysis Report, and ANSI 3.1-1978. Based on the review performed, it appeared that the licensee had implemented comprehensive and effective training programs for nonlicensed staff personnel.

## 2. Conclusion

Management's involvement in this area has shown limited improvement. Ineffective planning control and a lack of timely corrective action have led to the problems identified above.

The frequent failures in operator performance, the reluctance of a few individuals to complete the review of "hotline" items, and the time delays involved in resolving problems indicate a possible attitude or motivation problem.

The licensee is considered to be in a Performance Category 3 in this area.

## 3. Board Recommendations

### a. Recommended NRC Actions

The NRC inspection of this area and the review of operator knowledge and ability should be given high priority until an increased level of operator performance and the effectiveness of training has been demonstrated.

### b. Recommended Licensee Actions

The licensee should implement a study or assessment to identify the root cause of the continued poor performance in this functional area and establish prompt corrective action. The assessment might best be accomplished by an individual or group that is independent of the training organization and its immediate management. Management should take prompt and effective corrective action to correct the root causes identified by the assessment. Management should also establish a means to monitor the performance in this area to ensure that any future defect in performance can be promptly identified and corrected.

## V. Supporting Data and Summaries

### A. Licensee Activities

There was one major refueling outage during this assessment period. The outage began on March 6, 1987, and ended on June 7, 1987. Outage activities included inspection of fuel assemblies, eddy-current testing of steam generator tubes, sludge lancing of the steam generator tube sheets, weld repairs on the emergency feedwater storage tank, measurement of pipe wall thickness for the secondary systems, and the turbochargers for both emergency diesel generators were replaced.

### B. Inspection Activities

NRC inspection activity during this assessment period included 54 NRC inspections performed with 4,795 direct inspection hours expended. These inspections included an inservice testing program inspection by NRC Headquarters personnel and Region IV lead a team inspection to follow up on SSOMI items.

### C. Investigations and Allegations Review

No major investigation activities were conducted during this assessment period.

### D. Escalated Enforcement Actions

#### 1. Civil Penalties

A Notice of Violation and Proposed Imposition of Civil Penalty was issued on December 17, 1986. A \$15,000 civil penalty was proposed for a Severity Level III violation involving an inadequate vital area barrier. This finding was the result of an inspection conducted during the previous SALP period.

A Notice of Violation and Proposed Imposition of Civil Penalty was issued on January 26, 1987. A \$50,000 civil penalty was proposed for a Severity Level III violation involving a failure to conduct and document a 10 CFR 50.59 review. This was the result of a SSOMI finding that occurred during the previous SALP period.

A Notice of Violation and Proposed Imposition of Civil Penalty was issued on January 19, 1988. A \$75,000 civil penalty was proposed for a Severity Level III violation involving two instances pertaining to the control of very high radiation areas.

A Notice of Violation and Proposed Imposition of Civil Penalty was issued on February 22, 1988. A \$175,000 civil penalty was

proposed for a Severity Level III violation involving water intrusion into the instrument air system.

A Notice of Violation and Proposed Imposition of Civil Penalty was issued on May 4, 1988. A \$112,500 civil penalty was proposed for two Severity Level III violations involving the control of a very high radiation area and degradation of the radiation protection program, respectively.

## 2. Enforcement Orders

An Order Imposing Civil Monetary Penalty was issued on September 10, 1987. The order involved the SSOMI finding from the previous SALP period.

## E. Management Meetings Held During Assessment Period

### 1. Conferences

An enforcement conference was held at the Region IV office on May 14, 1987, to discuss the specific and generic implications of findings in the areas of welding and maintenance activities.

An enforcement conference was held at the Region IV office on October 15, 1987, to discuss the control of very high radiation areas.

An enforcement conference was held at the Region IV office on October 29, 1987, to discuss the instrument air event.

Conferences were held on November 6 and 13, 1987, at the NRC headquarters office to discuss the instrument air event.

An enforcement conference was held at the Region IV office on March 15, 1988, to discuss the lack of fire barrier seals inside of some electrical conduits.

An enforcement conference was held at the Region IV office on March 21, 1988, to discuss the control of very high radiation areas and other health physics issues.

### 2. Confirmation of Action Letters

None

## F. Review of Licensee Event Reports and 10 CFR Part 21 Reports Submitted by the Licensee

### 1. Licensee Event Reports (LER)

The SALP Board reviewed the LERs for the period of October 1,

1986, through April 30, 1988. This review included the LERs listed by SALP category in Table 3.

The Office for Analysis and Evaluation of Operational Data reviewed the LERs for the SALP period. Their review concentrated on the safety significance of the events, LER completeness, clarity, understandability, and adequacy of the event report contents. (See attachment)

2. Part 21 Reports

There were no 10 CFR Part 21 reports submitted by the licensee during this assessment period.

G. Licensing Activities

1. NRR/Licensee Meetings

November 6, 1987	Meeting in Bethesda, MD, regarding the water ingress into the instrument air system.
November 13, 1988	Meeting in Bethesda, MD, regarding further information on the above event.

2. Commission Meetings

None

3. NRC Site Visits

August 17-21, 1987	Vendor Inspection Branch reviewed the inservice testing of check valves.
September 14-17, 1987	Combined Detailed Control Room Design Review and Safety Parameter Display System inspection.
October 14-15, 1987	Resolve outstanding questions on second 10-year inservice testing period for pumps and valves.
February 1-5, 1988	Inspection of the health physics program
April 4-8, 1988	Followup inspection to review the status of findings from the 1985 Safety System Outage Modification Inspection (SSOMI).



4. Schedular Exemptions Granted

Extension of time to complete the thermal shield support inspections under OPPD letter dated April 4, 1984, on January 12, 1987.

Extension on date of implementation of USNRC Regulatory Guide 1.97 on February 20, 1987.

One-time extension of the surveillance inspection interval for Diesel Generator 2 on April 18, 1988.

5. Relief Granted

Relief from ASME Code Section XI requirements for inspection of inaccessible welds in the main steam and feedwater systems. Staff letter dated on November 10, 1986.

Relief from the ASME requirements for visual inspection of the reactor pressure vessel interior, except when the core support vessel is removed. Staff letter dated April 1, 1987.

6. Exemptions Granted

Schedular exemption for the relief from property insurance requirements of 10 CFR 50.54(w)(1). Staff letter dated December 2, 1987.

7. Emergency Action Granted

None.

8. Licensee Amendments Issued

<u>Amendment No.</u>	<u>Date</u>	<u>Description</u>
101	November 24, 1986	Organizational changes
102	January 20, 1987	Reporting requirements for primary coolant iodine spike
103	March 9, 1987	Modifies boron concentration from 1700 to 1800 ppm
104	March 26, 1987	Revision to surveillance criteria for steam generator tubes

105	March 26, 1987	Deletion of snubber tables from the Technical Specifications
106	March 26, 1987	Revision of surveillance for the hydrogen and oxygen monitoring
107	March 30, 1987	Delete hydrogen fluoride detectors
108	April 28, 1987	LCO and surveillance change for steam generator isolation
109	May 4, 1987	Cycle 11 Reload
110	August 31, 1987	Inadequate core cooling instrumentation
111	September 24, 1987	Diesel generator reliability
112	April 19, 1988	One-time extension of surveillance interval for Diesel Generator No. 2

9. Orders Issued

None

10. Multiplant Actions and Generic Safety and Security Issues Having Significant Activity During This Rating Period

- ° NRC Performance of Auxiliary Feedwater Reliability Analysis
- ° Response to NRC on safety parameter display system and control room design review

11. Plant Specific Issues Having Significant Activity During Rating Period

- ° Response on revised thermal shock analysis for incorporation into the Technical Specifications
- ° Amendment for extended fuel burnup of Batches K and L
- ° Request for relief on ASME XI inspection requirements on welds in the main steam and feedwater systems

TABLE 1  
Enforcement Activity

FUNCTIONAL AREAS	DEFICIENCIES/ DEVIATIONS	NUMBER OF VIOLATIONS IN EACH LEVEL		
		V	IV	III
A. Plant Operations			3 <sup>a/</sup>	
B. Radiological Controls		3	4	3 <sup>b/</sup>
C. Maintenance	1/1	1	5	
D. Surveillance	0/1		3	
E. Fire Protection		1	1	
F. Emergency Preparedness	8/0		1	
G. Security		2	7	
H. Outages			4	
I. Quality Programs and Administrative Controls Affecting Quality	0/4	4	6	1 <sup>c/</sup>
J. Licensing Activities				
K. Training and Qualification Effectiveness				
Total	9/6	11	34	4

a/ Violation 8710-06 is also applicable to Outages.  
Violation 8807-03 is also applicable to Maintenance.

b/ Includes two violations from Report 87-21 aggregated into one Level III violation.

Includes a Level III violation and five violations from Report 88-05 aggregated into one Level III violation.

- c/ Includes six violations from Report 87-27 aggregated into one Level III violation. Three violations are listed under Plant Operations and three under Quality Programs and Administrative Controls Affecting Quality.

TABLE 2  
ENFORCEMENT ACTIVITY  
TABULATION OF VIOLATIONS, DEVIATIONS, AND EMERGENCY PREPAREDNESS DEFICIENCIES  
BY  
PERFORMANCE CATEGORY

A. Plant Operations

Violations

- ° Failure to maintain the procedure for operation of the onsite 480-volt distribution system up-to-date (Severity Level IV, 8702-03)
- ° Not maintaining containment integrity during refueling operations (Severity Level IV, 8710-06)
- ° Failure to meet EDG operability requirements (Severity Level III, 8727-05) (One of six violations aggregated into one Severity Level III listed under Quality Programs and Administrative Controls Affecting Quality)
- ° Failure to declare a NOUE (Severity Level III, 8727-06) (One of six violations aggregated into one Severity Level III listed under Quality Programs and Administrative Controls Affecting Quality)
- ° Failure to make 50.72 and 50.73 Report (Severity Level III, 8727-07) (One of six violations aggregated into one Severity Level III listed under Quality Programs and Administrative Controls Affecting Quality)
- ° Failure to meet operator's license commitments (Severity Level IV, 8812-01)

Deviations

- ° None

B. Radiological Controls

Violations

- ° Failure to follow procedure for use of protective clothing (Severity Level IV, 8632-01)
- ° Failure to post a radioactive materials area (Severity Level V, 8634-01)

- Incorrect valve lineups of waste gas sampling system after sampling (Severity Level IV, 8634-03)
- Failure to properly perform function checks for portable survey instruments and dosimeters (Severity Level IV, 8716-01)
- Failure to submit a special report for inoperable noble gas stack monitors (Severity Level V, 8716-02)
- Failure to control a very high radiation area door (Severity Level III, 8721-01) (One of two violations aggregated into one Severity Level III)
- Failure to follow radiation protection procedures (Severity Level III, 8721-02) (One of two violations aggregated into one Severity Level III)
- Failure to submit an LER within 30 days (Severity Level V, 8721-04)
- Failure to maintain three RP technician's qualifications up-to-date (Severity Level III, 8805-01) (One of five violations aggregated into one Severity Level III)
- Failure to control a very high radiation door (Severity Level III, 8805-02)
- Failure to maintain positive administrative control for all keys with access to very high radiation areas (Severity Level III, 8805-03) (One of five violations aggregated into one Severity Level III)
- Failure to maintain line-of-sight or other communications with an individual in a very high radiation area (Severity Level III, 8805-04) (One of five violations aggregated into one Severity Level III)
- Failure to conspicuously post a controlled surface contaminated area (Severity Level III, 8805-05) (One of five violations aggregated into one Severity Level III)
- Failure to issue a written policy for the respiratory protection program (Severity Level III, 8805-06) (One of five violations aggregated into one Severity Level III)
- Failure to follow radiological control procedure (Severity Level IV, 8813-01)

#### Deviations

- None

C. Maintenance

Violations

- ° Improper torquing of bolts (Severity Level IV, 8705-01)
- ° Inadequate maintenance procedures (Severity Level IV, 8705-02)
- ° Failure to implement correct maintenance procedure (Severity Level IV, 8705-04)
- ° Failure to control the use of out-of-thrust switches on limitorque valves (Severity Level IV, 8717-02)
- ° Failure to provide postmaintenance test instructions for returning safety equipment to service (Severity Level IV, 8729-01)
- ° Failure to document the paint used inside containment for ventilation duct supports (Severity Level V, 8802-01)

Deviations

- ° Scaffolding installed without prior review (8811-02)

Deficiencies

- ° Airlock doors did not close tightly (8719-04)

D. Surveillance

Violations

- ° Inadequate procedures (Severity Level III, 8727-04) (One of six violations aggregated into one Severity Level III listed under Quality Programs and Administrative Controls Affecting Quality)
- ° Failure to follow surveillance procedure (Severity Level IV, 8807-03)
- ° Failure to promptly resolve test deficiencies (Severity Level IV, 8810-01)
- ° Failure to use correct qualification level of examiner for surveillance test evaluation (Severity Level IV, 8810-02)

Deviations

- ° Failure to meet a previous commitment (8810-03)

E. Fire Protection

Violations

- ° Failure to establish a fire watch for nonfunctional fire barriers (Severity Level V, 8710-01)
- ° Failure to maintain required fire brigade complement independent of other duties (Severity Level IV, 8807-02)

Deviations

- ° None

F. Emergency Preparedness

Violations

- ° Inadequate training of personnel (Severity Level IV, 8631-01)

Deviations

- ° None

Deficiencies

- ° Deficient stack flow information (8719-01)
- ° Conflict between procedures (8719-02)
- ° Failure to follow procedures for notification (8719-03)
- ° Failure of airlock doors in TSC to close tightly (8719-04)
- ° Inadequate briefing of in-plant repair and corrective action teams (8719-05)
- ° Failure to keep complete and accurate records (8719-06)
- ° In-plant radiological controls were not consistently adequate (8719-07)
- ° Scenario Incongruencies (8719-08)

G. Security

Violations

- ° Access Control - Packages (Severity Level IV, 8633-01)
- ° Failure to maintain vital area barrier (Severity Level IV, 8704-01)



- Not maintaining records of entries into vital areas (Severity Level V, 8706-01)
- Failure to maintain the protected area isolation zone free of all objects (Severity Level IV, 8735-01)
- Failure to exercise positive control over a vehicle inside the protected area (Severity Level IV, 8735-02)
- Unverified security guard suitability documentation (Severity Level V, 8732-01)
- Key left in vehicle (Severity Level IV, 8732-02)
- Access control - personnel (Severity Level IV, 8801-01)
- Failure to take compensatory measure with the security camera out of service (Severity Level IV, 8808-01)

#### Deviations

- None

### H. Outages

#### Violations

- Failure to control special processes (Severity Level IV, 8708-01)
- Failure to establish proper procedures for local containment leak rate tests (Severity Level IV, 8710-07)
- Failure to qualify a butt-weld procedure prior to use for installation of seismic wall supports (Severity Level IV, 8713-01)
- Inadequate radiography of emergency feedwater storage tank weld repairs (Severity Level IV, 8714-01)

#### Deviations

- None

### I. Quality Programs

#### Violations

- Fire doors not installed in accordance with documented instructions (Severity Level IV, 8634-02)
- Failure to establish measures to prevent the use of outdated procedures (Severity Level V, 8702-02)

- Modification of system without approved procedures (Severity Level IV, 8715-02)
- Failure to properly store gas cylinders in auxiliary building (Severity Level IV, 8724-04)
- Failure to establish a procedure for control of temporary scaffolding near safety related equipment (Severity Level IV, 8724-05)
- Failure to post up-to-date 10 CFR Part 21 documentation (Severity Level V, 8724-06)
- Seven fire doors did not properly latch (Severity Level IV, 8725-01)
- Failure to perform an adequate 50.59 Evaluation (Severity Level III, 8727-01) (One of six violations aggregated into one Severity Level III)
- Failure to take adequate corrective action (Severity Level III, 8727-02) (One of six violations aggregated into one Severity Level III)
- Failure to establish an adequate testing program (Severity Level III, 8727-03) (One of six violations aggregated into one Severity Level III)
- Failure to issue surveillance procedure for core exit and heated junction TCs according to TS change (Severity Level IV, 8729-04)
- Failure to make a 4-hour report for actuation of EDG-2 (Severity Level V, 8811-03)
- Inaccurate information provided in response to violation 8724-04 (Severity Level V, 8811-04)

#### Deviations

- Manual isolation valves in branch line between containment isolation valves not under administration control (8702-01)
- Failure to perform and log surveillance on the control room ventilation after committing to in an LER (8710-02)
- Failure to revise a surveillance procedure after committing to in an LER (8715-01)
- Failure to issue memo for control of fire barriers after making a commitment to do so in response to NRC violation (8724-01)

J. Licensing ActivitiesViolations

° None

Deviations

° None

K. Training and Qualification EffectivenessViolations

° None

Deviations

° None

TABLE 3  
OPERATIONAL EVENTS  
TABULATION OF LICENSEE EVENT REPORTS  
BY  
PERFORMANCE CATEGORY

A. Plant Operations

- ° Partial actuation of ESF during closing of circuit breaker for control rod clutch power supply (87-015)
- ° Inadvertent fire suppression system inoperability due to valve left closed after maintenance (87-019)
- ° Unplanned VIAS actuation due to radiation monitors' setpoint left in refueling mode (87-020)
- ° Failure to remove engineered safety function (offsite power low signal) from bypass (87-021)
- ° Radiation monitor out of service (87-023)

B. Radiological Controls

- ° Failure to control a very high radiation area (87-026)
- ° Failure to control a very high radiation area (88-001)
- ° Inadequate key control for very high radiation areas (88-003)

C. Maintenance

- ° Ventilation isolation incident (87-002)
- ° Incorrect wiring of containment postaccident water level transmitter (87-007)
- ° VIAS occurred during control rod clutch power supply swap (87-011)

D. Surveillance

- ° Surveillance test CEA-1-F.4 overdue (86-005)
- ° Surveillance test error (failure to follow procedure) (87-001)
- ° Failure of three main steam safety valves to lift within setpoint tolerance during surveillance (87-003)

- ° Fire barrier penetration seal surveillance missed due to it not being assigned a number in log (87-004)
- ° VIAS actuation occurred during calibration of radiation monitor (87-005)
- ° Unplanned actuation of the Channel B containment pressure high signal due to instrument tees capped (87-006)
- ° Surveillance requirement not adequate to meet valve stroke test requirements (87-010)
- ° Failure of one pressurizer code safety valve to lift within setpoint tolerance during surveillance (87-014)
- ° Halon system surveillance test overdue (87-016)
- ° Late annual inspection of emergency diesel generator (87-017)
- ° VIAS actuation during radiation monitor calibration (87-024)
- ° Unplanned actuation of containment isolation actuation signal during performance of surveillance (87-027)
- ° Failure to conduct surveillance test for containment emergency lighting (87-029)
- ° Inadvertent auxiliary feedwater actuation during performance of surveillance test (87-036)
- ° Failure of containment isolation valve to meet TS requirements (87-038)
- ° Surveillance test ST-DC-1-F.1 not performed during January 1988 (88-006)
- ° Failure to conduct surveillance test within required interval (88-008)

E. Fire Protection

- ° Failure to issue special report on fire barrier inoperability (87-028)

F. Emergency Protection

- ° None

G. Security

- ° Site security computer failure (87-030)

- Site security computer failure (87-031)
- Loss of alarm capability for vital area door (87-032)
- Degradation of a safeguards system (computer) (87-034)
- Degradation of a safeguards system (87-035)
- Uncompensated degradation of vital area door (87-039)
- Security door in alarm in excess of requirements (88-S01)
- Degradation of CCTV camera image (88-S02)
- Door in alarm in excess of requirements (88-S03)
- Security door left in alarm in excess of requirements (88-S04)
- Nuclear watch officer asleep at post (88-S05)

#### H. Outages

- Loss of offsite power due to carelessness while cleaning a transformer switch box (87-008)
- Loss of offsite AC power due to personnel pulling wrong potential transformer fuses (87-009)
- Partial actuation of ESF during pulling of fuses (87-012)

#### I. Quality Programs and Administrative Controls Affecting Quality

- Control room habitability deficiencies (87-013)
- Design deficiencies for air accumulator (87-018)
- Weld defects in emergency feedwater storage tank (87-022)
- DG-2 shutdown on high coolant temperature due to water in instrument air system (87-025)
- Water intrusion into instrument air system (87-033)
- DG surveillance test not in conformance with latest TS change (87-037)
- Inoperability of isolation valve on HPSI (88-002)
- Instrument air valve PCV-1849 outside design basis for containment isolation valve (88-004)

- ° Potential for loss of two pressurizer pressure transmitters upon pressurizer spray line break (88-005)

J. Licensing Activities

- ° None

K. Training and Qualification Effectiveness

- ° None

## Attachment

### AEOD Input to SALP Review for Fort Calhoun

Omaha Public Power District submitted about 50 reports for Fort Calhoun, not including updates, in the assessment period from October 1, 1986, to April 30, 1988. Our review included the following LERs:

86-004 to 86-005  
87-001 to 87-038  
88-001 to 88-008

The LER review followed the general instructions and procedures of NUREG-1022. The specific review criteria and our findings follow:

#### 1. Abnormal Occurrences

The following event is being considered as an Abnormal Occurrence (AO) because major deficiencies in design, construction and management controls having safety implications requiring immediate remedial action were involved. As of this date, the Commission has not taken action on the proposed AO.

On September 23, 1987, while the licensee was performing a postmaintenance surveillance test of Emergency Diesel Generator (EDG) 2, the EDG tripped off due to high temperature in the engine cooling water system. Investigation revealed an instrument air problem (water in the system) which could have resulted in a potential for common mode failure of not only redundant EDG 1, but also of other safety-related components at the plant.

The cause of high cooling water temperature was the malfunction of the air operated exhaust damper for the DG radiator. The air damper may not have automatically fully opened when the DG was running, thus restricting the required air flow through the radiator, and subsequently overheating the cooling water. The licensee disassembled the air damper and found an accumulation of water in the air accumulator and a white gummy substance in the pilot valve which is used to direct air to the air damper. The air to the pilot valve is provided by either the instrument air system or the air accumulator. The air damper and pilot valve were cleaned up and tested satisfactorily. Subsequently, the air damper of EDG 1 was disassembled and the same problem was found as in EDG 2. It was also cleaned up, reassembled, and tested satisfactorily.

During May 1985, the licensee modified its fire protection sprinkler system in the diesel generator rooms, where extremely cold weather had caused water to freeze and crack the pipes. Rather than keep this piping filled with water all the way to the sprinkler head, the licensee devised a "dry pipe" arrangement by which pressurized air would fill the pipe for



several feet upstream from the sprinkler head, keeping water in check that would be released in the event of a fire. To accomplish this, the instrument air system was connected to the sprinkler system, and check valves were installed to keep water from flowing back into the air pipes. However, the licensee failed to establish a test program that would assure that the check valves would perform satisfactorily in service.

On July 6, 1987, during performance of a surveillance test, operations personnel became aware that water had entered the instrument air system due to degradation of the check valves. After this incident, the licensee cleaned and inspected check valves to see that they operated, then reconnected the two systems. However, the licensee failed to assure that the cause was properly determined and that appropriate corrective actions had been taken. For example, no dew point measurements were taken to verify that the air system complied with the design bases for the dew point maximum limit, and no review was performed to determine whether or not other instrument air/pressurized-water interfaces existed. In addition, even though a formal program was established to perform blowdowns of the air system, the air accumulators for the EDG air dampers were not included in either the piping drawings or procedures; therefore, the accumulators were not checked for presence of water.

Subsequent to the September 23 event, the licensee undertook an extensive corrective action program to remove all water from the air system and ensure that all safety-related components functioned normally. The interface between the instrument air system and the fire protection system was also removed.

NRC Region IV performed an initial and a follow-up inspection during the period of September 23 through October 2, and the period of November 2-6, 1987, respectively. The inspection findings were formally sent to the licensee on December 10, 1987. Since several violations of NRC requirements were also found during the inspections, the NRC issued a Notice of Violation and Proposed Imposition of Civil Penalty in the amount of \$175,000. The licensee has paid the penalty.

The root cause of this incident was due to a breakdown in the ability of management to control activities that affect quality at the Fort Calhoun Station. A plant system had been modified without adequate evaluation of the safety implications and improper testing following the modifications. This breakdown resulted in the plant being operated in an unanalyzed condition where a potential for common mode failure condition existed.

## 2. Significant Operating Events

There were three reported events at Fort Calhoun that were identified as significant events by the AEOD screening and review process in this assessment period. These significant operating events were:

- o LER 50-285/87-008, "Loss of Offsite Power Due to Personnel Error."  
The plant was in refueling shutdown mode when electrical maintenance

personnel accidentally tripped an oil fault pressure relay during the cleaning inside a transformer switch box which, in turn, tripped the breaker supplying 161 KV power, thereby losing offsite 161 KV power to the plant. The loss of offsite power caused a temporary loss of all 4160 V and 480 V vital loads, including shutdown cooling, along with non-vital loads including instrument air and plant lighting. Vital and non-vital loads were restored within 5 minutes when the emergency diesel generator was started and loaded. The 161 KV line supplying offsite power was regained within 40 minutes. The licensee's corrective actions, which included procedural revision, were adequate. This problem would be addressed in the resolution of USI A-44 "Station Blackout."

- o LER 50-285/87-022, "Defects in Tank Manufactured by Eaton Metal Products Corporation." During the 1987 refueling outage, the weld contours on the interior of the emergency feedwater storage tank were found to be too rough to ensure good coating adhesion for recoating. Magnetic particle examinations and radiographs revealed surface cracking and extensive sub-surface defects as well, including slag inclusions and lack of fusion. The probable causes of the defects are: use of Shield Arc 85 rod without preheat resulted in shrinkage; improper cleaning of copper deposits caused lack of fusion; and poor workmanship. The tank was repaired in compliance with the requirements of ASME Section III. Other tanks built by Eaton were subsequently reviewed and it was concluded that catastrophic failures are unlikely. No similar Eaton tank defects were found in other plants in a search of the LER data base by AEOD. The problem appeared to be an isolated case.
- o LER 50-285/87-033, "Water Intrusion into Air System." During performance of a surveillance test, operations personnel became aware that water had entered the instrument air (IA) system and immediately isolated the source of water intrusion. The interfacing check valves were prevented from completely closing by foreign material. Additionally, inadequate procedures and inadequate operator training on this unique dry pipe valve contributed to this event. The licensee's corrective action included cleaning the check valves, properly resetting the dry pipe valve, and conducting blowdowns to remove the water from the IA system. However, the blowdown failed to include all air components in the IA system, thus causing the failure of the diesel generator exhaust damper on September 23, 1987, which led to the EDG trip.

### 3. AEOD Technical Study Reports

No deficiencies were identified at Fort Calhoun that were considered sufficiently serious to merit an in-depth technical study reviewed by AEOD in this assessment period.

#### 4. PNs Issued in Assessment Period

One Preliminary Notice of Event or Unusual Occurrence was issued for Fort Calhoun during the assessment period. This was:

PNO-IV-88-29 INSTRUMENT AIR SYSTEM COMPONENT OUTSIDE OF DESIGN  
BASIS

This event resulted in the plant being operated in a condition that was outside the design of the plant. In accordance with the provisions of 10 CFR 50.73(a)(2)(ii), the event appeared to be reportable, but no LER was submitted.

#### 5. LER Quality

The LERs adequately described all the major aspects of the event, including all component or system failures that contributed to the event and the significant corrective actions taken or planned to prevent recurrence. The narrative sections typically included specific details of the event such as valve identification numbers, number of operable redundant systems, the date of completion of repairs, etc., to provide a good understanding of the event. The root cause of the event was clearly identified. However, the manufacturer and model numbers for components that failed during some of the events were not specified. These event reports are LER 87-012, 014, 018, 022, and 038.

Previous similar occurrences were properly referenced in the LERs as applicable. Although the event information was well organized and complete, a separate heading or title for each section of specific information would lead to a clearer understanding of the event information. The licensee updated six LERs in the assessment period. The updated LERs provided new information and the portion of the report that was revised was denoted by a vertical line in the right hand margin so the new information could easily be determined by the reader.

The licensee only submitted two reports (LER 87-019 and 022) on a voluntary basis in the assessment period. As stated on page 10 of NUREG-1022, licensees are encouraged to report any event that does not meet reporting criteria, if the licensee believes that the event might be of safety significance, might be of generic interest or concern or contains a lesson to be learned.

#### 6. Effective Corrective Action

Review of the LERs clearly indicates that the recurring problems at Fort Calhoun are traceable to human factor deficiencies. Two thirds of the events reported in the assessment period were identified by the licensee with an underlying cause associated with human deficiencies, i.e., personnel error, defective or inadequate procedures, inadequate administrative controls, etc. No improvement was noted within the assessment period. To be specific, one recurring problem, failure to

perform a scheduled surveillance test within the plant technical specifications intervals, has occurred seven times with the last event occurring in April 1988 (LER 86-005, 87-016, 017, 028, 029, 88-006 and 008). Moreover, five of the final eight LERs reviewed (LER 87-037, 88-001, 003, 006, and 007) were also attributed to human factor deficiencies, i.e., personnel error and administrative control deficiency. We conclude, both from the high number of LERs submitted by the licensee in the assessment period, and the underlying root causes of the events that were reported, that there is a pattern of repetitive problems and inadequate corrective actions.

The proposed abnormal occurrence event which occurred in this assessment period is a major deficiency in operation. The deficiency was also attributable to the management inattentiveness. The NRC inspection and follow-up review of the event has found that the root cause was due to a breakdown in the administrative controls that affect quality at Fort Calhoun. A plant system had been modified without adequate evaluation of the safety implications and inadequate testing was performed following the modifications.

## SALP MEETING SUMMARY

Date: August 19, 1988  
Licensee: Omaha Public Power District (OPPD)  
Facility: Fort Calhoun Station (FCS)  
License: DPR-40  
Docket: 50-285

SUBJECT: SALP MEETING AT FCS EMERGENCY OPERATING FACILITY

On August 19, 1988, the Regional Administrator, NRC Region IV, members of the Region IV staff, and NRR representatives met with representatives of OPPD in an open meeting at the Fort Calhoun Station Emergency Operating Facility to discuss the SALP Board Report covering the period October 1, 1986, through April 30, 1988.

After opening remarks by the Regional Administrator, the Deputy Director, Division of Reactor Projects, presented each of the functional areas evaluated in the SALP Board Report using Attachment 1 as an outline. The OPPD President and Chief Executive Officer, and other licensee representatives discussed planned actions to improve performance and/or respond to NRC recommendations in each of the SALP categories.

Attachments:

1. NRC Material Presented at Meeting
2. Attendance List (Principal Attendees)

AGENDA

INTRODUCTION

ROBERT D. MARTIN, REGIONAL  
ADMINISTRATOR, NRC REGION IV

SALP PRESENTATION

BILL BEACH, DEPUTY DIRECTOR,  
DIVISION OF REACTOR PROJECTS,  
NRC REGION IV

OMAHA PUBLIC POWER  
DISTRICT RESPONSE AND  
COMMENTS

LICENSEE MANAGEMENT AND STAFF

CLOSING REMARKS

ROBERT D. MARTIN

UNITED STATES NUCLEAR REGULATORY COMMISSION  
SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE  
MEETING

OMAHA PUBLIC POWER DISTRICT  
FORT CALHOUN GENERATING STATION  
OCTOBER 1, 1986-APRIL 30, 1988

FORT CALHOUN GENERATING STATION

AUGUST 19, 1988

3 P.M.

SALP PROGRAM OBJECTIVES

IMPROVE LICENSEE PERFORMANCE

PROVIDE A BASIS FOR ALLOCATION OF  
NRC RESOURCES

IMPROVE NRC REGULATORY PROGRAM



PERFORMANCE ANALYSIS AREA FOR FORT CALHOUN GENERATING STATION

- A. PLANT OPERATIONS
- B. RADIOLOGICAL CONTROLS
- C. MAINTENANCE
- D. SURVEILLANCE
- E. FIRE PROTECTION
- F. EMERGENCY PREPAREDNESS
- G. SECURITY
- H. OUTAGES
- I. QUALITY PROGRAMS AND  
ADMINISTRATIVE CONTROLS  
AFFECTING QUALITY
- J. LICENSING ACTIVITIES
- K. TRAINING AND QUALIFICATION  
EFFECTIVENESS

FUNCTIONAL AREA PERFORMANCE CATEGORY

CATEGORY 1

REDUCED NRC ATTENTION MAY BE APPROPRIATE, LICENSEE  
MANAGEMENT ATTENTION AND INVOLVEMENT ARE AGGRESSIVE AND  
ORIENTED TOWARD NUCLEAR SAFETY; LICENSEE RESOURCES ARE AMPLE  
AND EFFECTIVELY USED SO THAT A HIGH LEVEL OF PERFORMANCE  
WITH RESPECT TO OPERATIONAL SAFETY IS BEING ACHIEVED.

CATEGORY 2

NRC ATTENTION SHOULD BE MAINTAINED AT NORMAL LEVELS,  
LICENSEE MANAGEMENT ATTENTION AND INVOLVEMENT ARE EVIDENT  
AND ARE CONCERNED WITH NUCLEAR SAFETY, LICENSEE RESOURCES  
ARE ADEQUATE AND ARE REASONABLE EFFECTIVE SO THAT  
SATISFACTORY PERFORMANCE WITH RESPECT TO OPERATIONAL SAFETY  
IS BEING ACHIEVED.

CATEGORY 3

BOTH NRC AND LICENSEE ATTENTION SHOULD BE INCREASED. LICENSEE MANAGEMENT ATTENTION OR INVOLVEMENT IS ACCEPTABLE AND CONSIDERS NUCLEAR SAFETY, BUT WEAKNESSES ARE EVIDENT; LICENSEE RESOURCES APPEAR TO BE STRAINED OR NOT EFFECTIVELY USED SO THAT MINIMALLY SATISFACTORY PERFORMANCE WITH RESPECT TO OPERATIONAL SAFETY IS BEING ACHIEVED.

### EVALUATION CRITERIA

1. MANAGEMENT INVOLVEMENT AND CONTROL IN ASSURING QUALITY
2. APPROACH TO RESOLUTION OF TECHNICAL ISSUES FROM A SAFETY STANDPOINT
3. RESPONSIVENESS TO NRC INITIATIVES
4. ENFORCEMENT HISTORY
5. OPERATIONAL EVENTS (INCLUDING RESPONSE TO, ANALYSIS OF, AND CORRECTIVE ACTIONS FOR)
6. STAFFING (INCLUDING MANAGEMENT)

STRENGTHS

LOW TURNOVER RATE FOR PLANT PERSONNEL

PLANT HAS AN EXTREMELY GOOD OPERATING RECORD  
AND HIGH PERFORMANCE INDICATORS

INITIATION OF THE MANAGEMENT INVESTIGATIVE  
SAFETY TEAM IN RESPONSE TO SIGNIFICANT EVENTS

INITIATION OF PROGRAMS SUCH AS  
DESIGN BASIS RECONSTITUTION PROGRAM  
RADIOLOGICAL IMPROVEMENT PROGRAM  
PROJECT 1991

OVERALL ATTITUDE AND RESPONSE TO IDENTIFIED  
PROBLEMS

### WEAKNESSES

ACTUAL OVERALL DECLINE OR DECLINING TREND IN THE PERFORMANCE FOR THE FOLLOWING FUNCTIONAL AREAS:

- . PLANT OPERATIONS
- . MAINTENANCE
- . SURVEILLANCE
- . FIRE PROTECTION
- . LICENSING ACTIVITIES

MINIMALLY SATISFACTORY PERFORMANCE IN THE FOLLOWING FUNCTIONAL AREAS:

- . RADIOLOGICAL CONTROLS
- . QUALITY PROGRAMS AND ADMINISTRATIVE CONTROLS AFFECTING QUALITY
- . TRAINING AND QUALIFICATION EFFECTIVENESS

CONCERN WITH DEPTH OF ABILITY TO WITHSTAND COMPLEX CHALLENGES

NRC PERSONNEL PERCEIVED A CULTURE TOWARD "KEEPING THE PLANT ON THE LINE"

PLANT STAFFING IS CONSIDERED MINIMAL

INCOMPLETE DESIGN BASIS RECORDS

PLANT OPERATIONS  
CATEGORY 2

THE OVERALL PERFORMANCE LEVEL OF THE ONSHIFT OPERATIONS STAFF WAS VERY GOOD

THE NUMBER OF LICENSED OPERATORS ON THE LICENSEE'S IS LOW WHEN COMPARED TO INDUSTRY AVERAGES FOR PLANTS OF SIMILAR SIZES

EFFORTS ARE BEING MADE TO CREATE CAREER PATHS FOR LICENSED OPERATORS

THE CONSCIENTIOUS HANDLING OF MINOR PLANT PERTUBATIONS HAVE PREVENTED SAFETY SYSTEM CHALLENGES

INSTANCES OF APPARENT LACK OF MANAGEMENT SUPPORT FOR SHIFT SUPERVISOR'S WERE OBSERVED

LICENSEE MANAGEMENT HAS SHOWN A HESITANCY TOWARD DETERMINING OPERABILITY AS WAS EVIDENT IN THE FAILURE TO MAKE TIMELY OPERABILITY DETERMINATIONS FOLLOWING THE INSTRUMENT AIR EVENT

LICENSEE MANAGEMENT ACTIONS ARE PERCEIVED AS CREATING AN APPARENT "KEEP THE PLANT ON THE LINE" CULTURE AND HAS CREATED AN NRC CONCERN THAT LICENSEE'S ACTIONS UNDER STRESS MIGHT NOT BE CONSERVATIVE

RECOMMENDED LICENSEE ACTION

AS WAS RECOGNIZED AT THE END OF THE ASSESSMENT PERIOD, THE LICENSEE NEEDS TO CONTINUE TO STRIVE TO IMPLEMENT IMPROVEMENT IN ITS PROGRAMS FOR A MORE CONSERVATIVE CULTURE.

- DEVELOP AN ATTITUDE THAT DEMONSTRATES THE WILLINGNESS TO TAKE A CONSERVATIVE APPROACH IN RESPONSE TO AN EVENT AND A CONCERN FOR SAFE PLANT OPERATION
- DEVELOP A PHILOSOPHY THAT ADDRESSES THE NEED TO MAKE TIMELY OPERABILITY DETERMINATION

LICENSEE MANAGEMENT SHOULD INCREASE EFFORTS TO ENSURE THAT THE OPERATIONS STAFF RECEIVES NECESSARY SUPPORT TO ENSURE PLANT IS OPERATED IN A SAFE MANNER.



RADIOLOGICAL CONTROLS  
CATEGORY 3

LICENSEE PERFORMANCE IN THIS FUNCTIONAL AREA WAS MINIMALLY SATISFACTORY, PRIMARILY BECAUSE OF WEAKNESSES IDENTIFIED IN THE AREA OF OCCUPATIONAL RADIATION SAFETY

THESE WEAKNESSES INCLUDE THE FOLLOWING:

- . LACK OF PROPER MANAGEMENT OVERSIGHT AND SUPPORT
- . INADEQUATE PROCEDURES
- . UNCLEAR TRAINING REQUIREMENTS
- . INEFFECTIVE CORRECTIVE ACTIONS
- . OVERALL LACK OF ATTENTION TO DETAIL

AUDITS OF RADIOLOGICAL CONTROL PROGRAM AREAS WERE GENERALLY OF INSUFFICIENT SCOPE AND DETAIL TO IDENTIFY PROCEDURE AND PROGRAM WEAKNESSES.

THE LICENSEE'S PERFORMANCE REPRESENTS OVERALL DECLINING TREND AND THE EFFECTIVENESS OF THE LICENSEE'S CORRECTIVE ACTIONS HAVE NOT BEEN VERIFIED.

THE LICENSEE HAS PROPOSED A RADIATION IMPROVEMENT PLAN WHICH WILL REQUIRE APPROXIMATELY 2 YEARS TO COMPLETE AND WILL PROVIDE BIMONTHLY UPDATES OF PROGRAM PROGRESS.

RECOMMENDED LICENSEE ACTION

THE RADIATION IMPROVEMENT PROGRAM SHOULD BE FINALIZED WITH MAJOR MILESTONES IDENTIFIED AND COMPLETION DATES ESTABLISHED

MANAGEMENT SHOULD ENSURE THAT THE RADIATION CONTROLS ARE BEING PROPERLY IMPLEMENTED

THE TRAINING/RETRAINING PROGRAM SHOULD BE FULLY IMPLEMENTED

MAINTENANCE  
CATEGORY 2

THE LICENSEE HAS MAINTAINED A STABLE, WELL-QUALIFIED MAINTENANCE FORCE WITH LITTLE TURNOVER AND AS A RESULT, HAS NOT EXPERIENCED ANY FORCED PLANT SHUTDOWNS DUE TO MAINTENANCE PROBLEMS.

THERE HAS BEEN A GOOD INTERFACE BETWEEN OPERATIONS AND MAINTENANCE

NEW MAINTENANCE FACILITIES ARE BEING PROVIDED.

NRC IDENTIFIED DEFICIENCIES IN THE MAINTENANCE PROGRAM INCLUDED:

- . FAILURE TO PERFORM OR PROGRAMATICALLY REQUIRE POST MAINTENANCE TESTING FOR ALL SAFETY RELATED EQUIPMENT
- . FAILURE TO UPDATE OR INCORPORATE THE LATEST VENDOR TECHNICAL INFORMATION IN THE MAINTENANCE PROCEDURES
- . DEFICIENT MAINTENANCE PROCEDURES
- . FAILURE TO FOLLOW PROCEDURES OR USE OF INCORRECT PROCEDURE

RECOMMENDED LICENSEE ACTION

LICENSEE MANAGEMENT SHOULD INCREASE THEIR INVOLVEMENT IN THIS FUNCTIONAL AREA.

THE QUANTITY OF BACK MAINTENANCE ORDERS SHOULD CONTINUE TO BE REDUCED.

UPGRADING OF THE CONTENT OF MAINTENANCE PROCEDURES AND THE ESTABLISHMENT OF PROGRAMMATIC CONTROLS FOR VENDOR TECHNICAL INFORMATION SHOULD BE ACTIVELY PURSUED.

SURVEILLANCE  
CATEGORY 2

THERE HAS BEEN A LOW TURNOVER OF PERSONNEL INVOLVED IN THE SURVEILLANCE PROGRAM.

THE LICENSEE HAS CONTINUED TO IMPLEMENT AN ACCEPTABLE SURVEILLANCE TESTING PROGRAM, ALTHOUGH THE LICENSEES PERFORMANCE IN THIS FUNCTIONAL CATEGORY HAS DECREASED.

EVENT REPORTS ISSUED BY THE LICENSEE INDICATE NEGATIVE TRENDS IN EFFECTIVE SCHEDULING, AND IN THE CONTENT OF THE SURVEILLANCE INSTRUCTIONS, AND IN THE PERFORMANCE OF THE TESTS.

THE FAILURE TO PROMPTLY EVALUATE AND RESOLVE A NUMBER OF TEST RECORDS AND THE FAILURE TO ESTABLISH PROPER COMMITMENT TRACKING IS INDICATIVE OF A DOWNWARD TREND IN MANAGEMENT INVOLVEMENT AND OVERSIGHT.

DIFFICULTIES IN IMPLEMENTING NEW OR REVISING ESTABLISHED SURVEILLANCE TEST PROCEDURES IS INDICATIVE OF WEAKNESSES IN THE INTERFACE BETWEEN LICENSEE ORGANIZATIONS

RECOMMENDED LICENSEE ACTION

LICENSEE MANAGEMENT SHOULD TAKE TIMELY CORRECTIVE ACTIONS TO ENSURE THAT PERFORMANCE IN THIS AREA RETURNS TO ITS PREVIOUS HIGH LEVEL.

FIRE PROTECTION  
CATEGORY 2

GENERALLY THE LICENSEE HAS AN ADEQUATE FIRE PROTECTION/  
PREVENTION PROGRAM.

THE LICENSEE HAS NOT PURSUED SOME CONCERNS AGGRESSIVELY.

THE LICENSEE DOES NOT HAVE A DEDICATED FIRE PROTECTION  
ENGINEER.

RECOMMENDED LICENSEE ACTIONS

THE LICENSEE IS ENCOURAGED TO DEDICATE A QUALIFIED  
INDIVIDUAL TO PERFORM ONLY FIRE PROTECTION DUTIES AND  
PROVIDE A MORE TIMELY RESPONSE TO IDENTIFIED CONCERNS.

### EMERGENCY PREPAREDNESS

THE LICENSEE'S PERFORMANCE IN THIS FUNCTIONAL AREA IS CONSIDERED ADEQUATE TO PROTECT THE HEALTH AND SAFETY OF THE PUBLIC.

HOWEVER, THE NUMBER OF DEFICIENCIES OBSERVED DURING THE EXERCISE AND THE VIOLATION IDENTIFIED DURING A ROUTINE INSPECTION INDICATE THAT TRAINING METHODS AND EMERGENCY IMPLEMENTING PROCEDURES REQUIRE ADDITIONAL IMPROVEMENTS.

### RECOMMENDED LICENSEE ACTION

THE LEVEL OF MANAGEMENT ATTENTION TO THE IMPLEMENTATION OF THE EMERGENCY PREPAREDNESS PROGRAM SHOULD BE INCREASED TO ENSURE EFFECTIVE RESPONSE TO NRC IDENTIFIED ITEMS.

LICENSEE MANAGEMENT NEEDS TO ENSURE THAT EMERGENCY PREPAREDNESS TRAINING AND THE VERIFICATION OF THE PROFICIENCY OF EMERGENCY RESPONSE PERSONNEL ARE ADEQUATE.

EMERGENCY PREPAREDNESS IMPLEMENTING PROCEDURES NEED TO BE REVIEWED AND CORRECTED.

ATTENTION SHOULD BE GIVEN TO EXERCISE SCENARIOS TO ENSURE THEY PROVIDE THE NECESSARY REALISM.

SECURITY  
CATEGORY 2

THE LICENSEE IS STEADILY IMPROVING AND HIS PERFORMANCE IN THIS FUNCTIONAL IS CONSIDERED TO BE ACCEPTABLE.

THE COMPLETION OF SECURITY IMPROVEMENTS HAS BEEN SLOW AND HAS RESULTED IN IMPLEMENTATION COMPENSATORY MEASURES ON A LONG TERM BASIS.

RECOMMENDED LICENSEE ACTION

THE LICENSEE IS ENCOURAGED TO FOCUS ON LONG-TERM CORRECTIVE ACTIONS AND TO COMPLETE SECURITY PROGRAM IMPROVEMENTS IN PROGRESS.

OUTAGES  
CATEGORY 2

NORMAL REFUELING AND STARTUP ACTIVITIES WERE PERFORMED WITHOUT INCIDENT, AND THE OPERATIONS STAFF APPEARED TO BE WELL TRAINED AND QUALIFIED.

THE LOSS OF OFFSITE POWER ON TWO OCCASIONS DURING THE LAST REFUELING OUTAGE DUE TO PERSONNEL ERROR IS AN INDICATION OF MINIMAL MANAGEMENT OVERSIGHT.

THE FAILURE TO NOTIFY OPERATIONS PERSONNEL OF OUTAGE ACTIVITIES THAT MAY AFFECT PLANT SYSTEMS IS OF PARTICULAR CONCERN.

THE USE OF A FOREIGN CONTRACTOR FOR SLUDGE-LANCING OF STEAM GENERATORS LED TO MANY DIFFICULTIES AND RESULTED IN BRINGING IN A SECOND CONTRACTOR WITH EXPERIENCE.

THE LICENSEE DEMONSTRATED A WEAKNESS IN THE CONTROL OF SPECIAL PROCESSES.

RECOMMENDED LICENSEE ACTION

INCREASED MANAGEMENT ATTENTION TO ACTIVITIES ASSOCIATED WITH SPECIAL PROCESS CONTROL IS ENCOURAGED.

THE LICENSEE SHOULD PROVIDE BETTER OVERSIGHT OF OUTAGE ACTIVITIES SUCH AS RESULTED IN THE LOSS OF OFFSITE POWER AND TO ENSURE THAT THE OPERATIONS STAFF IS CONTINUALLY INFORMED OF OUTAGE ACTIVITIES THAT COULD AFFECT PLANT SYSTEMS.

QUALITY PROGRAMS AND ADMINISTRATIVE CONTROLS AFFECTING QUALITY  
CATEGORY 3

MANAGEMENT HAS DEMONSTRATED WEAKNESSES IN THE CAPABILITY TO INTROSPECTIVELY REVIEW OPERATIONAL EVENTS, AND OCCURRENCES TO ENSURE THAT PROMPT AND EFFECTIVE CORRECTIVE ACTIONS ARE ESTABLISHED.

THE ESTABLISHMENT OF THE MANAGEMENT INVESTIGATIVE SAFETY TEAM (MIST) IS CONSIDERED A VERY POSITIVE ACTION BY THE LICENSEE TO ENSURE AN INDEPENDENT ASSESSMENT OF THE RESPONSE TO EVENTS AND OCCURRENCES.

MANAGEMENT HAS CONTINUED TO EXPERIENCE DIFFICULTY IN ESTABLISHING AN EFFECTIVE COMMITMENT TRACKING PROGRAM.

THE QA AND QC ORGANIZATIONS PERFORMED THEIR RESPONSIBILITIES SATISFACTORILY; BUT, THERE APPEARED TO BE A LACK OF QA INVOLVEMENT IN THE REVIEW OF ANALYSES PERFORMED BY THE TECHNICAL STAFF TO ADDRESS PLANT OPERABILITY.

A REVIEW OF TECHNICAL ANALYSES INDICATED THAT THE INFORMATION WAS WEAKLY DEVELOPED AND INSUFFICIENT IN DETAIL TO DETERMINE THE BASIS FOR THE STATED CONCLUSIONS.

RECOMMENDED LICENSEE ACTION

MANAGEMENT SHOULD ENSURE THAT PLANT EVENTS ARE REVIEWED AND THAT AN EFFECTIVE CORRECTIVE ACTION PROGRAM IS IMPLEMENTED.

MANAGEMENT INVOLVEMENT IN PROVIDING AN ADEQUATE TRACKING SYSTEM IS ENCOURAGED.

MANAGEMENT NEED TO TAKE ACTION TO ENSURE THAT THE ANALYSES PERFORMED BY THE TECHNICAL STAFF TO ADDRESS OPERABILITY OF PLANT COMPONENTS AND EQUIPMENT PROVIDE AN IN-DEPTH DESCRIPTION OF THE BASIS FOR THE CONCLUSION PROVIDED BY THE ANALYSIS.



LICENSING ACTIVITIES

CATEGORY 2

THE CIRCUMSTANCES SURROUNDING PLANT EVENTS WERE A MAJOR CRITICISM OF THE ACTIVITY THAT LEAD TO THE LOWERING OF THE PREVIOUS RATING IN THIS AREA.

THE LICENSEE HAS HISTORICALLY MAINTAINED A RESPONSIVE LICENSING INTERFACE WITH THE NRC.

THE LACK OF ATTENTION TO THE DETAIL OF REVIEWS CONDUCTED PRIOR TO SUBMITTAL OF DOCUMENTATION TO THE NRC HAS RESULTED IN THE NECESSITY FOR FURTHER REQUESTS FOR INFORMATION.

THE COMPLETION OF REVIEWS COULD BE MORE TIMELY.

RECOMMENDED LICENSEE ACTION

THE LICENSEE SHOULD CONTINUE WITH ESTABLISHED PR+GRAMS FOR RECONSTITUTION OF+THE DESIGN AND EVALUATION OF STAFFING AND MANAGEMENT.

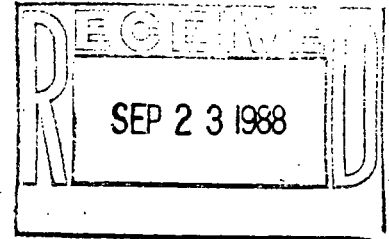
TECHNICAL REVIEWS SHOULD BE CONDUCTED IN A MORE DETAILED MANNER AND DOCUMENTED SUCH THAT AN INDEPENDENT REVIEW CAN BE SUCCESSFULLY ACCOMPLISHED.

## PRINCIPAL ATTENDEES

<u>Name</u>	<u>Affiliation</u>
R. Martin	NRC - RIV
J. Milhoan	NRC - RIV
A. Beach	NRC - RIV
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**Omaha Public Power District**  
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402/536-4000

September 19, 1988  
LIC-88-828



U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station P1-137  
Washington, DC 20555

References: 1. Docket No. 50-285  
2. Letter from NRC (R. D. Martin) to OPPD (K. J. Morris)  
dated July 29, 1988

Gentlemen:

SUBJECT: OPPD Response to Recent NRC SALP on Fort Calhoun Station  
(50-285/88-14)

The Omaha Public Power District (OPPD) has carefully reviewed the most recent SALP Report on Fort Calhoun Station, including discussions at the public meeting on August 19, 1988. We believe the above meeting was valuable and we appreciate the insight gained during the meeting. At that meeting, OPPD provided corrective actions for both the primary and secondary issues.

This letter serves to not only address OPPD's plans in those areas rated a "3", but to also provide our overall plan for improving performance in the other SALP categories.

In summary, OPPD is committed to improving performance. If you have any questions concerning this matter, please do not hesitate to contact me.

Sincerely,

*W. J. Morris*  
for K. J. Morris  
Division Manager  
Nuclear Operations

KJM/mc

Enclosure

c: LeBoeuf, Lamb, Leiby & MacRae  
R. D. Martin, NRC Regional Administrator ✓  
J. A. Calvo, NRC Project Director  
P. D. Milano, NRC Project Manager  
P. H. Harrell, NRC Senior Resident Inspector

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## A. Operations

### Recommended Licensee Actions

Licensee management needs to develop an attitude that demonstrates, in response to an event, that they are concerned with safe plant operation and that they are willing to take a conservative approach. Inherent with the development of a conservative approach to safe operation of the plant, management should also develop and implement a philosophy that addresses the need to make an operability determination as soon as possible after a component or equipment has been identified as deficient.

Licensee management should increase their efforts to ensure that the operations staff receives the necessary support to ensure that the plant is operated in a safe manner. The licensee should take whatever steps are necessary to ensure that the shift supervisors have the appropriate level of authority to fully implement their assigned responsibilities. Actions should be taken to place significant emphasis on the recommendations made by the shift supervisor with respect to the safe operation of the plant following an event.

### OPPD's Response

OPPD has taken, or is planning the following actions in the operations area:

1. On June 24, 1988 OPPD held a nuclear business meeting, attended by nuclear managers and supervisors, to stress the importance of providing an increased emphasis on nuclear safety. Subsequent to this, discussions were held with other nuclear personnel to review information discussed at the meeting. It is believed that this action has increased the sensitivity toward nuclear safety and has emphasized the importance of working toward this common goal. The Plant Review Committee (PRC) has placed increased emphasis on items which could affect nuclear safety and has shifted some management items previously discussed in PRC meetings to staff meeting agenda items. Continued adjustments in the shifting of agenda items not directly related to nuclear safety is being considered.
2. The emergency plan implementing procedures have been revised to provide additional guidance to the operating crews for accident classifications involving certain common mode failures. Emergency plan implementation is now required for such events as loss of raw water, loss of component cooling water, and loss of instrument air. Additional guidance is given to the Site Director to classify an event based upon the loss of a single auxiliary support system which affects a safety system such that it is incapable of operating independently.
3. In an effort to ensure that personnel know the authority and responsibilities associated with the shift supervisors, a memorandum has been distributed. This memorandum from the Manager-Fort Calhoun Station emphasized the Shift Supervisor's role as the Plant Manager's representative and gives guidance concerning Shift Supervisor authority. This memorandum will be reviewed annually and redistributed to reemphasize this important management responsibility.

A. Operations (Continued)

4. Periodic meetings between the plant manager, operations supervisor, and shift supervisors have been and will continue to be held in an additional effort to ensure proper levels of operational support for the shift supervisors and operations staff. Further means of soliciting and responding to operator comments is underway. This program should be in place by October 30, 1988.
5. The pool of licensed operating and staff members is an area where improvement is expected. The authorized staffing level of shift operations personnel has been increased from 50 to 62 equipment operator and control room positions. It is expected that the filling of these positions will begin shortly. Increased staff authorizations will allow additional flexibility in terms of Fort Calhoun's ability to increase both the frequency and size of future license classes.
6. Control room access is another area where improvement has been seen and further improvement following the 1988 refueling outage is expected. Control room modifications performed during the outage will allow the Shift Supervisor's office to be moved nearer to the control room entrance. Support groups will not be allowed to enter the "at the controls" area without a specific need to be in the area.

It is believed that these actions will serve to improve the overall performance in the area of Operations.

## B. Radiological Controls

### Recommended Licensee Actions

The radiation improvement program should be finalized with major milestones identified and completion dates established. Management/supervision should ensure that the radiation controls are being properly implemented. The training/retraining program should be fully implemented to ensure personnel have a good understanding of regulatory requirements and plant procedures.

### OPPD's Response

The following actions are being taken to improve OPPD's performance in the area of radiological controls:

#### I. Management oversight and support has been strengthened:

- A. A new Supervisor - Radiation Protection has been designated with over 20 years of industry experience.
- B. Regular meetings are held between the Supervisor - Radiation Protection and the Plant Manager in order to ensure adequate support is provided for the program. Monthly meetings are held with the Manager - Fort Calhoun Station, Supervisor - Operations, Supervisor - Maintenance and the Supervisor - Radiation Protection to ensure key departmental support and understanding of program needs.
- C. As a result of recent appraisals, the Radiation Protection organization is being reorganized in order to increase supervisory involvement and technical depth to:
  - 1. improve attention to detail
  - 2. improve problem identification and implement effective corrective actions, and
  - 3. establish clear functional job descriptions and clarify training and qualification requirements for each position.

#### II. Radiation Improvement Plan (RIP)

- A. Responsibility and management oversight for the RIP has been transferred to the Fort Calhoun Station staff. In addition, the RIP will be incorporated into a larger scale enhancement program described in II.B. below.
- B. A project team has been contracted to accomplish the following:
  - 1. Accelerate the schedule proposed in the original RIP to ensure long term program improvements are complete no later than September 1989,

## B. Radiological Controls (continued)

2. Upgrade procedures as required to ensure excellence in Radiological Controls,
  3. Provide technical assistance during the upcoming outage to ensure program adequacy is maintained, and
  4. Provide an assessment and audit function to ensure proper implementation and effectiveness of the RIP as it is phased in during the next 12 months.
- C. Sixteen new positions have been approved in order to increase staff at both the supervisory and technician level.

## III. Outage Preparation

- A. Action has been taken to ensure quality HP technicians are available for the 1988 refueling outage.
- B. Radiation protection will provide additional support for maintenance decontamination by using a contractor to maintain cleanliness of containment during the outage.
- C. Key procedures have been identified, and will be upgraded prior to the outage. They include bioassay, air sampling, radiation and contamination survey requirements, personnel contamination, MPC hour tracking, and control of contaminated equipment.
- D. Experienced contractor radiation protection supervisors are being used to support and supplement the OPPD staff during the outage.
- E. Additional radiation protection equipment has been ordered to ensure adequate survey equipment is available, including 20 new ion chambers, six AMS-3s, and a number of air sample devices.
- F. An additional whole body counter has been obtained and is on site for personnel processing and to provide additional support for the outage.



## C. Maintenance

### Recommended Licensee Actions

Licensee management should increase their involvement in this functional area to ensure that performance in this area returns to its previous high level. Management should continue to reduce the quantity of the maintenance order backlog. Programmatic controls for vendor/technical manual should be established, and upgrading of the content of maintenance procedures should be actively pursued.

### OPPD's Response

The Omaha Public Power District has taken steps to improve the area of maintenance at Fort Calhoun Station. These programs are underway and will address many areas beyond what were described as items of concern in the SALP report.

An upgrade of maintenance, calibration, and surveillance test procedures has been contracted to assure information needed to assure verbatim compliance has been included. Members of each procedure's users' group are reviewing these procedures to ensure that the data is accurate before the procedure changes are sent to Plant Review Committee (PRC) for review.

Plant management and supervisory staff are firmly establishing the importance of verbatim procedural compliance; an attitude of verbatim compliance is being promoted at the station. This has been expressed in memos and meetings with station personnel which outlined management's expectations on verbatim compliance. The Supervisor-Maintenance addressed the maintenance staff on September 1, 1988, concerning actions to be taken by the maintenance department to improve procedure compliance. These actions include:

1. Increasing the visibility of violators by including names on incident reports. Procedural compliance is included as an evaluation criterion on performance appraisals. Disciplinary action is invoked when needed for procedural noncompliance. This began September 1, 1988.
2. Revising procedures for human factors as part of the Procedures Upgrade Project, biennial review process and the interim upgrade of refueling outage procedures. These items are in progress at this time.
3. Training individuals on procedure use by 1) creating visual aids for use of the maintenance order form, 2) training craftsmen on the applicable station standing orders (in progress at this time for station and central maintenance personnel), and 3) by development of a craftsmen's handbook (will be complete by September 24, 1988).
4. Performing an abbreviated root cause analysis on each incident report generated from an event after September 1, 1988. The foreman of the person in noncompliance will attempt to discern the cause of the non-compliance and provide guidance to ensure that it does not recur. This began September 1, 1988.

C. Maintenance (Continued)

5. Dedicating a major portion of first line maintenance supervisors' time to field supervision to reinforce station policies and procedures. This is explicit in these position descriptions. Establishing a maintenance department policy of reviewing each completed maintenance order within two working days, with Supervisor-Maintenance review completed within 10 days. This began September 1, 1988.
6. Conducting pre-job briefings to review scope, procedures, safety, house-keeping, and quality control issues on key maintenance activities. This requirement will be formally incorporated into Standing Order G-17, Maintenance Orders, by January 1, 1989.
7. The Project 1991 Procedure Upgrade Project will include provisions for the performance of post maintenance testing in the process of returning equipment to service for all safety related equipment. This process is expected to be complete by December 31, 1991. In the interim, the maintenance planners will establish a planning guide. This guide will include post maintenance testing of equipment as appropriate to prove operability. This guide will be completed by November 1, 1988.

## D. Surveillance Test Program

### Recommended Licensee Actions

Licensee management should take actions to ensure timely scheduling and completion of surveillance tests, personnel compliance with the surveillance instructions, and correction of the negative trends identified in this functional area. Licensee management should also increase their involvement and oversight to ensure that completed test records are promptly reviewed and dispositioned. Management should also take the actions necessary to ensure that the changes made by amendments to the Technical Specifications are promptly implemented into the appropriate documentation.

### OPPD's Response

Management has taken the following steps to strengthen the Surveillance Test (ST) schedule program controls and ensure personnel compliance with Surveillance Test program procedures:

1. Assigned ST program control to the Special Services Department and appointed a new Scheduling Coordinator.
2. Assigned the newly-formed Station Engineering section to assist in ST program upgrade; review procedure changes for impact on scheduling; and review and trend ST results in a timely manner. Additionally, Station Engineering will provide guidance on maintenance or improvements to systems and components based on the results of the trend analysis.

The computer system/program being used for ST tracking is being upgraded to incorporate scheduling and completion tracking into a single program. The program will make allowances for refueling outage and plant mode changes (e.g., forced shutdowns) as needed. The scope and content of the Surveillance Test Computer Program is being developed and a schedule for implementation will be available by November 1, 1988. An exception report capability will be included to generate an overdue/delinquent ST report and will also include the area of "delinquent in being filed." Status reports on current Surveillance Tests will be generated to prompt timely review of completed test results. To provide a better understanding of ST requirements, additional information will be included on the schedule. Examples include support crafts, test frequency, title, and Technical Specification allowable extension date.

The following interim measures have been taken to ensure compliance with the current ST program and prevent missed or delinquent tests:

1. Monthly STs that have no grace period are being manually scheduled. They are identified in the daily task planning schedule to remind appropriate personnel that these tests must be performed as scheduled.
2. A Facility License Change (FLC) has been submitted to the NRC for an amendment to the Technical Specifications for a 25 percent extension (grace period) for ST intervals not presently covered by an extension.

D. Surveillance (Continued)

3. Testing frequencies as stated in the Technical Specifications will be defined to preclude misinterpretation. These definitions will be included in the FLC.

A program will be implemented by November 1, 1988 which will provide added assurance of timely reviews of completed STs by the appropriate supervisors. This is intended to ensure that the adequacy of the test to accomplish its intended purpose receives a timely review by management.

The receipt of amendments to Technical Specifications is followed by issuance of an internal tracking document to assure training and procedure changes are accomplished, and to assure the control room is aware of the amendment.

## E. Fire Protection

### Recommended Licensee Actions

The licensee should dedicate a qualified individual to perform only fire protection duties, and resolve NRC identified concerns in a timely manner.

### OPPD's Response

The following actions have been taken to improve the fire protection area:

1. Effective July 15, 1988 a dedicated fire protection engineering position was established and staffed within the Systems Engineering organization. The engineer's primary focus has been the increased daily attention to active and passive fire protection system operability and maintenance.
2. Upgrades have been completed for several maintenance procedures, and system deficiencies which have been identified are being corrected promptly.
3. A fire door/hardware replacement and standardization program, and a corresponding preventive maintenance program, have been initiated.
4. An action plan is being developed to evaluate the effect on tendon grease on the rating of silicon foam penetration seals.
5. Additionally, increased attention and responsiveness is being given to recently-issued NRC Information Notices pertaining to fire protection and their applicability to Fort Calhoun Station.

Additional future actions planned are:

1. A new administrative procedure will be established which will control and maintain the status of the fire protection system. This procedure is scheduled to be issued by January 15, 1989. The procedure will establish responsibilities for documentation, communication and resolution of system deficiencies, ensure communication and resolution of system deficiencies, and ensure adherence to the requirements of fire protection technical specifications.
2. Assignment of additional fire protection personnel within the System Engineering and Design Engineering Departments is being pursued. These positions will further assure that fire protection related activities are initiated on a timely basis and that fire protection improvements are implemented.
3. The engineer previously assigned to the Fort Calhoun Station Plant Engineering Group has been reassigned to the Design Engineering Department to strengthen fire protection aspects of modifications through his direct input into the design, procurement, installation, and testing of modifications related to the fire protection system.

## F. Emergency Planning

### Recommended Licensee Actions

The level of management attention to the implementation of the emergency preparedness program should be increased to ensure effective response to NRC identified items.

Licensee management needs to ensure that emergency preparedness training and the verification of the proficiency of emergency response personnel are adequate. In addition, the licensee needs to review and correct emergency implementing procedures and to ensure that exercise scenarios provide the necessary realism during the annual exercise.

### OPPD's Response

OPPD has taken the following actions as positive steps toward a heightened level of management awareness in emergency preparedness.

1. The level of management attention to the implementation of the emergency preparedness program is being increased by Emergency Preparedness staff attendance at Plant Review Committee (PRC) meetings. Resolution of emergency preparedness and planning concerns have been completed in a timely manner.
2. In 1987 the Emergency Preparedness organization was reorganized under one manager and the staff was increased by three persons. At present, the group has one manager, with three onsite planners and two offsite planners. In accordance with the Independent Nuclear Appraisal, the Emergency Preparedness Program will be increased by three additional positions.
3. Emergency Planning training will be upgraded to a performance-based program.
4. The Emergency Plan and the corresponding implementing procedures will be evaluated and upgraded to ensure correctness, continuity and compatibility within the full planning program.

To ensure that emergency preparedness training and the verification of the proficiency of emergency response personnel are adequate, OPPD has taken the following actions.

1. Committed to evaluating and upgrading the emergency response training program to a performance-based training program by June 30, 1990.
2. Non-Emergency Preparedness training such as Technical Staff, First-Aid, and Respiratory Protection training will be outlined for each individual position in the Emergency Preparedness Training Manual. Training will be coordinated through the annual training schedule matrix.
3. More small scale drills emphasizing damage control and radiological controls will be performed within the annual training schedule. Additional small scale drills will emphasize augmentation, notification, and accountability methods.

#### F. Emergency Planning (Continued)

4. Attendance at 1988 Emergency Preparedness training has been much improved over the previous year. The emergency preparedness staff will continue to develop annual training schedules, provide them to members and supervisors of the emergency response organization, and strive to eliminate absences or postponement of scheduled training.

To address concerns with the emergency implementing procedures, OPPD has:

1. Developed a data base that cross references emergency implementing procedures to other applicable procedures so that affected procedures can be identified and changed at the same time.
2. The Radiological Emergency Response Plan (RERP) and the Emergency Plan Implementing Procedures (EPIP) will be evaluated and revised for human factors, technical content, and compliance with 10 CFR 50, NUREG and INPO Good Emergency Preparedness Practices. These procedures will be developed in accordance with the procedures writers guide and targeted for completion by June 30, 1990. The procedure revisions and format will be coordinated closely with the Project 1991 and Radiation Protection Improvement Program to ensure continuity.

The following actions will ensure that OPPD exercise scenarios provide the necessary realism during the annual exercise:

1. The 1988 scenario was run on the CE simulator, which helped to identify weaknesses in operational data. The data provided by the simulator was used to correct those weaknesses prior to running the exercise. In addition, three contractor representatives assisted with preparation of the radiological data and operational actions. Their software was utilized to calculate compartmentalized radioactive material data from the release point to offsite positions. Because the CE simulator is not identical to Fort Calhoun, some discrepancies were not identified until the exercise. OPPD will continue to use a simulator to test exercise scenarios as an independent review. The OPPD simulator will be used after it is installed and operational.
2. OPPD will continue to use contractor assistance, especially for the preparation of radiological and operational data.
3. The 1989 Scenario Development Group has been assigned approximately nine months before the annual exercise. This longer preparation time will allow improved development and review of the scenario for greater realism. One person of this group is designated to coordinate the project.
4. Emergency Preparedness Test EPT-10, which procedurally controls scenario development, will be reviewed and upgraded, as needed, by January 31, 1989.

## G. SECURITY

### Recommended Licensee Actions

The licensee is encouraged to focus on long-term corrective actions to ensure that repeat violations do not recur and complete the security program improvements in progress.

### OPPD's Response

OPPD concurs with the importance of long-term corrective action. To assure continued improvement in this area:

1. Industry experts have been retained to do a comprehensive study of Security functions at Fort Calhoun Station. The review will provide an independent, in-depth assessment of the nuclear security program and develop recommendations. This review is scheduled to be completed by October 28, 1988 and reports submitted immediately thereafter. Review of the assessment and recommendations will be completed in January 1989 and a plan of action will be formulated and published no later than February 1989.
2. Security Organization and staffing levels have been reviewed. A new security organization has been approved. The new organization includes additional positions and increased staffing levels. Contractor personnel are being used to supplement the security staff. Corrective actions are being implemented on several of the recommendations from the reviews. An overall security improvement plan is being developed. Additional experienced nuclear security supervision and security officers are being provided by a contractor to support the OPPD security force for the 1988 refueling outage.
3. Supervisory personnel have been selected and appointed to Security Shift Supervisor positions and recruitment is underway to fill the remaining positions.
4. The current Manager and Supervisor, Security Services have visited other nuclear utilities and periodic visits are scheduled for the coming year to selected utilities which have demonstrated excellent security programs.
5. Revision of the Security Training and Qualification and Lesson Plans is in progress and recruitment of a Security Training Specialist is underway. Further review of the Training program to determine additional revisions and upgrading necessary for excellence is currently being conducted by retained industry experts. The findings will be compared against a model training program based on those in use at other highly rated power plants. Security personnel are aware of the impact of the new Security system and are working with OPPD project engineers to track the progress of the system contracts and assure the system meets Security requirements.
6. The security procedures upgrade effort has been in progress since February 1988 and completion of Security related documents are scheduled for submittal to the NRC by January 1989.



## H. Outage-Related Activities

### Recommended Licensee Actions

Licensee management attention should be increased for activities associated with special process control to ensure that these activities are performed in accordance with requirements. The licensee should provide better oversight of outage activities to ensure that the operations staff is continually informed of outage activities that could affect plant systems.

### OPPD's Response

In order to improve our performance in the outage activities area;

1. OPPD has assigned a full time outage manager (Supervisor - Outage Projects) who will be responsible only for the direction and coordination of outage-related activities and work groups.
2. The total outage management organization, in addition to the Supervisor - Outage Projects, will consist of management level personnel from all support departments. These personnel will meet daily to review the outage work and schedules, monitor work in progress, and provide oversight and coordination of upcoming activities.
3. Work identified for the 1988 outage has been pre-planned as much as possible and will be accomplished in accordance with written procedures (reviewed and revised by Project 1991 personnel) and a defined schedule.
4. The outage schedule is utilizing the system window concept in which all work associated with a system or subsystem is accomplished within a single time frame. Close adherence to this schedule will assure that redundant components are maintained in an operable status in accordance with Fort Calhoun Station Technical Specifications while assuring that operations and management are aware of components out of service.
5. During the planning process of steam generator maintenance, a decision to acquire a long-term (3 outage) contract was made. This contract was awarded to Combustion Engineering, the steam generator manufacturer, and will include all steam generator maintenance on the primary and secondary sides. This will assure adequate experience and reduce the difficulties experienced in past outages.
6. Since the 1987 refueling outage, the welding control program has been completely revised under the auspices of a full time welding specialist.

## I. Quality Programs and Administrative Controls Affecting Quality

### Recommended Licensee Actions

Licensee management should ensure that plant events are reviewed and that an effective corrective action program is implemented. Management involvement in the area of commitment tracking should be increased to provide a tracking system that will ensure that commitments made to the NRC are timely and accurately completed. Management should take action to ensure that the analyses performed by the technical staff to address operability of plant components and equipment provide an in-depth description of the basis for the conclusions provided by the analyses.

### OPPD's Response

Management has taken the following steps to increase the level of review of plant and operational events:

1. A Safety Review Group (SRG) is being formed which will be tasked with independently assessing the nuclear safety aspects of plant events. The Management Investigative Safety Team (MIST) concept will be continued until the SRG is staffed with qualified personnel.
2. The membership of the Plant Review Committee has been reorganized to include the Manager - Nuclear Safety Review, the Manager - Quality Assurance & Quality Control, the Manager - Training, and the Supervisor - Systems Engineering, in addition to key plant personnel. This has strengthened the committee's safety perspective.
3. The Safety Audit and Review Committee (SARC) has been restructured to increase its focus on safety and to include outside consultants with a broad experience base in the nuclear power industry. The SARC will also meet more frequently.
4. Measures to improve the corrective action system include the development of a root cause analysis program and increasing the sense of urgency in addressing and resolving quality assurance program implementation deficiencies.
5. The QA organization plans improvements in its audit and surveillance programs to better address human performance problems; deficiencies in implementation of corporate and station policies and procedures; and program effectiveness.
6. The computerized commitment tracking system is being developed and is scheduled to be operational this year. The software has been developed. Current commitment information is being entered into the system.
7. A System Engineering group at Fort Calhoun will improve OPPD's engineering and technical support capability. Properly trained and qualified system engineers, in conjunction with improved procedures and guidance, will improve the scope, depth, and accuracy of analyses performed by the

I. Quality Programs and Administrative Controls Affecting Quality  
(Continued)

technical staff. New safety analyses for operability or continued operation will be independently evaluated by the QA organization until the Safety Review Group (SRG) is properly staffed.

8. Operations review comments are very important to OPPD. An informal mechanism for ensuring operations review comments are appropriately resolved has been implemented. A formal operations feedback program will be implemented, as noted in Section A, by October 30, 1988.

## J. Licensing Activities

### Recommended Licensee Actions

The licensee should continue with established programs for reconstitution of the design and evaluation of staffing and management. Technical reviews must be conducted in a more detailed manner and documented such that an independent review can be successfully accomplished.

### OPPD's Response

OPPD is firmly committed to "Excellence" in the area of Licensing activities. OPPD will increase emphasis on licensing activities in order to regain the previous "1" performance rating. The licensing area is one which requires support from many areas of OPPD in order to achieve a number 1 rating.

The following actions have been taken to improve the area of licensing activities.

1. Corporate emphasis on safety first and operations second has been stressed to all exempt (salaried) personnel. Efforts are underway to ensure personnel receive the same message.
2. The reporting level of the person (Manager - NL&IA) in charge of licensing has been elevated, and now reports directly to a Division Manager.
3. The authorized staffing level in the Licensing area has been increased. Efforts are underway to fill the new positions.
4. Additional emphasis has been placed on holding individuals who provide information to Licensing accountable for the contents of detailed technical submittals to the NRC.
5. Approval has been given to hire experienced nuclear personnel in a variety of disciplines in order to supplement existing technical skills and knowledge.
6. A corporate planning group, reporting directly to the Senior Vice President, has been established to consolidate planning and coordinate resource loading activities, providing realistic scheduling.
7. Reorganization efforts included creation of a Nuclear Safety Review group which will emphasize the quality of reviews of events and determine root causes.

Efforts and emphasis will continue in the following areas:

1. Design basis reconstitution will continue on the schedule coordinated with the NRC.
2. Timeliness and quality of submittals will be emphasized.

J. Licensing Activities (Continued)

3. Licensing review will continue to perform in-depth reviews of documents to be transmitted to the NRC.
4. Staffing open positions with experienced personnel will be emphasized.
5. Quality of independent review of submittals to the NRC will be stressed.
6. A variety of management training is planned to increase individual skills.

These improvements, along with past successful efforts, will help OPPD achieve its previous rating of "1" in the area of licensing activities.

## K. Training and Qualification Effectiveness

### Recommended Licensee Actions

The licensee should implement a study or assessment to identify the root cause of the continued poor performance in this functional area and establish prompt corrective action. The assessment might best be accomplished by an organization and its immediate management. Management should take prompt and effective corrective action to correct the root causes identified by the assessment. Management should also establish a means to monitor the performance in this area to ensure that any future defect in performance can be promptly identified and corrected.

### OPPD's Response

OPPD is firmly committed to continue to improve our performance in the area of training and qualification effectiveness. The following described actions taken and planned in this area.

1. OPPD recognizes that significant weaknesses existed in our licensed operator requalification process following the failure of the three (3) SRO's in the November 1986 NRC requalification examinations. OPPD conducted both an internal and an independent assessment by General Physics of the licensed operator requalification process in January 1987. Results of this independent assessment were reported directly to the Senior Vice President. An action plan was developed and implemented which was directly monitored by the Senior Vice President.
2. A follow-up audit of this action plan was completed in January 1988 and indicated that the plan had been successfully implemented. The results of this audit were also reported directly to the Senior Vice President.
3. The training program was audited as part of the Independent Nuclear Appraisal.

OPPD believes that progress in training and qualification has been demonstrated through the recent inspection of licensed operator training, the results of the pilot requalification examinations, the fact that the violation and four of the five open items from the latest inspection have been closed and the success of all five candidates in our most recent initial examinations.

OPPD believes that weaknesses in the licensed operator training programs may be due to weakness in the management of operator training, inadequate monitoring of training performance, continued reliance on contractor supplied personnel, and lack of depth in understanding of the training process. To address these items and the evaluations, conclusions and recommendations of the SALP, OPPD has or will take the following actions:

K. Training and Qualification Effectiveness (Continued)

1. Conduct an independent assessment of the training area. This assessment will concentrate on the management of the training programs. This assessment is being conducted under the auspices of the Quality and Environmental Affairs Division. The assessment of the licensed operator training programs has been initiated and will be completed by September 30, 1988. The assessment of nonlicensed training will be completed by November 11, 1988. Prompt and effective corrective action based on the results of these assessments will be taken by management.
2. Strengthen the management of operator training by retaining an experienced manager with nuclear training experience to serve as an assistant to the Supervisor - Operations and Technical Training.
3. Strengthen the overall management of training. A Manager - Training position reporting to the Division Manager - Nuclear Operations was established on July 1, 1988.
4. To allow the Supervisor - Operations and Technical Training to concentrate on operator training, the technical training area (STA, technical staff, engineering and management) is temporarily reporting directly to the Manager - Training. This reporting relationship will continue until the Operations training area has been strengthened.
5. Authorization has been given to hire an Assistant Manager - Training to strengthen management of the training process.
6. A method to monitor the effectiveness of training will be developed by November 30, 1988 and implemented by January 1, 1989, as discussed in the OPPD responses to the Independent Nuclear Appraisal.
7. A minimum of one Fort Calhoun Senior Reactor Operator will be transferred to Training by December 31, 1988, and requisitions have been approved to hire additional operations training instructors to reduce our reliance on contractor-supplied personnel.
8. To strengthen the depth of the understanding of the training process, a course on performance-based training will be taught by Robert Mager for ten members of Training in October 1988.

OPPD believes that these actions will significantly improve our performance in the training and qualification effectiveness area.