

INITIAL SALP REPORT

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

Inspection Report No. 50-483/92001

Union Electric Company

Callaway Plant

February 1, 1990, through January 31, 1992

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## I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) program is an integrated U. S. Nuclear Regulatory Commission (NRC) staff effort to collect available observations and data on a periodic basis and to evaluate licensee performance on the basis of this information. The program is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. It is intended to be sufficiently diagnostic to provide a rational basis for allocating NRC resources and to provide meaningful feedback to the licensee's management regarding the NRC's assessment of the facility's performance in each functional area.

An NRC SALP Board, composed of the staff members listed below, met on March 11, 1992, to review the observations and data on performance and to assess licensee performance in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance."

This report is the NRC's assessment of the licensee's safety performance at Callaway from February 1, 1990, through January 31, 1992.

The SALP Board for Callaway was composed of the following individuals:

### Board Chairman

E. G. Greenman, Director, Division of Reactor Projects (DRP)

### Board Members

J. N. Hannon, Director, Project Directorate III-3, NRR  
H. J. Miller, Director, Division of Reactor Safety (DRS), RIII  
C. E. Norelius, Director, Division of Radiation Safety and Safeguards (DRSS), RIII  
R. C. Knop, Chief, Projects Branch 3, DRP, RIII  
L. R. Wharton, Project Manager, NRR  
B. L. Bartlett, Senior Resident Inspector, Callaway

### Other Attendees at the SALP Board Meeting

A. B. Davis, Regional Administrator  
C. J. Paperiello, Deputy Regional Administrator  
L. R. Greger, Chief, Reactor Programs Branch, DRSS  
R. L. Hague, Chief, Section 3C, DRP  
M. P. Phillips, Chief, Operational Programs Section, DRS  
W. G. Snell, Chief, Radiological Controls Section, DRSS  
J. W. McCormick-Barger, Chief, Emergency Preparedness Section, DRSS  
J. L. Belanger, Acting Chief, Safeguards Section, DRSS  
D. R. Calhoun, Resident Inspector, Callaway  
G. F. O'Dwyer, Reactor Engineer, DRP  
D. E. Roth, Intern, DRP  
T. J. Kobetz, Technical Support Section, DRP  
A. W. Markley, Radiation Specialist, DRSS  
T. J. Ploski, Senior Emergency Preparedness Analyst, DRSS  
G. M. Christoffer, Security Inspector, DRSS  
C. F. Gill, Senior Reactor Project Specialist, DRSS  
J. H. Neisler, Reactor Inspector, Plant Systems Section, DRS  
F. A. Maura, Reactor Inspector, Operational Programs Section, DRS

## II. SUMMARY OF RESULTS

### Overview

The licensee's performance during this assessment period continues to be excellent. In the previous assessment period the licensee received all Category 1 ratings with a declining trend in the area of Security. This assessment period the Category 1 ratings were maintained in all areas except one. In the area of Radiological Controls, the rating declined from Category 1 to a Category 2. Contributing to this decline were the relatively high number of personnel contamination events and outage scheduling priorities which did not, in all cases, place appropriate emphasis in dose considerations.

The declining trend in Safety Assessment/Quality Verification was the result of a few management decisions which were not as conservative or effective as previously noted. The declining trend in Security from the last assessment period was appropriately addressed during this assessment period. The licensee's overall excellent performance continues to be attributed to personal involvement at all levels and to the dedicated and knowledgeable staff that performs and supports plant activities.

The performance ratings during the previous assessment period and this assessment period according to functional areas are given below:

<u>Functional Area</u>	<u>Rating Last Period</u>	<u>Rating This Period</u>	<u>Trend</u>
Plant Operations	1	1	
Radiological Controls	1	2	
Maintenance/Surveillance	1	1	
Emergency Preparedness	1	1	
Security	1 (declining)	1	
Engineering/Technical Support	1	1	
Safety Assessment/Quality Verification	1	1	Declining

## III. PERFORMANCE ANALYSIS

### A. Plant Operations

#### 1. Analysis

Evaluation of this functional area was based on the results of routine inspections by the resident inspectors and routine inspections by regional and headquarters staff.

Enforcement history in this area continued to be very good with no significant change in performance. Two Severity Level IV violations were identified during this period.

Random and isolated equipment failures caused all seven at-power reactor-trips during this assessment period. None of these reactor trips were caused by errors by licensed operators. Root causes were promptly determined and effective corrective actions implemented. No pattern or common root cause was discerned.

The number of events attributed to personnel errors decreased during this assessment period. No licensed operator personnel errors resulted in reactor trips. One of the events involved a core alteration with less than the required number of source range monitors operable.

Plant operations continued to be sustained at a high level of performance. Professionalism, communications, and team work with groups, both inside and outside of the operations department were evident throughout most plant evolutions. The operating crews, with minor exceptions, maintained a close cognizance of the plant, control room boards, and operating conditions. Members of the operating crews demonstrated a well executed, disciplined response to unplanned events. Planning and scheduling of routine evolutions were implemented in such a manner that perturbations were minimized.

Operating history continued to improve. Even though there were seven reactor trips from power, the prior record of continuous days on line was exceeded. The licensee instituted a program to identify and eliminate sources of single-failure-point trip vulnerabilities in the non-safety-related portions of the plant.

Management effectiveness in ensuring quality was excellent and was evident throughout all aspects of plant operations. Standards of performance directed towards the safe, efficient operation of the facility were communicated to all members of the plant staff. Management involvement in root-cause analysis and performance of corrective actions helped to ensure that problems were identified in a timely manner and did not recur. Shutdown risk management was good in that industry experience was incorporated.

Staffing levels and qualifications were good and personnel were dedicated and knowledgeable. Use of overtime was maintained within NRC guidelines.

The effectiveness of the licensee's training and qualification programs was good. The pass rate on initial operator license examinations increased from the last rating period; excellent performance in the requalification examination program was maintained.

General housekeeping during normal operations was good but declined during refueling outages.

## 2. Performance Rating

Performance is rated Category 1 in this area. Performance was rated Category 1 during the previous assessment period.

### 3. Recommendations

None.

### B. Radiological Controls

#### 1. Analysis

Evaluation of this functional area was based on the results of routine resident inspections and five inspections by regional inspectors.

Enforcement history in this area remained excellent with no violations identified.

Management effectiveness in ensuring quality was generally good. Dosimetry offices were expanded into the new service building. New protective clothing for better contamination control, an irradiator for thermoluminescent devices, and a new computer system for gamma spectroscopy were acquired. Audits and surveillances were performance based and excellent. Good management support was demonstrated by the revision of the technical specifications (TS) to implement the process control program in administrative control procedures and to incorporate the radiological effluent TS in the Offsite Dose Calculation Manual. A new volume reduction system, to handle evaporator bottom waste streams, was acquired and is undergoing startup testing. Water quality was very good and was closely monitored by plant and corporate management. While some dose savings were achieved during the 1990 refueling outage, management decisions minimized the dose savings that could have been achieved.

The approach to identifying and resolving technical issues from a safety standpoint was mixed. Good performance was noted in the response taken for an intake of radioactivity and in setting up task forces to evaluate personnel contaminations and high exposures experienced during the fall 1990 outage. Using video technology and a shielded waiting area in the bioshield and flushing systems before maintenance reduced exposure. Facsimile machines were used to expedite the communication of radiological information. Good performance was also noted in the transportation program. The shipment of irradiated spent fuel and a Type B shipment, both first time tasks, were excellent. Performance in the radiological chemistry split sample program was good with 9 agreements in 10 comparisons. Performance in the nonradiological chemistry comparison program was very good with agreements in all 29 assays. Vendor supplied interlaboratory comparisons also were very good. The radiological environmental monitoring program was well implemented and equipment was well maintained.

While strengths were noted in the areas of ALARA (as low as reasonably achievable) and contamination control during the last assessment period, these areas declined during this period. Total radiation exposure for 1990 and 1991 was 442 and 22 person-rem, respectively. The high dose in 1990 (416 person-rem associated with the outage) was due in part to the nature of the work performed. However, outage scheduling priorities contributed to additional dose as evidenced by the incomplete efforts to decontaminate the reactor instrument bypass line and performance of inservice inspection (ISI) activities while the reactor upper internals were in the vessel. The number

of personnel contamination events for 1990 and 1991 (a nonoutage year) were 397 and 72, respectively. An intake of radioactive materials occurred during this assessment period which was reflective of poor work practices. Liquid and gaseous effluents remained low; however, there were some problems in the effluent control program. The source of an unmonitored gaseous release through the auxiliary boiler was not identified. An unmonitored liquid discharge release resulted from a communications problem/personnel error. In addition, minor reporting problems associated with these releases were identified.

Staffing levels, qualifications, and training of radiation protection, chemistry and radwaste personnel continued to be ample. Training programs continued to be well implemented.

## 2. Performance Rating

Performance is rated Category 2 in this area. Performance was rated Category 1 during the previous assessment period.

## 3. Recommendations

None.

## C. Maintenance/Surveillance

### 1. Analysis

Evaluation of this functional area was based on the results of routine inspections performed by the resident and regional inspectors and one routine team inspection on maintenance.

Enforcement history in this area was very good. One severity level IV violation was identified concerning failure to provide adequate maintenance and testing of battery powered emergency lighting.

The reportable occurrence performance in the surveillance area declined from the last assessment period. Five licensee event reports (LERs) involved personnel errors and two more had personnel error as a contributing cause. The surveillance program was good but there were increased personnel errors due to random and isolated root causes. Surveillances were performed on schedule and met applicable requirements. Issues were identified and resolved on a timely basis. Thorough root-cause analysis and effective corrective action were routinely carried out.

Management's effective involvement was evident in the establishment of maintenance plans that included goals, milestones, and completion dates for improvement programs. A well-planned rotational policy promoted cooperation and coordination between departments, and contributed to the overall effectiveness of the maintenance department. Management oversight of contractor performance was generally good with occasional exceptions, an example being loose fittings left after maintenance on the main stream isolation valves.

The maintenance program includes several tools for keeping management informed of maintenance status, including the quarterly quality control tracking report that alerts management to repetitive quality control problems and the repeat maintenance status reports that evaluate maintenance effectiveness and component suitability.

A program of including flow-charts in daily schedules to help ensure understanding of work agenda and priorities, was instituted. The licensee also instituted an integrated long-range plan to minimize out of service time of safety-related equipment. The plan included the use of reliability centered maintenance, management approval to go past the midway point of an LCO, the use of a rolling schedule on components so that as much work could be performed as possible while the equipment was out of service, and the incorporation of risk management into LCO maintenance. A comprehensive program for erosion/corrosion control was developed and an extensive predictive maintenance program was implemented. These management efforts resulted in a small work request backlog. An additional significant strength was an excellent program for trending component failures and repetitive quality control findings.

The ISI program was inspected during this assessment period and found to have personnel with adequate expertise to perform their functions. Outside contractors were used and appropriate oversight was provided. Personnel performing non-destructive examinations were well qualified, knowledgeable, and conscientious in their work.

Training in the maintenance area was appropriately balanced between formal training, self-study, and on-the-job training. New training facility laboratories, classrooms, and offices were constructed this assessment period. Staffing levels were good and of adequate size to ensure a low work request backlog.

## 2. Performance Rating

Performance is rated Category 1 in this area. Performance was rated Category 1 in the previous assessment period.

## 3. Recommendations

None.

## D. Emergency Preparedness

### 1. Analysis

Evaluation of this functional area was based on the results of routine inspections performed by the resident inspectors and three inspections by regional inspectors.



Enforcement history remained excellent with no violations identified.

Management effectiveness in ensuring quality was very good. In response to the open item identified during the 1990 exercise, the onsite personnel accountability provisions were significantly revised and successfully demonstrated during the 1991 exercise. The emergency response facilities were maintained in a very good state of operational readiness. Very good working relationships with State and county officials were maintained in a number of ways, including frequent meetings, major involvement in the training of offsite agencies, improvement of the emergency planning zone siren system, and sharing of appropriate offsite dose assessment software and procedures.

Identification and resolution of technical issues remained good. There were no actual activations of the emergency plan during this assessment period. Emergency classification decisions during the 1990 and 1991 exercises were timely and correct. Initial and followup notifications to State and county officials were detailed and timely. In conjunction with a plant computer upgrade, the primary offsite dose calculation software was revised and thoroughly tested. Effective controls were in place to prevent the unacceptable modification of the backup computerized dose assessment method and its associated procedure. The backup dose assessment method was shared with State officials who used it as their primary dose assessment methodology.

Overall performances during the 1990 and 1991 exercises were very good with no weaknesses identified. Only one concern of lesser significance was identified during each exercise: the accountability concern in 1990 and the need for improved information dissemination within the technical support center in 1991. Challenging aspects, that were all successfully demonstrated during one or both exercises included: use of the control room simulator; collection of a reactor coolant sample; deployment of fire brigade, medical response, and offsite radiological survey teams; assembling and accounting for all onsite personnel; and use of at least one equipment mockup to provide greater realism to some in plant teams.

Staffing of the emergency planning group and the emergency response organization (ERO) remained very good. The emergency planning group included several persons having many years of experience in the licensee's program. Planning areas of responsibility remained well defined. The ERO's staffing levels remained good to ensure 24-hour staffing capability for key and support level positions.

The emergency preparedness training program remained well organized and properly implemented. Administrative controls and practices used by emergency planning and training department staffs were effective in ensuring that only currently trained personnel were listed in quarterly updates to the ERO's callout roster. All required drills were conducted and critiqued. Where appropriate, lessons learned were factored into future training activities and implementing procedures.

2. Performance Rating:

Performance is rated Category 1 in this area. Performance was rated Category 1 during the previous assessment period.

3. Recommendations:

None. The Board noted that the NRC has recently become aware of a significant Federal Emergency Management Agency issue concerning the adequacy of some of the Missouri State emergency plans and procedures for schools, reception and care centers, and other special facilities within Callaway's Emergency Planning Zone. The staff will review Callaway's actions to aid the State in resolving this issue in a timely manner.

E. Security

1. Analysis

Evaluation of this functional area was based on the results of routine resident inspections, two security inspections, one fitness-for-duty (FFD) inspection, and one irradiated reactor fuel shipment inspection.

Enforcement history improved and was excellent with no violations identified. However, a Severity Level III violation was issued during this assessment period for a problem identified during the previous period. No problems with the control of safeguards information were identified this assessment period.

Management effectiveness in ensuring the quality of the security program was good. Senior management strongly supported security initiatives, such as updated defensive tactical techniques and the installation of a new vehicle search building that allows for better viewing of the search area.

The approach to the identification and resolution of technical issues was good. The installation of new cameras and improvements to portions of the intrusion detection system decreased maintenance problems and provided an upgrade in the performance capabilities of the perimeter-security system. In addition, new metal detectors enhanced ingress screening.

Security staffing was ample. Because of the low turnover rate of personnel, the experience level of the guard force was high. A close and effective liaison existed between local law enforcement agencies and licensee security management. Security personnel were knowledgeable and competent. Security operational events were properly identified, analyzed, and documented. Security-related records and logs were complete, well maintained, and readily retrievable. A timely program was implemented to heighten security awareness during the Persian Gulf conflict.

The training and qualification program for the security organization was good and effectively implemented. Security training in the area of armed contingency response was good. The contingency training program was comprehensive, utilizing defensive strategy and armed response capabilities. The security training department conducted an ongoing plant system training course for the security force to impart a better understanding of the significance of the vital equipment.

The FFD program satisfied the general performance objectives of 10 CFR 26.10. Program strengths included the onsite testing facility and management's oversight of the program.

## 2. Performance Rating

Performance is rated Category 1 in this area. Performance was rated Category 1 declining during the previous assessment period.

## 3. Recommendations

None.

## F. Engineering/Technical Support

### 1. Analysis

Evaluation of this functional area was based on the results of routine inspections by resident and regional inspectors, four operator licensing examinations, and interactions between the licensee and the staff of NRR.

Enforcement history was excellent with no violations issued. The number of events remained low with none being indicative of programmatic weaknesses. The most significant event involved a modification installed during the previous assessment period which, as a result of a design oversight, rendered the steam generator low-low reactor trip and the auxiliary feedwater pump start channels inoperable under certain accident assumptions.

Management effectiveness in ensuring quality remained excellent including the thoroughness with which engineers pursued findings such as the questionable data noted on a safety injection pump check valve surveillance test that had been performed a year earlier. Another example was the development of an expanded reference matrix to summarize important design considerations that are not readily apparent as part of the continuing effort to improve the plant modification process. The quality and availability of engineering evaluations and equipment performance data remained good.

Management also sought active participation by operations personnel in the initial operator pre-examination reviews for the development of technically correct and plant-specific examinations. Upper levels of site management aggressively supported the pilot requalification examination program.

There was consistent evidence of good planning and assignment of priorities. System engineers continued to provide effective support to maintenance and operations activities.

The approach to the identification and resolution of technical issues was good. Engineering reviews of both safety-related and non safety-related problems were thorough, well documented, and resolved in a timely manner. Examples included the safety injection pump flow discrepancy, noted earlier in this section and the halon initiating logic circuit problem for an engineered safety feature

room. While conservatism was exhibited in the resolution of most problems, weaknesses were found in the motor operated valve (MOV) program (Generic Letter 89-10). Although no equipment operability concerns were identified, weaknesses found were the use of nonconservative power factors for MOV degraded voltage analyses, the method used to determine differential pressure values in MOV calculations, and the failure to evaluate the effect of high ambient temperatures on the performance of MOV motors.

Staffing levels were good and overtime was well controlled. The staff of the systems, project, and design engineering organizations were knowledgeable and experienced. Turnover remained low, and a technical career advancement path was implemented, comparable to that available to managers.

The training and qualification effectiveness for licensed personnel was good as demonstrated by the knowledge and ability of the licensed operators. Weaknesses identified during an operator licensing examination were corrected before administration of the next examination. There was a significant commitment of facilities and competent instructors to train personnel working on the implementation of the MOV program.

## 2. Performance Rating

Performance is rated Category 1 in this area. Performance was rated Category 1 in the previous assessment period.

## 3. Recommendations

None.

## G. Safety Assessment/Quality Verification

### 1. Analysis

Evaluation of this functional area was based on the results of routine inspections by resident and regional inspectors and special team inspections. In addition, licensee requests for amendments, exemptions or relief, responses to NRC generic communications, and other interactions with the NRC staff were considered.

Enforcement history in this functional area was excellent with no violations identified.

Management effectiveness in ensuring quality was mixed. Management actively supported self-assessment efforts as demonstrated by the performance of detailed safety system functional assessments (SSFAs) of the essential service water (ESW), residual heat removal (RHR), and vital electrical systems. Substantial corporate resources were committed this assessment period to the ongoing comprehensive corrective actions responding to program problems identified by the ESW SSFA conducted the previous assessment period. Plant management actively followed up on the findings of all major self-assessment efforts, including the SSFA of the RHR system. Completion of corrective actions in response to these efforts was routinely tracked. The vital electric SSFA was completed at the end of this assessment period and corrective actions were being reviewed.

In addition, management initiated changes to the corrective action program in June 1990, with the creation of a low threshold suggestion occurrence solution (SOS) program to increase the efficiency of the process and to improve the capability for trending of plant problems. Quality assurance (QA) audits identified some problems in the implementation of the SOS program; these were addressed promptly and effectively by the creation of a task team headed by the plant manager. Some areas where management was not as effective were: delay in followup of estimated critical position errors, implementation of trip reduction program, and schedule pressure resulting in increased dose during the 1990 refueling outage.

Activities in this functional area routinely reflected a proper emphasis on safety in the resolution of technical issues. In addition to the initiation of corrective actions and long-term ESW system upgrades, the extensive SSFA resulted in broader programmatic improvements in the areas of design document control and predictive maintenance. On one occasion, however, managements' reluctance to declare the safety injection pumps inoperable, despite sufficient evidence that a throttle valve was mispositioned, reflects a less than conservative approach to safety.

The QA organization continued its active involvement in assessing performance in all functional areas. In order to enhance the organization's overall effectiveness, QA engineers were assigned primary and secondary responsibilities from a group of 20 different functional areas. Based on review of plant events, industry data, and NRC concerns, QA scheduled surveillances and special audits beyond normal program requirements. Audits in the maintenance area were observed to be performance-based, and findings were tracked to ensure completion of appropriate corrective actions. Overall, the quality of audits continued to be good, and the reports reflected detailed reviews, resulting in significant recommendations. Audit findings were resolved in a prompt and thorough manner, with few exceptions.

The quality control (QC) organization provided good support to maintenance, including backshift coverage. The quality of written guidance to QC personnel and the quarterly QC tracking reports were also considered to be strengths for this functional area.

The independent safety engineering group (ISEG) continued to be actively involved in plant performance improvement initiatives in addition to fulfilling its TS required responsibilities. ISEG evaluations and recommendations were frequently broad in scope. On the basis of results of human performance and circadian reviews, the conduct of some vital activities were restricted to certain times of the day to reduce the likelihood of personnel errors. The onshift duties of shift technical advisor were rotated among all 12 ISEG members to maintain a strong working knowledge of plant design and operation.

During this assessment period, the NRC staff reviewed and approved numerous licensee submittals including: license-related actions, responses to generic communications, requests for relief from ASME Code requirements, and requests for exemption from the Code of Federal Regulations. These submittals were consistently of high quality and were supported by good communications with the NRC staff, indicative of effective management involvement.

During the assessment period, the licensee requested and the NRC granted several temporary waivers of compliance from TS requirements. These generally involved brief extensions to LCO action statements to complete repairs and/or confirm equipment operability. Sound technical justifications were provided. In one instance, the licensee discovered an erroneous TS surveillance requirement for diesel generator load reject testing. Although the licensee concluded that appropriate surveillances were being conducted, it properly determined that a waiver and TS change were needed.

The 10 CFR 50.59 reviews performed in conjunction with design modifications were thorough and well documented. QA oversight of the modification process was evident and effective. Evaluations of 10 CFR Part 21 reportability requirements were acceptable, with one exception of an isolated failure to make a timely notification that occurred early in the assessment period.

Reportable events remained at a low level throughout the assessment period. The quality of LERs was good and root-cause evaluations and corrective actions were thorough. In general, timeliness requirements were met with the one exception of the LER of a design error in a modification to the steam generator low-low-level trip time delay circuitry, the licensee took an excessively long time to determine that the event was reportable. This was considered to be an isolated occurrence.

Staffing levels in the QA and QC organizations were appropriate and sufficient for the existing workload. QA personnel were technically competent. QA and QC supervisors and staff were very knowledgeable.

## 2. Performance Rating

Performance is rated Category 1 declining in this area. Performance was rated Category 1 in the previous assessment period.

## 3. Recommendations

None.

# IV. SUPPORTING DATA AND SUMMARIES

## A. Licensee Activities

The Callaway Plant operated routinely throughout the majority of the SALP assessment period (except for short duration power reductions and outages for maintenance/surveillance activities and equipment repairs). The plant was shutdown from August through October 1990 for its scheduled Cycle 4 refueling outage.

The Callaway Plant experienced nine engineered safety feature actuations and seven reactor trips. All reactor trips occurred above 15 percent power.

Significant outages and events that occurred during the assessment period are summarized below.

1. On May 1, 1990, an electrical short caused a turbine runback and subsequent reactor trip. The reactor was returned to full power on May 4, 1990.
2. On June 11, 1990, a reactor trip occurred on high pressurizer pressure following activity in an electrical cabinet that resulted in the inadvertent closure of the main steam line isolation valves. As a result of problems with axial flux, full power operation was not resumed until June 16, 1990.
3. On September 1, 1990, load was reduced for the end of cycle coastdown to the refueling outage.
4. On September 21, 1990, the unit was shutdown for its fourth refueling outage. The unit achieved criticality following the outage on November 13, 1990. As a result of problems with a turbine generator bearing, full power operation was not resumed until November 22, 1990.
5. On November 24, 1990, a reactor trip occurred when the turbine tripped on a false indication of moisture separator high-high-level. The false indication was due to one of three level switches being installed incorrectly during the 1990 refueling outage and a spurious signal from one of the other two level switches.
6. On December 30, 1990, a reactor trip on low-low steam generator water level occurred following the inadvertent closure of a feedwater regulating valve. The valve closed following the failure of a controller/driver card.
7. On October 31, 1991, load was reduced to 65 percent to replace a failed power supply in the main feedwater pump control circuit. Following completion of the repair, load was reduced to 48 percent because axial flux could not be maintained in the required target band. Full power operation was resumed on November 2, 1991.
8. On November 5, 1991, a turbine generator trip and subsequent reactor trip occurred following the failure of one channel of vital instrument power. The generator was returned to service on November 6, 1991. As a result of problems maintaining axial flux difference within the required target band, power was kept below 50 percent until November 8, 1991.
9. On January 22, 1992, a reactor trip occurred as a result of an apparent low reactor coolant system flow in loop 3. No low-flow condition actually existed. Although there were personnel inside containment in the area of the loop 3 flow transmitters, interviews and troubleshooting activities could not determine any correlation between their activities and the trip.
10. On January 23, 1992, a turbine trip with feedwater isolation occurred from approximately 15 percent power as a result of high-water level in the "D" steam generator. The cause of the high-water level was shrinking and swelling in the steam generator at low power levels. The unit was brought to 48 percent power on January 24, 1992. Because axial flux was out of the required target band, full power operation was not resumed until January 27, 1992.

B. Inspection Activities

Thirty-seven inspection reports are discussed in this SALP report (February 1, 1990 through January 31, 1992) and are listed below.

Facility: Callaway Plant

Docket No.: 050-00483

Inspection Reports No.: 90005, 90007 through 90021, 91002 through 91020, and 92002 through 92003.

B. Significant inspections conducted during the assessment are listed below:

- (1) The 1990 annual emergency preparedness exercise was conducted May 29, through June 1, 1990 (Inspection Report No. 483/90009).
- (2) A special inspection was performed on fitness for duty testing July 23, through 27, 1990 (Inspection Report No. 483/90014).
- (3) A special maintenance team inspection was performed October 22, through November 9, 1991 (Inspection Report No. 483/90017).
- (4) The 1991 annual emergency preparedness exercise was conducted June 3, through 7, 1991 (Inspection Report No. 483/91006).
- (5) A special inspection was performed on an offsite shipment of samples of spent fuel April 9, through May 3, 1991 (Inspection Report No. 483/91011).
- (6) A special motor-operated valve team inspection was performed January 6, through 17, 1992 (Inspection Report No. 483/91020).