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ENCLOSURE

SALP BOARD REPORT

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE
INSPECTION REPORT NUMBERS

50-416/85-12 AND 50-417/85-03

MISSISSIPPI POWER AND LI( :OMPANY

GRAND GULF UNITS 1 AND 2

OCTOBER 1, 1983 THROUGH APRIL 30, 1985

## I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) program is an integrated 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 construction and operation.

An NRC SALP Board, composed of the staff members listed below, met on June 13, 1985, to review the collection of performance observations and data to assess the 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 Grand Gulf for the period of October 1, 1983, through April 30, 1985.

SALP Board for Grand Gulf:

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W. R. Butler, Chief, Licensing Branch 2, Division of Licensing, Office of Nuclear Reactor Regulation (NRR)
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Attendees at SALP Board Meeting:

V. W. Panciera, Chief, Projects Section 2B, DRP, RII
L. L. Kintner, Project Manager, Operating Reactors Branch 1, Division of Licensing, NRR
R. C. Butcher, Senior Resident Inspector, Grand Gulf, DRP, RII
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D. M. Collins, Chief, Emergency Preparedness and Radiation Protection Branch DRSS, RII
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II. CRITERIA

Licensee performance is assessed in selected functional areas, depending upon whether the facility is in a construction, preoperational, or operating phase. Each functional area normally represents areas which are significant to nuclear safety and the environment, and which are normal programmatic areas. Some functional areas may not be assessed because of little or no licensee activities or lack of meaningful observations. Special areas may be added to highlight significant observations.

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 resolution of technical issues from a safety standpoint
C. Responsiveness to NRC initiatives
D. Enforcement history
E. Reporting and analysis of reportable events
F. Staffing (including management)
G. Training effectiveness and qualification

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 definition of these performance categories is:

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

The SALP Board has also categorized the performance trend over the course of the SALP assessment period. The trend is meant to describe the general or prevailing tendency (the performance gradient) during the SALP period. This categorization is not a comparison between the current and previous SALP ratings; rather the categorization process involves a review of performance during the current SALP period and categorization of the trend of performance during that period only. The performance trends are defined as follows:

Improving: Licensee performance has generally improved over the course of the SALP assessment period.

Constant: Licensee performance has remained essentially constant over the course of the SALP assessment period.

Declining: Licensee performance has generally declined over the course of the SALP assessment period.

## III. SUMMARY OF RESULTS

### Overall Facility Evaluation

During this assessment period, the licensee initiated personnel and organizational changes to strengthen and improve facility activities. There have been noticeable improvements in the plant operations, maintenance, and surveillance areas. The startup testing area, radiological controls, and fire protection show acceptable performance. Strong performance was demonstrated in the area of security. Areas exhibiting weaknesses include emergency preparedness, quality programs, licensing and training. Training was evaluated as part of plant operations in the previous SALP.

Weaknesses in emergency preparedness were evident during a full scale emergency exercise, and in the emergency plan. Although plant management is committed to an effective emergency response program, overall utility responsiveness to NRC initiatives requires improvement. The quality programs area revealed weaknesses in that major activities did not implement the quality assurance program and the audit of training programs was weak. A recent reorganization of the quality assurance organization including the merger of Plant Quality into the Quality Assurance Group, was accomplished to address NRC concerns. The submittal of inaccurate and incomplete information resulting in six Severity Level III violations (five of which are proposed) was an example of the poor performance in the licensing area. Another licensing weakness involved the failure to meet commitment dates on submittals. The recent addition of a Vice President, Nuclear Operations should improve this area. The training area exhibited weakness in the operator licensing area in that false and undocumented information was submitted on operator license applications. Recent inspections have shown significant improvement in this area.

The licensee has devoted significant resources and initiated organizational changes in order to strengthen recognized problem areas. The positive results of these efforts are evident in some areas as noted above. Other improvement efforts have not had time to effect results but the licensee appears to have recognized these problems and is actively pursuing improvements.

| Functional Area | September 1, 1982 - September 30, 1983 | October 1, 1983 - April 30, 1985 | Trend During Latest SALP Period |
|---|---|---|---|
| Unit 1 | | | |
| Plant Operations | 3 | 2 | Improving |
| Radiological Controls | 2 | 2 | Improving |
| Maintenance | 3 | 2 | Improving |
| Surveillance | 3 | 2 | Improving |
| Fire Protection | 2 | 2 | Constant |
| Emergency Preparedness | 1 | 3 | Improving |
| Security | 2 | 1 | Constant |
| Refueling | Not Rated | Not Rated | Not Determined |
| Startup Testing | Not Rated | 2 | Improving |
| Training | Not Rated | 3 | Improving |
| Quality Programs and Administrative Controls Affecting Quality | 3 | 3 | Improving |
| Licensing Activities | 3 | 3 | Improving |
| Unit 2 | | | |
| Construction Activities | Not Rated | Not Rated | Not Determined |

## IV. PERFORMANCE ANALYSIS

### A. Plant Operations

#### 1. Analysis

During the assessment period, the area of plant operations and operational preparations was inspected by the resident and regional inspection staffs. The startup test program up to 5% reactor power was conducted until November 8, 1983. Plant operations were then restricted due to plant problems in the area of licensed operator training, adequacy of Technical Specifications (TSs), drywell personnel airlock air supply system seismic qualification, Transamerica Delaval Inc. (TDI) diesel generator reliability and the standby service water basin water supply. An NRC order dated April 18, 1984, required selected changes to the TSs prior to restart and operation up to 5% reactor power.

An NRC order dated May 22, 1984, required the tear down of the Division I emergency diesel generator while allowing for continued operations up to 5% power with interim TSs that recognized the use of gas powered turbines. Plant operation was limited to 5% reactor power until August 31, 1984, when the low power license was amended to authorize full power operation. The startup test program had progressed to the point where 100% reactor power was achieved on May 12, 1985.

The operations area had an adequate number of licensed personnel. There were 13 Senior Reactor Operators (SROs) in Operations: ten being distributed among five shifts; two being the operations Superintendent and Assistant Operations Superintendent; and one was a training assistant. There were also qualified SROs in the training department. There were 18 Reactor Operators (ROs) on shift. With an adequate number of qualified SROs and ROs and others in training for taking the SRO and RO examinations, the licensee has requested volunteers to transfer to the training department in order to further strengthen this area. The gain in operating experience by the licensee's operations staff has been significant considering the varying plant conditions during the long startup test phase.

The plant had an effective plant cleanliness and housekeeping program. Permanently mounted placards outside each room or area identified the person responsible for cleanliness and housekeeping. Monthly cleanliness checks were performed by management. A program to paint designated areas and piping in the auxiliary building had been initiated to enhance the cleanliness and housekeeping program. The control room and certain other areas of the plant occasionally appeared cluttered due to the presence of startup test equipment or the plant monitoring equipment. This is expected and necessary during this phase of the plant operating history.

Control room decorum was adequate. Although a large number of personnel were present in the control room during the conduct of startup tests, the number of personnel necessary to conduct testing and monitoring of the plant should diminish in the future.

Morale improved significantly during this evaluation period and was uniformly high among the plant staff. This improvement was attributed to successful startup testing, management involvement, and emphasis on keeping everyone informed of the plant status. There was a feeling among plant personnel that operating the plant was a team effort.

A major reorganization of the licensee's corporate structure, as related to responsibilities in the nuclear area, occurred in May 1984. This reorganization and realignment of responsibilities was undertaken to better accommodate the needs of a commercial operating nuclear unit and to allow more direct management involvement in activities necessary to support operations. The position of President and Chief Operating Officer was created and was filled by an individual with previous nuclear operating experience and extensive experience in nuclear utility management. Another position recently filled was that of Vice President, Nuclear Operations. This position was also filled by an individual with previous nuclear operating experience and extensive experience in nuclear utility management.

At the plant level, a new plant manager was named and then appointed to the new position of General Manager. This individual had extensive nuclear experience. A new Manager, Plant Operations was also appointed. This individual also had previous boiling water reactor (BWR) operating experience. The Technical Assistant to the Manager, Plant Operations also had extensive BWR operating experience. These changes in organization and realignments in responsibilities have strengthened the plant staff and provided more management involvement in plant activities.

Plant management was actively involved in plant activities, was aware of plant status, and was available to ensure operational decisions were made at the appropriate level. In April 1985, the licensee committed a higher level of management to provide 24 hour management coverage at the plant site to further ensure that startup testing and plant operations were conducted in a safe and efficient manner. Plant management has also been responsive to NRC concerns and their actions reflected a conservative approach to safety issues. For example on June 1, 1984 the licensee shut down the plant when a concern with the standby service water supply was recognized.

The licensee conducted a 50% power operational readiness review to ensure that plant and personnel were ready to proceed with power ascension above 50% power. This review was conducted by a special subcommittee of the Corporate Safety Review Committee. Based on the results of their findings, on November 20, 1984, the Subcommittee issued a report concluding that plant and personnel were ready to proceed above 50% power. The NRC conducted an independent, special inspection on November 26 through 30, 1984, to assess the operational readiness of the licensee to proceed past the 50% power test plateau. The results of the NRC inspection indicated significant improvement in the readiness of the plant and personnel for operation above 50% reactor power. One NRC concern during this review resulted in a licensee commitment to clear the Corporate Safety Review Committee backlog amounting to about 1400 items by March 1, 1985. This committee is

required by TSs to provide an independent review and audit of certain designated plant activities. On March 4, 1985, the licensee stated that 29 items remained. The licensee was contacted again on March 13, 1985, and it was learned that 200 more items from November and December, 1984, had been just identified. This was indicative of a lack of followup by licensee management. However, the licensee was able to rectify the situation in an expeditious manner, eliminating the 1984 backlog.

Most of the Licensee Event Reports (LERs) provided clear descriptions of the cause and nature of the events, as well as adequate explanations of the effects on both system function and public safety. However, there were two areas that could be improved. First, a few of the LERs contained very brief texts which did not adequately describe the events, their consequences or the corrective actions. Secondly, a great majority of the LERs submitted after 1983 did not contain the coded entries for component failures as recommended in NUREG-1022. For those LERs that involved events describing serious challenges to plant safety, corrective actions taken or planned were considered adequate based on NRC's screening of these events. The timeliness of supplemental LER submittals has shown significant improvement. Supplemental responses early in this evaluation period were typically issued after the date committed to by the licensee. However, more recent supplemental responses have met the commitment dates.

Although the violations in this area did not indicate a programmatic weakness and covered several areas of responsibility, they generally reflected personnel failures to follow procedures. This indicated a need for increased adherence to plant procedures and plant policies. The two violations for failure to meet the Technical Specification organization chart were not a technical concern but indicated a lack of management attention to regulatory requirements.

Twelve violations were identified:

a. Severity Level IV violation for failure to document a limiting condition for operation with division 1 and division 2 diesel generators inoperable.

b. Severity Level IV violation for failure to lock open a diesel generator fuel oil supply valve.

c. Severity Level IV violation for failure to follow procedures when filling a reactor vessel water level reference leg.

d. Severity Level IV violation for failure to use red danger tags on plant equipment for personnel and equipment protection.

e. Severity Level IV violation for failure to submit a licensee event report within 30 days.

f. Severity Level IV violation for failure to follow procedures during a valve line up verification.

g. Severity Level IV violation for failure to fill and vent the standby service water basin siphon line.

h. Severity Level IV violation for failure to document a limiting condition for operation for work on the reactor water cleanup system leakage detection system.

i. Severity Level IV violation for an inadequate procedure permitting the shift supervisor or control room operator to provide written instructions without the proper review and approval.

j. Severity Level IV violation for three examples of failure to properly audit temporary alterations.

k. Severity Level V violation for failure to meet the Technical Specification organization chart.

l. Severity Level V violation for failure to meet the Technical Specification organization chart.

2. Conclusion

Category: 2

Trend: Improving

3. Board Recommendations

Licensee resources were adequate in this area. One item of concern, however, was the timelines of unreviewed safety question (50.59) reviews. Management attention has resulted in recent progress in this area. Management attention should continue to ensure that 50.59 reviews are conducted in a timely manner. The changes in corporate and plant staff organizations, and realignment of responsibilities have provided stronger management involvement in plant activities. The majority of violations in this functional area were identified during the beginning of the rating period, with only one violation identified in the last four months of the assessment period. This was indicative of substantial performance improvement. No decrease in licensee management attention in this area is recommended. No change in the level of NRC staff resources applied to the routine inspection program is recommended.

B. Radiological Controls

1. Analysis

During the evaluation period, inspections were conducted by the resident and regional inspection staffs.

NRC inspection effort in this area was primarily directed towards startup procedures, personnel qualifications, operability of the Post Accident Sampling System (PASS), Inspection and Enforcement Information Notices, and NRC inspector identified concerns. The licensee was responsive to the inspection effort. No major weaknesses were identified in the radiation protection program.

The reduced operations caused by the need to perform low power startup testing and by the unscheduled, extended shutdowns resulted in relatively low radiation levels in the plant. Exposure control was adequate with a facility man-rem total for 1984 of 17.0 man-rem. This low value was expected for a plant with little operating history.

The qualifications of the health physics staff were acceptable and met regulatory requirements. The licensee continued to maintain a training program for the health physics technicians, and had established a qualification testing and acceptance program for contract health physics technicians. These programs have been instrumental in upgrading the technical competence of the health physics staff. Although the commercial nuclear power plant operations experience of the health physics and chemistry technicians was less than that for the staff of a plant with significant operating history, the licensee supplemented its own staff with senior contract health physics technicians.

Transportation of radioactive materials resulted in one Severity Level IV violation (item a. below). The violation stemmed from an inadequate evaluation of the contents of a the shipping container (liner) which had been performed to determine whether the liner had been satisfactorily dewatered. Failure to inspect the resin liner prior to shipment permitted this event to occur. The licensee was responsive to this finding and has established requirements in the solid radwaste program that should preclude the recurrence of this type of problem. The licensee had shipped only small quantities of resin for burial due to the short time of power operation. The overall transportation program was adequate.

An inspection of the PASS identified the offline sampling and analysis system to be operable. However, this inspection identified an additional area which required evaluation by the licensee to assure that personnel overexposures would not occur while taking iodine and particulate samples during post accident conditions. The licensee evaluated this sample location,

concluded that personnel overexposures could occur and therefore, relocated the sample point to an area having a lower level of background radiation. Subsequent inspections by the NRC concluded that the licensee's corrective action was adequate. PASS inspections by the NRC identified the need for additional evaluations in the following areas: test of accuracy for chemical and radiochemical analyses; evaluating line losses of radioiodine and particulate activity; and testing of gas flow meters and ventilation pressure in the PASS panel area.

Liquid and gaseous radwaste management systems functioned adequately during the initial power operation of the plant. System performance and evaluation during startup were consistent with Final Safety Analysis Report (FSAR) commitments and with established and approved plant procedures and instructions. No major weakness was noted in the liquid and gaseous waste management areas.

The radiological environmental monitoring program was in place and operational prior to plant startup. The requirements of the TSs concerning the radiological environmental monitoring program were satisfactorily accomplished.

A plant modification, utilizing space originally established for waste solidification and involving installation of additional storage tanks for liquid radwaste, was satisfactorily completed prior to plant startup. Since the initial actuation of the liquid radwaste system, the licensee had not experienced any difficulties with the storage volumes. Contract services were retained for solidification of radioactive waste, for the dewatering of spent resins, and for the shipment of radioactive waste for offsite disposal. The resolution of problems identified during the previous SALP Assessment was considered satisfactory.

Audits of the health physics program were performed by the corporate health physics group during the plant startup phase. The audits were of sufficient scope and depth. The qualifications of personnel performing the audits were adequate.

During this evaluation period, one inspection was performed to assess the licensee's capability to prevent corrosion and loss of integrity of the reactor coolant boundary. The licensee had taken several positive actions in the design of the reactor coolant system, based on recent state-of-the-art information, to prevent intergranular stress corrosion cracking and fuel-rod degradation. The licensee had also developed a water chemistry program that was consistent with recommendations of the BWR Owners Group. Additionally, since the chemistry staff had little or no experience in an operating commercial nuclear power plant, the licensee strengthened this area by hiring an experienced plant chemist in January 1985.

Three violations were identified:

a. Severity Level IV violation for failure to assure that there was less than 1% volume of liquid in a radwaste resin liner.

b. Severity Level IV violation for failure to collect leafy vegetable and milk samples.

c. Severity Level V violation for failure to follow procedure for releasing material and equipment from radiologically controlled areas.

2. Conclusion

Rating: 2

Trend: Improving

3. Board Recommendations

The conduct of activities showed a proper concern for nuclear safety. Enhanced management attention, including the addition of key experienced personnel, has been directed toward this area. However, no decrease in licensee management attention is recommended. No change in the level of NRC staff resources applied to the routine inspection program is recommended.

C. Maintenance

1. Analysis

During the evaluation period, the area of maintenance was inspected by the resident and regional inspection staffs. A major portion of this SALP assessment period was spent in outages performing corrective maintenance on failed equipment (examples include Residual Heat Removal (RHR) system pipe cracks, RHR and Standby Service Water System pipe supports, Main Steam bypass piping, and condenser shells). An NRC order dated May 22, 1984, required the tear down and inspection of one of the licensee's TDI diesel generators based on an event of August 12, 1983 at the Shoreham Nuclear Power Station where a TDI diesel generator's main crankshaft broke into two pieces during a load test. The division 1 diesel generator was disassembled, inspected, and preoperational testing performed prior to declaring it operational. Three 6200 KW gas turbines were installed as an interim measure while the division 1 diesel generator was disassembled. This installation was fully adequate for the intended purpose and reflected the licensee's concern for safe reactor operations. Long term questions regarding the TDI diesel generators were being pursued by the licensee in conjunction with the TDI owners group.

During the February 1985 outage for repairs to the main condenser, a steam jet air ejector piping modification and other modifications necessary to operate the plant and improve performance were installed. Management involvement was evident and effective in that work activities were well coordinated. A management decision to use a qualified shift superintendent for liaison between plant groups was well received by the plant staff and helped contribute to completing the outage on schedule. The fact that the pre-established outage schedules did not have to be extended, reflected plant management's willingness to set realistic schedules, and to effectively preplan work. There was a positive attitude among the middle managers and other personnel that reflected the involvement of management in day-to-day activities and the improvement in coordination.

The approach to the resolution of technical issues from a safety standpoint was evident by the high priority that plant management placed on the replacement of the four way solenoid valves used for controlling the main steam isolation valves. The forced outage to repair the condenser permitted the new four way solenoid valves to be seismically qualified and installed prior to restart.

In December 1984, the licensee modified eight systems by the addition of 92 inline fuses to bring the unit into compliance with Regulatory Guide 1.63, "Electric Penetration Assemblies in Containment Structures for Light-Water-Cooled Nuclear Power Plants", and the FSAR. These modifications resulted from deficient engineering work performed by the archetect-engineer (A-E) coupled with an inadequate review of the A-E's work by the licensee, and involved the submittal of inaccurate information to the NRC. This item is discussed further in the Licensing Activities section (IV.L.) of this report.

A deviation concerning the training of maintenance personnel is discussed in the Training section (IV.J.). The FSAR states that all maintenance personnel responsible for the maintenance of the emergency diesel generators shall have successfully completed the manufacturer's school, or equivalent, on that component. A crew working on the diesel generators did not have on the job supervision by a person meeting the noted FSAR requirement. The licensee took action to ensure this FSAR commitment was met.

The licensee's response to the previous SALP stated that to further assist in correcting the problem of failure to follow procedures, an aggressive program had been instituted to reduce both the total number of outstanding temporary change notices (TCNs) and, in many cases, the number of TCNs in any given procedure. Further, the licensee stated that efforts would continue with the objective of reducing the total number of all outstanding TCNs to less than 5 on a continuing operational basis. The NRC's

review indicated that the number of TCNs fluctuated between about 100 and 200 during this evaluation period.

One violation was identified as follows:

> Severity Level V violation for failure to require engineers to specify retest requirements following maintenance activities.

2. Conclusion

Category: 2

Trend: Improving

3. Board Recommendations

During this SALP period management involvement was evident and effective, resulting in a well coordinated maintenance schedule. The licensee closely followed the preplanned outage schedule indicating that the problem identified in the previous SALP of setting overly optimistic schedules, had been adequately addressed by licensee management. The licensee has made significant improvement in reducing the large number of TCNs; however, this area appears to need more management attention. No change in the level of NRC staff resources applied to the routine inspection program is recommended.

D. Surveillance

1. Analysis

During the assessment period, the area of surveillance was inspected by the resident and regional inspection staffs.

Three special team inspections were also conducted during the assessment period which included reviews of the surveillance program. The first special inspection, conducted in the area of TSs, included a review of surveillance procedures and how they implemented TS requirements and FSAR commitments. A number of concerns were raised by NRC regarding unclear and inadequate surveillance procedures. These concerns, with one exception, were adequately addressed by the licensee and the surveillance procedures corrected. The exception involved a concern that a complete walkdown of the containment and drywell penetrations, to verify that TSs represented all the containment and drywell penetration barriers, had not been performed. The licensee considered a complete walkdown unnecessary based on completion of the surveillance review program, and walkdowns conducted during the review of the Local Leak Rate Test (LLRT) program. However, in April 1985, the licensee discovered additional containment and

drywell isolation valves and flanges which were not listed in TSs or administratively controlled by procedures. These valves and flanges were determined to have been leak checked in their required positions and therefore did not constitute a safety problem. The licensee submitted to the NRC for review, their engineering evaluation and corrective actions for these additional containment and drywell penetration barriers.

The second special inspection reviewed the licensee's TS Review Program and included a review of surveillance requirements. This review revealed a problem with FSAR required testing that was not listed in either the TSs or the licensee's surveillance program. An example of this is deviation d. listed below, which involved the licensee's failure to perform periodic testing of some of the instrumentation and controls required for remote shutdown as committed to in the FSAR. This deviation was resolved by changing the applicable plant surveillance procedures to include testing of all instrumentation and controls required for remote shutdown. Subsequently, the TSs were changed to require the additional surveillance testing.

The third special team inspection evaluated the licensee's readiness to continue power ascension testing above 50% of rated power and included a review in the surveillance area. This inspection also reviewed the Surveillance Program Tracking System (SPTS), a computerized system designed to track surveillance performance to ensure compliance with the TSs. This system was found acceptable. It should be noted that the subject of missed surveillances was addressed in the last SALP Report. The licensee in response to the last SALP Report stated that actions had been taken to enhance performance in this area and that only one surveillance date had been missed in the subsequent four month period. However, a review of 1985 LERs, generated over approximately a four month period, revealed three surveillances which the licensee had identified as not being performed within the required time limits.

During the current SALP period, the NRC witnessed containment isolation valve local leak rate testing (LLRT) in the feedwater lines on both A and B trains. Management involvement and control in assuring quality in the LLRT program was clearly evident. Further, test personnel demonstrated a good knowledge of the test and technical issues involved. During LLRT of the feedwater valves it was identified by the licensee that excessive clearances existed between the plug wear surface and valve body. The problem was corrected and the licensee successfully passed the LLRT acceptance criteria for pneumatically tested valves. The licensee demonstrated a clear and thorough understanding of the issue. Maintenance work records were found to be well maintained and retrievable.

Surveillance performance required the coordination of both the operations staff and the technical staff. Problems had been identified in this area which could have resulted in Limiting Conditions for Operation (LCO) action statement time limits being exceeded. Surveillances which affected TS LCO action statements had been performed without the LCO action statement being documented as procedurally required (violations a. and h. listed in the plant operations section). This practice could have resulted in violations of the applicable action statement of the TSs. As corrective action, the licensee instituted a surveillance log to track surveillance performance and the associated requirements of the TSs. A related problem was the performance of surveillances where assistance from the operations staff was required. Violation c., listed below, identified an example where a procedure was performed out of sequence due to the lack of coordination between the operators and the technicians performing the surveillance.

The maintenance staff was often assisted in the area of surveillance by system engineers. These engineers appeared knowledgeable and helpful to the technician in answering questions about procedure and equipment problems. Most of the engineers were contractor personnel whose contracts were near expiration. There did not appear to be comparable licensee employees following the problems associated with surveillances to succeed these contractors after their departure. Surveillance performance and problem solving may be hampered by this situation in the future.

Two plant scrams have been directly related to the performance of surveillance and calibration procedures. Although these scrams involved a number of contributing elements, they illustrated the importance of performing surveillances carefully and correctly. This was especially significant since the plant was nearing commercial operation and a great number of surveillances were to be performed with the reactor at power.

Three violations and one deviation were identified:

a. Severity Level IV violation for an inadequate procedure for calibrating level transmitters.

b. Severity Level IV violation for an inadequate procedure for placing Engineered Safety Feature (ESF) batteries on equalizer charge.

c. Severity Level IV violation for failure to follow procedure by performing steps out of sequence which resulted in an actuation of an ESF containment isolation valve.

d. Deviation for failure to perform surveillance testing on remote shutdown control components as committed to in the FSAR.

2. Conclusion

Category: 2

Trend: Improving

3. Board Recommendations

Management attention in this area was evident and the SALP Board recognized that there has been strong overall improvement in this area. However, strong management attention should continue in the area of surveillance performance, including assignment of responsibility and staff coordination, since improper performance and coordination can result in unnecessary plant transients and challenges to safety systems; and to assure timely surveillance performance. No change in the level of NRC staff resources applied to the routine inspection program is recommended.

E. Fire Protection

1. Analysis

During the evaluation period, inspections were conducted by the resident and regional inspection staffs. In addition, an annual fire protection/prevention program inspection was conducted. This inspection consisted of review and examination of the adequacy of the fire brigade, offsite fire fighting organization, fire protection staff, fire protection systems and associated instrumentation.

The licensee had started identifying and implementing the various requirements for Appendix R, Section III.G. Where deficiencies were identified, appropriate fire watches were maintained as required by the TSs.

The overall fire brigade training program was adequate, the fire protection staff appeared well qualified and fire brigade equipment was satisfactorily maintained. During the period, it was found that various fire brigade personnel had neither attended all the required training sessions nor had all fire brigade personnel completed their physical examinations as required. A resulting violation for this condition is listed in the training section of this assessment (IV.J.).

The licensee's concern with fire protection was evidenced by the good housekeeping, good records, and prompt actions taken on identified discrepancies.

One violation was identified:

Severity Level IV violation for failure to have a continuous fire watch.

2. Conclusion

Category: 2

Trend: Constant

3. Board Recommendations

Licensee resources in this area were reasonably effective. Enhanced licensee management attention has alleviated the concern raised during the two previous SALP assessments regarding use of temporary structures and the minimal staffing level. No decrease in licensee management attention in this area is recommended. No change in the level of NRC staff resources applied to the routine inspection program is recommended.

F. Emergency Preparedness

1. Analysis

During the assessment period, inspections were performed by the regional and resident inspection staffs. These included observations of a full-scale and small-scale exercise, and inspections addressing emergency responses, protective actions and related procedures. Two revisions to the licensee's emergency plan were reviewed.

Specific weaknesses in protective action decision-making for General Emergencies were identified by the NRC. The licensee's emergency plan provided a generic discussion of protective action recommendations based on dose projections and reactor core conditions. It was noted that some information on protective actions was provided in the emergency plan implementing procedures. None of the procedures, however, contained a specific range of protective actions based on reactor core status, containment status, or potential or projected releases as specified in federal guidance criteria. These findings resulted in the violation specified below.

Four plan deficiencies were identified during review of Revisions 8 and 9 of the licensee's Emergency Plan. These deficiencies related to offsite agency training, recovery planning, evacuation of nonessential site personnel, and provision for technical data in the Technical Support Center. These deficiencies have been corrected with the exception of the issue related to the evacuation of nonessential site personnel.

Several significant weaknesses were identified during the licensee's 1984 full-scale exercise. The significant weaknesses included the following: inability to promptly classify emergencies; delays in communicating protective action recommendations and technical and radiological data to the State of Mississippi; and lack of effective coordination with the State of Mississippi on dissemination of emergency news information.

Some of the problems noted in the 1984 annual exercise appeared to be attributable to a lack of prior effective coordination and pre-planning between the licensee and certain offsite agencies. The licensee has initiated a program to prevent recurrence of similar problems. A significant feature of the program is the establishment of an Emergency Preparedness Working Committee having licensee and offsite support agency participation. The Committee generally meets monthly and has shown progress in resolving issues.

Based on the licensee's performance during the 1984 exercise, licensee management attention was directed to the identified exercise weaknesses. A remedial drill was required to test protective action decision making and the exchange of technical data with the State of Mississippi. Both NRC and the Federal Emergency Management Agency (FEMA) met with licensee, state, and local government officials in a special meeting to discuss exercise weaknesses and remedial options. NRC and FEMA required the licensee and State of Mississippi, respectively, to make improvements in the emergency news program, and to test fully the emergency news program and the emergency news function during the 1985 emergency preparedness exercise.

The required remedial exercise held in August 1984 was considered successful. The licensee's performance during the 1985 small scale emergency preparedness exercise demonstrated improvement since the 1984 annual exercise. Improvement in communications with State and local agencies was noted during the 1985 exercise. Effective coordination was demonstrated between the licensee and the State in operation and management of the emergency news center.

The following essential elements for emergency response were determined to be acceptable during the rating period: shift staffing and augmentation; emergency response training; dose projection and instrumentation; and annual quality assurance audits of corporate and plant emergency preparedness programs.

The key positions in the corporate emergency planning organization were staffed, and staff augmentation was provided by contractor support. A full-time emergency planning coordinator was assigned to the plant staff. Recent improvements have been noted in plant

management's attention and involvement in emergency preparedness programs.

At the end of the current SALP assessment period, plant management showed increased commitment to maintenance of an effective emergency response program as demonstrated by direct personnel involvement in the annual exercise and followup critiques. However, licensee responsiveness to NRC initiatives required improvement. For example, although the licensee responded promptly to the violation on protective action decision-making, the corrective action was lacking in technical detail and required further revision. Prior to the 1984 exercise, problems were noted by both the NRC and FEMA in the emergency news function. These problems were identified during the exercise as a significant weakness. In addition, one of the plan deficiencies identified in the NRC review of Revisions 8 and 9 of the licensee's Emergency Plan remains outstanding. The outstanding deficiency, which related to evacuation and decontamination of nonessential personnel, was discussed with the licensee during the emergency preparedness implementation appraisal in 1982, and still requires resolution.

One violation was identified:

> Severity Level IV violation for failure to incorporate a range of protective action recommendations as required by federal guidance.

2. Conclusion

Category: 3

Trend: Improving

3. Board Comment

Licensee resources appeared to be strained in this area. Although the overall rating during this SALP assessment was category 3, there was a period when performance warranted substantial program improvement. Corrective actions were taken during the period to bring performance up to the present level including staffing of key positions in the emergency planning organization. Recently, enhanced management attention to emergency preparedness programs has been noted, resulting in the improving trend.

Management attention should continue at this increased level and be focused specifically on the problems associated with insufficient technical detail in the emergency plan, evacuation and decontamination of nonessential personnel, and responsiveness to NRC concerns and initiatives. NRC inspection activity in this

area should continue at the current level applied to the routine inspection program.

G. Security

1. Analysis

During the assessment period, inspections were conducted by resident and regional inspection staffs. The licensee continued to make improvements in the physical security program as reflected in a hardware upgrade and improved personnel training and procedural adherence. The corporate and site security organizations were aggressive and professional resulting in a program which met regulatory requirements.

With respect to the hardware upgrade, the licensee responded to the NRC concern for improved vital area barriers (ducts and vents) with an extensive construction effort which was ongoing at the close of the assessment period. The licensee also pursued the enhancement of closed circuit television assessment equipment utilized at the protected area barrier. Upon completion of this hardware upgrade, the licensee's program should be substantially improved.

Regarding personnel training and the related procedural adherence improvements, the licensee had effected a strict remedial retraining of non-security personnel (including visitors and contractors) in the requirements of the NRC and the specific commitments of the Grand Gulf Security Plan. Security personnel received management support in the implementation of this program.

The site organization was well staffed and appropriately trained and equipped. Extensive security experience and professionalism were reflected at all levels (including Corporate) and resulted in good performance by the contract guard force.

The licensee's audit program was worthy of special note. The licensee had instituted a continuous audit program, performed by both Corporate Quality Assurance personnel assigned to the site and by the security force contractor. This effort has allowed the licensee to conduct daily verification of Security Plan commitments and routine certification of compliance by an independent organization.

Two violations were identified:

a. Severity Level V violation for failure to secure an unattended vehicle.

b. Severity Level V violation for failure to document the correct escort of a visitor.

2. Conclusion

Category: 1

Trend: Constant

3. Board Recommendations

Licensee management adequately responded to a concern identified in the previous SALP on lack of procedural compliance by instituting a strict remedial retraining of non-security personnel. Licensee management attention and involvement in this area were aggressive and should be continued. The Board recommends that NRC staff resources applied to the routine inspection program be reduced.

H. Refueling

1. Analysis

No refueling outage occurred during the assessment period.

2. Conclusion

Category: Not Rated

Trend: Not Determined

3. Board Recommendations

There was insufficient inspection activity in this area to justify either a rating or a trend determination.

I. Startup Testing

1. Analysis

During this assessment period, inspections were performed by the resident and regional inspection staffs. Grand Gulf Unit 1 had been in startup testing during this evaluation period with projected completion in July 1985. NRC reviewed and witnessed required testing to ensure plant system functional reliability was met. The licensee identified, documented and provided either on-site or contractor supplied evaluation of discrepancies in a timely fashion.

In the later portion of the startup test program, plant management initiated two actions to improve performance of the test program. The first was to institute the use of a Test Assessment Form which described the test or evolution to be performed, expected plant impact, and noted the plant parameters requiring special

monitoring. The licensee approached each observed test with an operational awareness as to the expected test results and actively watched for any abnormal occurrences. Concurrently, management directed that tests which might incur an unwanted scram or transient be performed at intermediate perturbation levels to assess plant response.

The second improvement was to place a higher level of management representatives on all shifts. This action assured an additional review of changes to test procedures and better coordination between the test group and operations. By the end of the evaluation period, both the quality and efficiency of test performance had improved. The latter is of regulatory importance because it is desirable to complete the transient testing program while the core fission product inventory is as low as possible.

Two violations related to the startup testing program were identified:

a. Severity Level IV violation for failure to complete required procedural sign-offs.

b. Severity Level IV violation for failure to install test equipment in accordance with procedures.

2. Conclusion

Category: 2

Trend: Improving

3. Board Recommendations

Licensee resources and management attention applied to this area were adequate.

J. Training

1. Analysis

Prior to the beginning of the current SALP period a serious concern was identified which resulted in the issuance of a proposed escalated enforcement citation subsequent to the current SALP period. The identified area of concern dealt with deficiencies in licensed operator training as described in the below listed paragraphs.

The Operator Recertification Program was established as a result of discrepancies in documentation of operator training which were identified during a special training assessment conducted in February 1983 and a special safety inspection conducted by the NRC

during August and September 1983. The staff evaluated these inspections and concluded that these discrepancies were not limited to documentation errors.

A further investigation by the NRC included a review of the circumstances surrounding the submittal of false and undocumented information on operator license applications. As a result of these inspections and the investigation efforts, significant failures to comply with NRC regulatory requirements were identified. In addition, the program for training Reactor Operators (ROs) and Senior Reactor Operators (SROs) at the Grand Gulf facility had not been established in accordance with commitments made in the Final Safety Analysis Report (FSAR) and as required by NRC regulations. It was also determined that 46 applications for SRO and RO licenses, containing certification by the licensee that each individual applicant had completed required training or courses of instruction, contained material false statements. The end result of the NRC inspections and investigations was the issuance of six proposed violations (a, b, c, and d below). Five of these violations (a, b, and c) were escalated enforcement issues which resulted in the imposition of a proposed civil penalty for $500,000.

During the assessment period, routine inspections of plant training programs were performed by the regional and resident inspection staffs. A special training inspection was also conducted to determine the overall effectiveness of plant training. Although several weaknesses were identified in various areas of training, the training of plant personnel was determined to be acceptable in supporting the safe operation of the plant.

Management was responsive to NRC initiatives and concerns, and aggressively sought improvements to plant training programs, particularly during the last 12 months of this appraisal period. A notable example of Grand Gulf's training improvements was the November 1984, training inspection conducted by a regional inspection team which noted no violations or deviations.

During the last 12 months of this appraisal period, a change of management personnel in the plant training staff improved the overall training program administration. This reorganization resulted in better documentation of training, clearer standards of acceptable performance for both students and training staff, and improved adherence to regulations, procedures and commitments.

The consolidation of the entire training organization into the new training facility has improved the quality of training. Licensed operator and non-licensed personnel training staffs were able to complement each other more easily. The use of contractor instructors has continued at Grand Gulf. These instructors were knowledgeable in plant operations.

Management commitment in the area of maintenance training was evident. The incorporation of maintenance training laboratories in the training facility provided the opportunity for a large amount of "hands on" training. Maintenance supervisors were involved with the training of their craftsmen.

During the current SALP assessment period, six senior reactor operator examinations, including one instructor certification, were administered. Five of the six candidates passed these examinations. Seven reactor operator examinations were administered. Five of the seven candidates passed these examinations. Thus, in a total of 13 license examinations administered, only three resulted in failure.

Additionally, the NRC administered simulator and plant oral recertification examinations to all of the licensed operators who completed the facility's recertification program. Twenty-seven of the twenty-eight individuals passed these examinations.

The licensee's General Employee Training program was effective. The depth of the material presented exceeded the minimum required. The instructors were prepared and responsive to both questions and suggestions.

The overall fire brigade training program was adequate. However, it was found that various fire brigade personnel had not attended all required training sessions or had not received required physical examinations. The licensee has implemented a program to track required fire brigade training.

Training for security personnel was conducted for all routine functions such as patrols, access controls, and response to alarms. Additionally, non-routine functions found in such documents as the Contingency Plan were covered in the security training program. The licensee instituted an effective remedial retraining program for non-security personnel (both contractors and visitors) to ensure adherence to Security Plan commitments relative to their role in the control of access, escorts and badging.

Twelve violations and five deviations were identified:

a. Proposed Severity Level I violation for failure to correct false license submittals once recognized as such by the licensee.

b. Three proposed Severity Level II violations, one for each of three submittals of license applications containing false information.

c. Proposed Severity Level II violation for failure to establish adequate procedures, instructions and controls to assure specified operator training and accurate submittals of such on license applications.

d. Proposed Severity Level IV violation involving mechanical maintenance practical factors qualification cards.

e. Severity Level IV violation for failure to perform a safety evaluation with respect to deleting certain practical factor requirements.

f. Severity Level IV violation for failure to follow a procedure on emergency preparedness training.

g. Severity Level IV violation for not prescribing procedures to ensure that contractor personnel receive adequate training prior to their performing work on plant safety related equipment.

h. Severity Level IV violation for failure to follow a procedure requiring completion of training requirements prior to performing maintenance.

i. Severity Level IV violation for failure to conduct an audit to the depth necessary to assure that training was effectively implemented.

j. Severity Level IV violation for failure to implement the fire protection program procedure requirements for all fire brigade personnel.

k. Deviation for failure to provide training on system changes prior to bringing the reactor critical.

l. Deviation for failure of the Operator Training Evaluation Board to conduct or delegate the responsibility for a record review of license examination prerequisites prior to recommending that candidates take the NRC examination.

m. Deviation for failure to provide the level of training and evaluation of a candidate's knowledge as described in the FSAR.

n. Deviation for allowing mechanics to perform maintenance on a diesel generator even though they had not successfully completed the manufacturer's school or the equivalent on that component.

o. Deviation for permitting two non-certified instrument mechanics to perform maintenance on the neutron instrumentation.

2. Conclusion

Category: 3

Trend: Improving

3. Board Recommendations

Although the overall rating during this SALP assessment was category 3, early in this period performance was unsatisfactory. Significant management attention and licensee resources were then applied toward correcting this condition. Consequently, the licensee has made significant strides towards improving the overall training program. Performance was improved to the extent that during the last half of this SALP period, the Board noted an assessment of category 2 with an improving trend. Licensee management attention should be continued at the current high level. No change in the level of NRC staff resources applied to the routine inspection program is recommended.

K. Quality Programs and Administrative Controls Affecting Quality

1. Analysis

During this evaluation period, inspections were performed by the resident and regional inspection staffs.

The licensee reorganized those site organizations having functional responsibilities for records and document control activities. Functional areas dealing with records previously performed by the corporate office have been transferred to the site. Upper-tier documents delineating programmatic requirements have been written. Working level procedures were under development but had not been fully implemented at the close of the assessment period.

Discussions were conducted by the NRC with offsite personnel to determine if their activities were procedurally controlled and if interfaces between these groups and onsite personnel were clearly understood. Offsite personnel generally received on-the-job training in their functional areas which was occasionally supplemented by formal structured training.

The quality assurance staff was being reorganized during the assessment period. A new Director of Quality Assurance was appointed and physically located on site. A new (acting) Nuclear Site QA Manager was also appointed. A staffing study was

conducted to determine methods of increasing QA effectiveness. This study outlined methodology for merging plant quality functions into existing QA functions. This study included staff qualifications and made overall improvement recommendations. The study also recommended that the Plant Quality organization merger with QA be accomplished on a task-by-task transition and that QA be restructured on a functional basis.

Considerable attention was directed to Nuclear Plant Engineering activities. A number of problems were identified and were the basis for violations a, b, c, d, and e. Personnel changes have occurred within Nuclear Plant Engineering to improve this group's effectiveness.

NRC concerns with the overall effectiveness of the quality assurance program were expressed in the previous SALP based on an unusually large number of significant problems identified by the licensee and the NRC in the surveillance testing program and in the operator training program. Similarly, problems have again been identified in this SALP period in the implementation of the quality assurance design change controls in Nuclear Plant Engineering procedures, the training of contractor personnel and technicians, and the audit of training programs. A management meeting was held in the NRC Region II office on May 10, 1984, to discuss the depth and scope of quality assurance audits and safety-related engineering evaluations by Nuclear Plant Engineering. Subsequently in August 1984, the NRC expressed concern regarding implementation of the QA program in the nuclear plant engineering area and requested that the licensee address corrective actions to improve the effectiveness of the QA program. Also, a concern was expressed that the QA staff did not have a large presence in the plant to observe activities. Based on NRC findings regarding licensee failures to sign or initial startup test documents and operating instructions, this concern still exists. Increased QA staff presence in witnessing site activities could provide a more effective quality assurance program.

The licensee demonstrated a lack of responsiveness to NRC issues. An example of this lack of responsiveness involved the NRC confirmation of action letter dated December 5, 1983. This letter documented the licensee's commitment to conduct a review of plant administrative procedures to correct the improper use of the words "should" and "must". This review was to be completed by August 1, 1984. A licensee letter dated November 14, 1984, stated that all revised procedures had been approved for issuance. The NRC inspection for licensee readiness to proceed above 50% reactor power, conducted from November 26 through 30, 1984, indicated that the revised procedures still contained liberal use of the words "should" and "must" rather than "shall" or "will". The licensee was cautioned in the same report that the NRC would continue to

expect all procedures to be followed regardless of the content of permissive verbs.

The previous SALP expressed an NRC concern regarding implementation of the operational quality assurance program involving the line organization's direct responsibility for quality. The Plant Quality Section was responsible for the direct observation of plant activities and reported directly to the plant manager. This concern resulted in the licensee proposing a change to the TSs to place the Plant Quality Section in the corporate quality assurance organization. This TS change was approved on April 1, 1985. The effect of this reorganization will be addressed in future SALP reviews.

Ten violations and two deviations were identified:

a. Severity Level IV Violation for failure of Nuclear Plant Engineering (NPE) to follow quality program requirements for documenting nonconformances.

b. Severity Level IV violation for failure of NPE to establish measures to control procurement of engineering services.

c. Severity Level IV violation for failure of NPE to establish measures which assured required reviews for design control, inspection, and in-process testing of plant modifications.

d. Severity Level IV violation for failure of NPE to establish measures which assured that conditions adverse to quality were promptly corrected.

e. Severity Level IV violation for failure to take prompt corrective actions on a known design deficiency involving the capacity of the standby service water basin.

f. Severity Level IV violation for failure to update the FSAR.

g. Severity Level IV violation for failure to evaluate the potential missile hazard of storing improperly restrained nitrogen bottles inside containment.

h. Severity Level V violation for not including in plant administrative procedures on all Plant Safety Review Committee activities required by the Technical Specifications.

i. Severity Level V violation for not providing procedures which prescribed methods of appointing temporary supervisors.

j. Severity Level V violation for failure to properly evaluate changes to the protective tagging system procedure.

k. Deviation for failing to issue procedures to assure that safety evaluations performed by Nuclear Plant Engineering were reviewed by the Plant Safety Review Committee.

l. Deviation for failure to submit emergency core cooling outage data.

2. Conclusion

Category: 3

Trend: Improving

3. Board Recommendations

Weaknesses in performance in this area were evident. The licensee has taken corrective action including QA staff reorganization to improve QA effectiveness. This was identified as needing increased management attention during the previous SALP assessment. Problems with design change controls, Nuclear Plant Engineering procedures, contractor personnel training, auditing of training programs, and plant activity observations identified during this SALP period were similar to those problems identified during the previous SALP which highlighted minimally acceptable QA program effectiveness. Increased licensee management attention is still required to fully implement the QA program functions. The effectiveness of the recent QA staff reorganizations toward accomplishing this task must still be evaluated. The Board recommends that NRC staff resources applied to the routine inspection program be increased.

L. Licensing Activities

1. Analysis

Licensee management involvement in licensing activities has increased during the evaluation period. The licensee's management involvement was most evident during activities supporting its application for a full power license for Unit 1. Two major licensing activities during this period were a tear down inspection and assessment of a TDI diesel engine, and a comprehensive review of and changes to the TSs. Concerns regarding reliability of TDI diesel generators were first prompted by a crankshaft failure at Shoreham in August 1983. Subsequent failures of TDI diesel engine components at Shoreham and other facilities including Grand Gulf resulted in the formation of a TDI Diesel Generator Owners Group to resolve these concerns. The licensee is a participant in this Owners Group program. At the time of full power licensing, there was insufficient information generated by the Owners Group and the licensee to assure reliability of the diesel engines. Accordingly, the Commission

issued an Order on May 22, 1984, requiring a tear down inspection and assessment of critical components of one engine. The inspection and assessment of the diesel engines were complete, timely, and thorough, and the conditions of the Order were fulfilled by August 31, 1984.

The extensive changes required for the TSs became evident during the previous SALP appraisal period in which nine amendments to the low power license were issued. A civil penalty was proposed on March 21, 1985, for five Severity Level III violations involving material false statements regarding licensee submittals, covering the December 1980 through August 1984 time frame. The material false statements listed in the Notice of Violation were indicative of a failure of the licensee to ensure the accuracy and completeness of submittals of information. In response to this problem, licensee management initiated major corrective efforts, amending the TSs to be consistent with the FSAR and the as-built plant. The licensee assembled a large task force consisting of licensee, Bechtel, and General Electric personnel to conduct a comprehensive review program of the TSs. High level management involvement, including the licensee's Senior Vice President, Nuclear, was evident in meetings with the staff, and resources were made available to review TSs in a systematic and traceable manner, and to prepare and justify proposed changes to the TSs. The review was conducted as part of the licensee's quality assurance program. The resulting proposed changes to the Technical Specification indicated a substantial amount of prior planning and assignment of priorities had been performed. Procedures controlling the activities were generally effective.

In the period following full power authorization there had been additional inaccurate or incomplete submittals. One significant error was discovered after the TSs were issued with the full power authorization. This resulted in an additional Severity Level III violation which, although issued after this SALP evaluation period, was based on a deficiency identified in 1984. In August 1984, during an electrical circuit review, the licensee determined that various low voltage circuits which penetrate containment did not have the required degree of over-current protection to ensure penetration integrity. In a letter to the NRC dated September 10, 1984, the licensee reported that the discrepancies found in August 1984, had been corrected and stated that "MP&L conducted a complete review of all circuits penetrating primary containment to ensure compliance with Regulatory Guide 1.63 and the Final Safety Analysis Report. No additional discrepancies were found." Subsequently, in November 1984, another group of discrepancies was identified. The licensee had to modify eight systems by the addition of 92 in-line fuses to bring the unit into compliance with the provisions of Regulatory Guide 1.63. This is another example of incomplete engineering reviews that resulted in the

submittal of incomplete and inaccurate information to the NRC. In another case, a licensee's submittal has also contained a significant error. In this case, the information supplied to the NRC on environmental qualification of electrical equipment in a letter to NRC dated January 25, 1985, was not correct in that the model numbers for main steam isolation valve soleniod valves referenced in the letter were different from those installed in the plant. A subsequent letter corrected the error after the NRC had identified the error to the licensee.

Not withstanding these inaccurate submittals, the licensee's understanding of technical issues was generally satisfactory in submittals responding to staff concerns. The resolution of technical problems was usually sound and well supported by sound technical justifications. As a result of its comprehensive TS review, the licensee submitted 216 proposed TS changes by letters dated June 17, 18, 19, 20, 21, and 22, 1984, which were found acceptable by the staff. The licensee provided generally acceptable responses to complete four multiplant actions (Generic Letter 84-11, "Inspections of BWR Stainless Steel Piping;" Generic Letter 84-23, "Reactor Vessel Water Level Instrumentation in BWRs;" NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants;" and TMI Action Item II.K.3.28, "Qualification of ADS Accumulators"). In addition, the licensee provided information to satisfy two license conditions which were not required to be completed until the first refueling: 2.C.(19), Qualification of Control Systems; and 2.C.(22), Remote Shutdown Panel.

The licensee has generally been responsive to staff concerns. Requested information has been furnished generally in a timely manner and there were few long-standing regulatory issues attributable to unjustifiable delay by the licensee. Examples of timely submittals were: the detailed control room design review program plan; emergency operating procedures - procedures generation package; Generic Letter 83-28, Salem ATWS Events, Item 1.1, Post Trip Review Procedures; Operational Readiness 50% Power Report; and response to Regulatory Guide 1.97, "Instrumentation to Follow the Course of an Accident." In two instances the licensee failed to meet commitments. This difficulty was due in part to licensee interpretation of verbal discussions as authorization to delay making required submittals or requests for regulatory relief. The failure to update the Final Safety Analysis Report as required by 10 CFR 50.71, based on conversations with the licensing project manager (violation f in Section IV.K) is one example. Another example of a missed commitment concerns the failure to submit annual outage data for emergency core cooling systems. (Deviation 1 in Section IV.K).

Six violations were identified:

a. Five proposed Severity Level III violations involving material false statements regarding Technical Specifications.

b. Severity Level III violation for the submittal of incomplete and inaccurate information regarding over-current protection to ensure containment penetration integrity.

2. Conclusion

Category: 3

Trend: Improving

3. Board Recommendations

Licensee resources were not effectively utilized in this area. Increased licensee management attention is necessary to preclude the problem of incomplete and inaccurate submittals to the NRC and resulting material false statements. At the end of this SALP period, with new management in place, attention appeared to be improving. A continued high level of management attention is necessary.

M. Construction (Unit 2)

1. Analysis

During the evaluation period, the licensee has performed minimal construction activities on Unit 2. Utilizing only a work force of approximately 200 personnel, construction efforts consisted largely of installing a limited amount of piping, finishing and maintaining major buildings, and installing Unit 2 equipment that was being stored onsite.

Accordingly, the inspection effort during this period has been minimal. Inspections were primarily involved with the areas of piping systems and supports, containment, and safety-related structures. Walkdowns of completed concrete structures in the power block, and observations of concrete placement in the reactor vessel shield wall, indicated that QA controls were adequate and that work was being performed in accordance with licensee commitments.

Licensee management involved in piping activities appeared to be adequate and decision making was at a level that assured adequate management review. Key positions were identified and authorities and responsibilities were defined. Corporate management was involved in site activities. Reviews were timely, thorough, and technically sound. Records were complete, well maintained, and

available. Corrective action systems recognized and addressed non-reportable concerns.

Understanding of technical issues was generally apparent. Resolution of technical issues was timely; and viable, sound, and thorough approaches were used.

Licensee response to NRC initiatives was generally timely and there are few long standing regulatory issues attributable to the licensee. Viable, sound, and thorough responses were offered.

Minor violations, as noted below, were not repetitive and are not indicative of a programmatic breakdown. Corrective action appeared to be timely and effective for these violations identified.

Two violations were identified:

a. Severity Level IV violation concerning failure to control welding in accordance with applicable specifications, criteria, and other special requirements.

b. Severity Level V violation for failure to provide Unit 2 procedures requiring evaluation of NRC bulletins, circulars, and notices when Unit 1 and Unit 2 management control activities were separated.

2. Conclusion

Category: Not rated

Trend: Not determined

3. Board Recommendations

An assessment of a licensee's performance in the overall categories of operation and/or construction is achieved by appraising performance in the numerous functional areas that make up the associated overall category. Since the licensee and NRC activity in the construction functional areas was minimal, insufficient data existed to properly evaluate performance in this area.

## V. SUPPORTING DATA AND SUMMARIES

### A. Licensee Activities

The licensee conducted the low power startup test program, up to 5% reactor power, until November 1, 1984. Due to NRC concerns regarding licensed operator training found during a special inspection conducted from October 31 through November 4, 1983, the licensee committed to

complete a recertification program for the operating staff prior to exceeding 5% reactor power. This action was confirmed by the NRC in a confirmation of action letter dated December 5, 1983. Also, due to NRC concerns regarding the adequacy of TSs revealed during a special inspection on February 21 thru 24, 1984, the licensee initiated a TS review program. This program revealed discrepancies that resulted in an NRC order dated April 18, 1984, revising TSs for 5% power operations. Many additional changes to TSs were required for 100% power operation. Plant operation was also delayed when the licensee identified that the drywell personnel airlock air supply system had not been seismically designed as required. The air system suppled air to the inflatable seals and the locking mechanism for the drywell airlock, and there was the potential for loss of the drywell airlock door as a barrier in a seismic event. The unit was returned to power on April 22, 1984 under the 5% power license to close-out various test exceptions, and to rejuvenate the in-core Antimony-Beryllium neutron sources. On May 6, 1984 the licensee reported leakage from a three inch carbon steel line that ran from the "B" loop residual heat removal heat exchanger outlet to the reactor core isolation cooling system pump. This line was designed to be used in the steam condensing mode of operation of the residual heat removal system. The licensee identified a vibration problem with the piping due to the throttling effect of the residual heat removal pump discharge valve. Various hanger problems also occurred due to the vibration problem. The steam condensing mode of operation on the 'B' loop was disabled at that time to permit continued startup testing. On May 22, 1984, the NRC issued an order directing that the TDI diesel generators be inspected and tested as specified therein. This order modified TSs to allow the licensee to continue operation with the division 2 and division 3 diesel generators and the use of temporary gas turbines.

On June 1, 1984, the plant was shutdown from approximately 5% reactor power as a precautionary measure to permit evaluation of a deficiency in the standby service water system. It was found that in the event of a loss of coolant accident on unit 1 with a loss of offsite power, loss of one emergency diesel generator and without the use of unit 2 standby service water pumps there was not a 30 day supply of standby service water. The licensee installed a siphon line between the two basins to correct the deficiency. On June 4, 1984 the licensee initiated a full review of unit 2 systems, equipment or structures required to support the operations of Unit 1. All discrepancies were resolved.

On August 31, 1984, Unit 1 was authorized full power operation through the issuance of Amendment 13 to the low power operating license NPF-13. Actual operation above 5% reactor power commenced on September 10, 1984, and continued up to 20% reactor power while conducting startup tests, including the residual heat removal "A" loop steam condensing mode. The turbine first achieved 1800 rpm on October 16, 1984, and the generator was synchronized to the grid on October 20, 1984, with a load of approximately 150 MWE. On November 1, 1984, the NRC issued a full power operating license, NPF-29. An NRC inspection for licensee

readiness to operate at greater than 50% reactor power was conducted on November 26, thru 30, 1984. Based on the inspection findings, the licensee was given approval to operate at greater than 50% reactor power. A management meeting was held in the Region II offices on December 17, 1984, regarding the scope of and resulting corrective actions from a licensee review that revealed that a number of electrical circuits penetrating containment did not meet the requirements of Regulatory Guide 1.63 or did not include circuit breakers used for that purpose in the TSs. The licensee corrected the discrepancies.

On February 15, 1985 following a reactor scram, the licensee discovered cracks in the main condenser shells resulting from structural deficiencies. An unscheduled outage of approximately six weeks was initiated to repair the condenser, during which other required maintenance and modification tasks were accomplished. During the outage the licensee replaced the ASCO four way solenoid valves that control the main steam isolation valves with fully qualified new ASCO four way solenoid valves. The plant resumed operation on March 28, 1985, and startup testing through Test Condition 5 (approximately 80% reactor power) was completed, at the close of this assessment period. The reactor first achieved 100% power on May 12, 1985.

B. Inspection Activities

The routine inspection program was performed during this review period. The routine inspection program was augmented by additional inspections in selected areas as follows: A special inspection of operator training was conducted from October 31 through November 4, 1983, and several areas of concern regarding operator training were noted resulting in a management meeting in Region II on November 18, 1983, and a confirmation of action letter dated December 5, 1983. A special inspection to evaluate emergency protective action decisionmaking was conducted from January 16 through 17, 1984, and findings indicated a need for changes to the emergency preparedness program in this area. A special inspection of the accuracy of TSs was conducted from February 21 through 24, 1984, and findings indicated a review of TSs was needed. Subsequently, another special inspection on the licensee's TS review program was conducted on March 28 thru 30, 1984. A special inspection of the residual heat removal loop "B" steam condensing mode pipe crack event was conducted on May 2 thru 4, 1984. The licensee's corrective actions were found to be adequate. A special inspection of the standby service water basin 30 day water supply discrepancy was conducted on June 25 thru July 3 following a plant shutdown based on safety concerns. Based on the unit 1 standby service water basin dependency on unit 2, a special inspection of the licensee's review of unit 1 interdependence on unit 2 systems, equipment or structures was conducted from July 17 through 20, 1984. A special inspection of licensed operator training with regard to Technical Specification amendment 12 was conducted from September 5 through 6, 1984, to evaluate licensee training due to previous concerns. No discrepancies were found. A special inspection to assess the licensee's readiness

for operation at greater than 50% reactor power was conducted from November 26 through 30, 1984. Based on the results of that inspection, it was concluded that the plant was ready for operation above 50% reactor power. A special inspection to assess the contamination of the instrument air system due to interface with contaminated resin systems was conducted on April 29, 1985. Licensee corrective actions were found to be adequate.

C. Licensing Activities

The performance assessment was based on NRC evaluation of the licensee's performance in support of licensing actions that were either completed or active during the current rating period. These actions, consisting of amendment requests, exemption requests, responses to generic letters, responses to license conditions and other actions are classified as follows.

Multiplant actions completed:

- Inspection of stainless steel pipes (GL-84-11)
- Water level measurement during accidents (GL-84-23)
- Control of heavy loads
- Qualification of ADS accumulators (II.K.3.28)

Plant specific actions completed:

- Issuance of Unit 1 Full Power (FP) License
- Issuance of an order changing TSs
- Issuance of an order requiring DG inspection
- Revision of many TSs for full power license
- Issuance of SER supplements supporting FP license:
  SSER 5 Resolution of open SER items
  SSER 6 Safety Evaluation of TS changes
  SSER 7 Exemptions to 10 CFR 50, Appendices A & J

- Issuance of two FP license amendments regarding organization
- Extension of dates for:
  Environmental qualification (10 CFR 50.49(g))
  FSAR update (10 CFR 50.71(e))

- Completed license conditions
  Qualification of control systems (2.C.(19))
  Remote shutdown panel isolation (2.C.(22))

- Changes to initial test program
  Inplant safety relief valve tests
  Recirculation pump trip test
  Full reactor isolation test

- Operational readiness for 50% power

Licensing activities for Unit 2 were minimal during this appraisal period.

D. Investigation and Allegation Review

Completed during the assessment period were three formal investigations of allegations.

An allegation regarding possible material false statement involving operator qualification applications. A formal NRC investigation resulted in the issuance of six proposed violations. Five of the violations were escalated enforcement issues which resulted in the imposition of a proposed civil penalty. This item is discussed in more detail in this report under the training functional area.

An allegation regarding possible intentional violation of technical specification surveillance procedures resulted in a formal NRC investigation. The allegation was not substantiated.

An allegation regarding possible falsification of mechanical maintenance training records resulted in a formal NRC investigation. The allegation was not substantiated.

E. Escalated Enforcement Actions

1. Civil Penalties

Five Severity Level III violations regarding material false statements in Technical Specification submittals for the cumulative amount of $125,000 was proposed on March 21, 1985. The licensee has responded requesting reconsideration and further mitigation.

A civil penalty for material false statements relating to operator licensing in the amount of $500,000 was proposed on June 3, 1985. This involved one Severity Level I violation, four Severity Level II violations, and one Severity Level IV violation.

A Severity Level III violation for submitting false information concerning overcurrent protection for circuits penetrating containment, was proposed on May 17, 1985. While this involved escalated enforcement action, no civil penalty was proposed.

2. Orders

Order dated April 18, 1984, Restricting Conditions for Operation - Operation must conform to revised Technical Specifications appended to the order. Training required prior to operation.

Order dated May 22, 1984, Requiring Division I Diesel Generator Inspection - Operation must conform to interim Technical Specifications which recognize the use of gas turbines.

F. Management Conferences Held During the Assessment Period

October 4, 1983, management meeting to discuss the results of the licensee's investigation into the failure to conduct maintenance activities in accordance with procedures.

October 12, 1983, management meeting to discuss errors made in applications for Reactor Operator and Senior Reactor Operator licenses.

November 11, 1983, management meeting to discuss the program the licensee would utilize to recertify licensed operators and reevaluate the training of other operating staff members.

November 14, 1983, management meeting to discuss the readiness and overall status of the Grand Gulf Nuclear Power Station.

November 18, 1983, management meeting to discuss the licensee's program for recertification of the operating personnel at the Grand Gulf facility.

January 10, 1984, management meeting to discuss the Operational Quality Assurance program at the Grand Gulf facility.

January 27, 1984, management meeting to discuss proposed changes to the licensee's security plan.

January 31, 1984, management meeting to discuss the licensee's program for training the non-licensed staff at the Grand Gulf facility.

March 28, 1984, management meeting to discuss planned organizational changes within the licensee's organization, proposed improvements in procedural compliance at the Grand Gulf facility, and the status of training for all plant personnel (including shift advisors).

May 10, 1984, management meeting to discuss the depth and scope of quality assurance audits and Nuclear Plant Engineering reviews of safety issues at the Grand Gulf facility.

June 10, 1984, management meeting to discuss the resolution of TS questions for the Grand Gulf facility.

December 4, 1984, management meeting to discuss a proposed revision for the Grand Gulf physical security plan.

December 17, 1984, management meeting to discuss problems involving Regulatory Guide 1.63 at the Grand Gulf facility.

March 8, 1985, management meeting to discuss Grand Gulf Unit 1 licensing activities.

April 16, 1985, management meeting to discuss status and schedule of licensing actions.

April 25, 1985, management meeting to discuss the application of 10 CFR 50, Appendix R and the forthcoming Appendix R inspection.

G. Confirmation of Action Letters

Confirmation of Action Letter dated December 5, 1983 - Prior to exceeding 5% power: complete recertification program for operating staff; Plant Safety Review Committee review of plant discrepancy reports; and prior to August 1, 1984, correct administrative procedures for improper use of words "should" and "must".

Confirmation of Action Letter dated February 29, 1984 - Concerning licensed operator and senior operator reverification program and remedial training.

Confirmation of Action Letter dated March 23, 1984 - Regarding licensed operator training commitments.

H. Review of Licensee Event Reports and 10 CFR 21 Reports Submitted by the Licensee

During the assessment period, there were 94 LERs reported for Unit 1. The distribution of these events by cause, as determined by the NRC staff, was as follows:

| Cause | Unit 1 |
|---|---|
| Component Failure | 21 |
| Design | 6 |
| Construction, Fabrication or Installation | 5 |
| Personnel: | |
| - Operating Activity | 7 |
| - Maintenance Activity | 16 |
| - Test/Calibration Activity | 18 |
| - Other | 3 |
| Out of Calibration | 4 |
| Other | 14 |
| TOTAL | 94 |

It was noted that 22% of the LERs were submitted because of component failure, 19% for test/calibration problems, 17% due to maintenance, and 15% for "Other" which included storm damage and miscellaneous causes. It is further noted that 46% of the LERs were caused by some form of identifiable personnel error.

I. Inspection Activity and Enforcement

| Functional Area | No. of Deviations and Violations in Each Severity Level | | | | | |
|---|---|---|---|---|---|---|
| | I | II | III | IV | V | D |
| Unit 1 | | | | | | |
| Plant Operations | | | | 10 | 2 | |
| Radiological Controls | | | | 2 | 1 | |
| Maintenance | | | | | 1 | |
| Surveillance | | | | 3 | | 1 |
| Fire Protection | | | | 1 | | |
| Emergency Preparedness | | | | 1 | | |
| Security | | | | | 2 | |
| Refueling | | | | | | |
| Startup Testing | | | | 2 | | |
| Training | 1* | 4* | | 7* | | 5 |
| Quality Programs and Administrative Controls Affecting Quality | | | | 7 | 3 | 2 |
| Licensing Activities | | | 6** | | | |
| Unit 2 | | | | | | |
| Construction Activities | | | | 1 | 1 | |
| TOTAL | 1* | 4* | 6** | 34* | 10 | 8 |

*One Severity Level I, four Severity Level II, and one Severity Level IV violations are proposed for problems involving licensed operator and maintenance training.

**Five Severity Level III violations are proposed for the submittal of false information regarding Technical Specifications.