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REGION II

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Report No: 50-424/97-08, 50-425/97-08

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Vogtle Electric Generating Plant (VEGP) Units 1 and 2

Location: 7821 River Road
Waynesboro, GA 30830

Dates: June 23 through 27, 1997

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EXECUTIVE SUMMARY

Vogtle Electric Generating Plant Units 1 and 2
NRC Inspection Report 50-424/97-08, 50-425/97-08

This team inspection evaluated implementation of the licensee's programs for problem identification, trending and corrective action; quality assurance audits; operating experience review feedback; self-assessments, safety review committees; and reverification of the Updated Safety Analysis Report (UFSAR).

Quality Assurance In Operations, Maintenance, Engineering, and Health Physics

- Overall, Deficiency Cards (DCs) and Root Cause and Corrective Actions (RCCAs) were sufficiently thorough and complete, with appropriate disposition/causes and adequate corrective actions identified. However, the content and level of detail between DCs/RCCAs differed considerably, reflecting a variation in skill and experience level of responsible departmental personnel. (Section 07.1)
- Nuclear Safety and Compliance (NSAC) personnel were knowledgeable, conscientious, and added considerable quality to the DC/RCCA process. However, management expectations regarding NSAC timeliness for processing DCs in a prompt and efficient manner were not clearly communicated. (Section 07.1)
- Backlogs of DCs or Open Items (OIs) are not trended to evaluate the magnitude and associated trends of outstanding corrective actions or open DCs. Although DCs are almost always completed by responsible departments in a timely manner, corrective action OIs were routinely rescheduled. (Section 07.1)
- Licensee's trend identification/reporting and departmental self-assessment program continues to evolve. (Section 07.1)
- Event Review Team (ERT) reports and associated RCCAs were of good quality and thorough. Corrective actions developed as a result of ERTs, and RCCAs, were appropriate for the root causes identified. In addition, operability and reportability determinations were appropriate, where necessary. (Section 07.2)
- Safety Audit Engineering Review (SAER) Program satisfies the requirements of the UFSAR and implementing procedures for conducting quality assurance (QA) audits. Audits were comprehensive and thorough. Audit Finding Reports (AFRs) and comments were properly addressed in a timely manner, and completion of corrective actions were followed up. Findings were adequate to keep licensee management informed of significant developing problems in the areas audited. However, the practice of allowing an extended duration audit could lead to delays in implementing corrective actions and the conduct of management reviews. (Section 07.3)

- The Health Physics (HP) self-assessment was a comprehensive evaluation of major areas of responsibility. This self-assessment identified numerous aspects of the HP program for improvement, for which specific corrective actions have been developed and were being actively tracked to completion. Use of experienced HP personnel from outside the plant as part of the self-assessment team was considered a significant strength. (Section 07.4.1)
- A Plant Modification and Maintenance Support (PMMS) department self-assessment report was thorough and detailed, with substantial findings and recommendations. Corrective actions were developed and scheduled to address all recommendations. However, the PMMS department failed to address numerous compliance and process issues identified in the report. (Section 07.4.2)
- Quarterly Human Performance Review reports were comprehensive, thorough and insightful. However, it was difficult for the inspectors to distinguish whether they represented general observations of fact, conclusive problems, suggestions or specific recommendations. Many of the report statements were repetitive with no apparent system for tracking or dispositioning them. Furthermore, many specific comments regarding the adequacy of certain DC/RCCAs have not been addressed. The reports provided good, detailed information, that was not being effectively utilized by the plant. (Section 07.4.3)
- Licensee evaluation and corrective actions for two operating experience reports issued in 1996 were reviewed and found to be adequate. The backlog of industry operating experience reports and NRC Information Notices was being maintained at reasonable levels. (Section 07.5)
- Independent Safety Engineering Group (ISEG) review activities were consistent with UFSAR and procedural requirements, except for leading ERTs. Assessments performed by ISEG were effective in identifying areas for improving plant safety. (Sections 07.2 and 07.6)
- Safety Review Board (SRB) meetings appeared to be comprehensive and routinely identified specific problem areas requiring site and/or corporate attention. For each identified problem an SRB open item was initiated, tracked and usually resolved in a timely manner. A deviation was identified for insufficient implementation of all UFSAR commitments regarding SRB review. (Section 07.7.2)
- Corrective actions in response to violations and Licensee Event Reports were properly implemented in a timely manner. (Sections 08.1 and M8.1 through M8.5).

- Corrective actions to resolve numerous UFSAR discrepancies were found to be adequate and timely. The backlog of UFSAR deficiencies was small. A weakness was identified in the UFSAR Review Program in that issues identified by offsite groups were not formally evaluated for operability or reportability. (Section E7.1)
- ISEG self-assessment of the UFSAR Accuracy Reverification Program results provided good insights as to the causes of the UFSAR discrepancies and provided several recommendations to management on how to improve performance and reduce the likelihood of new discrepancies being introduced. (Section E7.2)

Report Details

Summary of Plant Status

Unit 1 operated at full power throughout the entire inspection period.

Unit 2 operated at full power throughout the entire inspection period.

I. Operations

07 Quality Assurance in Operations (IP 40500)

07.1 Problem Identification, Resolution, Corrective Action, And Trending Programs (40500)

a. Inspection Scope

Inspectors examined licensee implementation of onsite programs for problem identification, resolution, corrective action, and trending as established in procedure 00150-C, "Deficiency Control," Revision (Rev.) 23; procedure 00058-C, "Root Cause Determination," Rev. 11; procedure 00409-C, "Open Item/Commitment Tracking," Rev. 12; procedure 80014-C, "Handling of Deficiency Cards," Rev. 11; and procedure 80016-C, "Trend Identification And Reporting," Rev. 2. Selected Deficiency Cards (DCs) and applicable root cause corrective action (RCCA) reports for recent equipment problems and personnel incidents were evaluated to verify licensee effectiveness in describing problems, identifying cause(s), and initiating corrective actions in accordance with procedural guidance. Plant personnel and supervision from the Nuclear Safety and Compliance (NSAC) group and responsible departments were interviewed as necessary. The inspectors also reviewed the Open Item (OI) Commitment Tracking System backlog and history of outstanding corrective actions, and recent trend reports and departmental self-assessments of equipment failures and personnel errors.

b. Observations and Findings

The documentation of 18 completed DCs, some with RCCAs, was reviewed in detail by the inspectors. These DCs/RCCAs were properly completed with only a few minor administrative errors and omissions. Also, reportability issues pursuant to 10 CFR 50.73 were properly reviewed by the licensee. Most of the reviewed DCs and RCCAs were thorough and detailed, with appropriate disposition/causes and adequate corrective actions identified. However, three specific DCs (discussed below) were inadequately documented or failed to identify the root cause. Content and level of detail between the DCs/RCCAs differed considerably, reflecting a variation in skill and experience level of responsible departmental personnel. Based on interviews with the NSAC staff, there

has been a major increase in the number of DCs/RCCAs being processed along with a considerable turnover of the individuals tasked with addressing them for their respective departments. This turnover resulted in many of the individuals being inexperienced and have not received advanced training yet to enhance their problem solving methodologies or root cause techniques.

The following three DCs and RCCA were considered inadequate for the reasons discussed below:

- The RCCA for DC 1-97-010 did not identify the appropriate root cause of a diesel generator control power circuit problem. Consequently, the actions to prevent recurrence were inadequate and a similar control circuit failure recurred shortly after this DC/RCCA was completed and implemented. Following the second incident, another RCCA by the system engineer was developed and reviewed by an inspector. This RCCA determined that a manufacturing-related design deficiency of a light socket had caused the control power circuit breaker to trip.
- In the two other cases, DCs 2-97-071 and 2-97-085, concerning a cracked weld and missing seismic restraining pin on the collar of a Nuclear Service Cooling Water (NSCW) pump, the DCs did not adequately describe the causes and corrective actions. These DCs were not documented well enough for the inspectors to conclude that the root cause(s) had been determined or the corrective actions adequate. Also, there was no RCCA performed even though it involved complex problems. In discussions with the licensee, the inspectors concluded that detailed evaluations had been conducted by offsite engineering personnel to determine the cause of the weld failure and missing pin, and corrective actions developed in concert with the onsite system engineer. However, the causes and corrective actions had not been adequately documented in the DC nor via a RCCA. Licensee personnel indicated that they planned to document these DCs more thoroughly to accurately describe the causes and corrective actions.

While reviewing the selected DCs, the inspectors identified 11 other DCs that were initially dispositioned as potential Maintenance Preventable Functional Failures (MPFFs) that did not have an RCCA. According to procedure 50028-C, "Engineering Maintenance Rule Implementation," Rev. 4, the responsible engineer was to perform an RCCA on "potential" MPFFs or when performance criteria/goals for a system were not met. However, procedure 00553-C, "Maintenance Rule Implementation," Rev. 2, states that RCCAs are to be performed for any condition determined to be an MPFF. The licensee later determined that the 11 DCs initially characterized as potential MPFFs were not MPFFs, and that no RCCA was required. A review of the procedural differences has been undertaken by the licensee.

The threshold for initiating DCs has dropped over time, resulting in an increase in DCs (approximately 350 in 1995, 900 in 1996, and perhaps about 1200 in 1997). During the inspection, the backlog of outstanding DCs was approximately 135. Of these, about 75 were being actively worked by the responsible departments, particularly Operations, Maintenance, and Engineering Support. The other 60 DCs were being processed by the NSAC group, including newly-initiated DCs and DCs being reviewed for closure.

Procedure 00150-C, requires responsible departments to resolve DCs/RCCAs and identify corrective actions within 30 days; whereupon, the NSAC group conducts a quality review, re-evaluates reportability and enters proposed corrective actions into the computer database (i.e., Open Item (OI)/ Commitment Tracking System). Although, responsible departments consistently disposed of their assigned DCs within the 30 days, the NSAC group struggled to keep up with the increased volume of DCs required to be processed. As a consequence, some newly-initiated DCs reviewed by the inspectors were taking several days, and up to a week, before the NSAC reportability review was accomplished and the DC assigned to a responsible department. The DC form indicates this should be done within a day. In addition, the closeout reviews of completed DCs and entry of corrective actions into the OI/Commitment Tracking System by NSAC was taking longer than desired. About a fourth of the outstanding DCs that the NSAC group was responsible for closing had been waiting two to three months since the responsible department finished identifying causes and corrective actions. Some DCs had actually been waiting five to seven months after the responsible department was done before they were closed by NSAC (e.g., DC 2-97-22 and 2-96-259). Although there are no plant procedural guidelines on the length of time NSAC takes to closeout a completed DC, these delays could adversely impact the accurate and timely tracking of corrective actions and quarterly trending for management. NSAC's final reportability review and quality checks regarding adequacy and completeness of DC/RCCA documentation, root causes, and corrective actions are also impacted.

Similar timeliness issues with the processing of DCs by NSAC were previously identified by the Safety Audit and Engineering Review (SAER) group during a routine audit of the licensee's corrective action program conducted in January 1997. The applicable Audit Finding Report (AFR) 640 was issued January 16, 1997. Corrective actions to address the AFR were implemented and subsequently reviewed by SAER on April 15, 1997, which determined that the actions were adequate to close out AFR 640. Although the total NSAC backlog of DCs was reduced, the timely review of new DCs and closure of completed DCs appeared to remain a problem. Management expectations regarding NSAC timeliness for processing DCs in a prompt and efficient manner was not clearly communicated by procedures.

The inspectors observed and discussed the closeout of DCs with NSAC personnel. These closeout reviews by NSAC personnel were thorough, detailed, and added considerable quality to the program. NSAC personnel were very knowledgeable and conscientious, although not always timely. Problems with the completeness and adequacy of DCs dispositioned by the responsible departments were promptly brought to the department's attention for resolution by NSAC. In certain cases, this resulted in revised causes and/or corrective actions. Also the many inconsistencies observed by the inspectors in the type and number of root cause codes identified by responsible departments for trending purposes were usually corrected during the NSAC review.

The total backlog of outstanding items in the OI/Commitment Tracking System was about 740 open items (e.g., DC/RCCA corrective actions) and commitments. Because the licensee does not trend their backlogs of DCs or OIs, the inspectors were unable to evaluate the magnitude and associated trends of outstanding corrective actions or open DCs. However, scheduled due dates for DCs assigned to responsible departments and OIs/commitments were aggressively tracked by management on a weekly basis. According to the "Open Item and Deficiency Card Status" weekly reports reviewed by an inspector and interviews with management, DCs and OIs/commitments were rarely late. The inspectors selected ten OIs due on June 27 to assess the effectiveness of licensee efforts to ensure that OIs were being closed in a timely manner, consistent with scheduled due dates. Of these ten OIs, only three were closed on time. Of the remaining seven, two were closed late and five were rescheduled (one of which was rescheduled after it was overdue). Due to the fact that these ten OIs were either rescheduled or closed before June 27, the "Open Item and Deficiency Card Status" weekly report issued the following Monday (June 30) would have reported no OIs were late. The inspectors discussed with plant management that approximately 70% of corrective action OIs due on June 27 were not completed on time, and half were rescheduled at the last moment.

The inspectors identified that OI 34432, whose responsible department was Westinghouse, had a scheduled completion date of February 28, 1997. Because of the way the weekly "Open Item and Deficiency Card Status" report was formatted, management was unaware that this OI was long overdue. When notified of this finding by the inspectors, NSAC contacted Westinghouse and revised the due date.

Procedure 00150-C, requires that any responsible department that needs more than 35 days to resolve a DC must get an Assistant General Manager (AGM) approval for an extension. In 1997, of the hundreds of DCs processed, only three have been extended. The inspectors reviewed the extension requests and verified that they were approved by an AGM. However, the administrative controls for rescheduling due dates of corrective action OIs was not as strict. Procedure 00409-C allows any corrective action OI to be rescheduled with approval from the NSAC Originating Coordinator and the responsible department manager.

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superintendent, supervisor, or team leader. The inspectors did not observe that any request to reschedule a corrective action OI was denied. The number and frequency of rescheduled OIs each week were not being specifically tracked or reported.

The inspectors reviewed several recent "Quarterly Trend Reports and Department Self-assessments," the most recent covering November 1996 through January 1997, issued April 25, 1997. NSAC is responsible for issuing the quarterly trend reports to each department in addition to the department's own individual self-assessment. The quarterly report for February through April 1997 had not been issued by June 27, 1997. Two to three month delays in issuing the quarterly trend reports seemed to be typical, and consistent with DC/RCCA processing delays exhibited by NSAC. Procedure 80016-C does not provide any guidance on the expected timeliness of trend identification and reporting. Trend reporting and departmental self-assessments have evolved considerably over the past year and appears to be a valuable tool for plant improvement. Although the most recent quarterly trend report did not identify any additional corrective actions based on plant-wide trending, the departmental self-assessments and trending did identify numerous areas for improvement (e.g., work practices, procedural use, procedure quality, management and supervisory involvement). Each department also developed corrective measures and provided implementation schedules to address self-identified problems and adverse trends for improving performance. The individual departmental self-assessments varied considerably in format, quality and content. There was no administrative procedure to ensure uniformity and consistency. However, the program was still in its formative stages and management stated that program guidance is still being developed.

c. Conclusions

Overall, the inspectors concluded that DC/RCCAs were sufficiently thorough and complete, with appropriate disposition/causes and adequate corrective actions identified. However, the content and level of detail between DCs/RCCAs differed considerably, reflecting a variation in skill and experience level of responsible departmental personnel. NSAC personnel were knowledgeable, conscientious, and added considerable quality to the DC/RCCA process. However, management expectations regarding NSAC timeliness for processing DCs in a prompt and efficient manner were not clearly communicated. Backlogs of DCs or OIs are not trended to evaluate the magnitude and associated trends of outstanding corrective actions or open DCs. Although DCs are almost always completed by responsible departments in a timely manner, corrective action OIs were routinely rescheduled. The licensee's trend identification/reporting and departmental self-assessment program continues to evolve.

07.2 Event Review Team Reports (40500)

a. Inspection Scope

Procedure 00057-C, "Event Investigation," Rev. 10, and procedure 00058-C, "Root Cause Determination," Rev. 11, described the licensee's methods for determining the root causes of events. The inspectors reviewed selected Event Review Team (ERT) and RCCA reports. The review included a cursory examination of 11 ERT reports, with a detailed review of three ERT reports listed below:

- ERT report 1-96-06, "Inadequate Cooling for Safety Injection Pump 1B Motor," dated October 15, 1996;
- ERT report 2-96-003, "Manual Reactor Trip Due to Main Feed Regulating Valve Sticking," dated October 14, 1996; and
- ERT report 2-96-004, "Low Vacuum - Turbine Trip/Reactor Trip after SGFPT (Steam Generator Feed Pump Turbine) Rupture Disk Failure," dated October 23, 1996.

The inspectors reviewed the above ERT reports for effectiveness of identifying root causes, making appropriate recommendations to solve the problem and prevent recurrence, and the implementation of developed corrective actions. In addition, the inspectors reviewed operability determinations made by the licensee as a result of events and associated reportability issues.

b. Observations and Findings

The licensee performs ERTs and RCCAs for significant events such as: unplanned reactor trips; reportable Engineered Safety Features (ESF) actuations; significant radiological events; and events identified by site management.

Based on the review of the selected ERTs, the inspector noted that the licensee frequently uses the Cause Identification Worksheet analysis technique or the Paper and Pencil Narrative method to investigate an event. Application of those techniques resulted in thorough root cause analysis. However, the inspectors identified several non-repetitive, minor administrative procedural non-compliances. None of the identified items resulted in impacting the problem resolution process or the effectiveness of the corrective actions developed. These items were forwarded to the licensee for resolution.

An issue raised by the inspectors during the review of event reports concerned ERT team leaders. A review of the team members for each of the 11 ERTs indicated that an Independent Safety Engineering Group (ISEG) representative led five of the 11 teams. Updated Final Safety Analysis Report (UFSAR) Section 17.2.1.3.4, states that ISEG shall not

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become responsible for signoff functions such that it becomes involved in the operating organization. By signing and recommending corrective actions as part of the ERT report the ISEG representative performed duties in accordance with procedure 00057-C. SAER had identified a somewhat related issue during an audit of the ISEG. The audit comment pointed out that ISEG internal procedures only allowed ISEG personnel to assist and not lead ERTs. Corrective action taken in response to the audit comment was to prohibit ISEG members from leading future ERTs in accordance with procedure VSAER-WP-20. The inspectors discussed their observation with licensee management. The inspectors were later informed that corporate management had (as of May 9, 1997) directed ISEG members to no longer lead ERTs until further notice.

The licensee documented events as required by 10 CFR 50.73, Licensee Event Report (LER) system. No issues or discrepancies concerning reportability were identified.

c. Conclusions

The inspectors concluded that the ERT reports and RCCAs reviewed were of good quality and thorough. Corrective actions developed as a result of ERTs, and associated RCCAs, were appropriate for the root causes identified. In addition, operability and reportability determinations were appropriate, where necessary.

07.3 Safety Audit and Engineering Review Program (40500)

a. Inspection Scope

The inspectors evaluated implementation of the SAER Program with regard to scope and responsibilities, position in the plant organization according to UFSAR Chapter 17.2, Operational Quality Assurance Program, and licensee procedures. Selected SAER audits were specifically reviewed.

b. Observations and Findings

The inspectors discussed the structure and specific responsibilities of the SAER group with its supervisor to determine that the program's implementation satisfied the requirements of the UFSAR, including independence from operational considerations. The inspectors reviewed the audit schedule for the current year for compliance with required subject audit areas and frequency.

The inspectors selected the following audits for review:

- OP02, "Health Physics and Radiation Protection," for the previous three audits (specifically, OP02-95/06, OP02-96/05, and OP02-96/33);

- OP06, "Reactor and Plant Operations," for the previous three audits (specifically, OP06-96/09, OP06-96/29, and OP06-97/05);
- OP09, "Surveillance Program/Technical Specification Compliance," for the previous three audits (specifically, OP09-96/15, OP09-96/31, and OP09-97/11); and,
- OP21, "Corrective Action Program," last audit and portions of next to last audit (specifically, OP21-97/08 and OP21-96-39)

The inspectors noted that the audits were comprehensive and thorough. These audits included audit findings, comments, and/or recommendations for the audited group. Audit finding reports (AFRs) required an immediate response and were tracked by plant management until appropriate approved action was taken to resolve the finding. Comments required action to be taken and were followed up during a successive audit to review the appropriateness of the action taken. Recommendations were treated as suggestions and had to be acknowledged, but no formal problem resolution was required. The inspectors reviewed the handling of these different items, from original presentation in an audit to final resolution and disposition, and determined that they were appropriately resolved in a timely manner.

The inspectors noted that all of the audits were conducted within the required frequency, based on start dates. However, the inspectors found that the SAER group could continue auditing for long periods of time or even suspend the audit (e.g., auditor reassigned to begin another more important audit). The typical SAER audit completed in 1997 took from three weeks to three months to perform, with most being accomplished in about a month. A few audits were actually suspended, some covered plant activities that did encompass considerable lengths of time; but the normal, routine audit was several weeks long. An audit was not considered completed until the audit exit meeting was held by which time the audit report was finalized and audit checklists typically filled out. Consequently, a significant amount of the audit duration was not necessarily active auditing but documenting. UFSAR Section 17.2.1.1.1.9.C states that audit reports will be forwarded to the Vice President - Nuclear (VPN) and responsible management within 30 days after the audit is completed. Although allowed by internal SAER procedures for flexibility, the inspectors considered that the extended duration of an audit could permit findings and comments to not be communicated to responsible managers, VPN, and/or Safety Review Board (SRB) in a timely manner. In addition, suspending audits or extending audits to accommodate documentation can lead to delays in corrective actions and management review activities.

c. Conclusions

The inspectors concluded that the SAER Program satisfies the requirements of the UFSAR and implementing procedures for conducting quality assurance (QA) audits. Audits were comprehensive and thorough. AFRs and comments were properly addressed in a timely manner, and completion of corrective actions were verified. Findings were adequate to keep licensee management informed of significant developing problems in the areas audited. However, the practice of allowing an extended duration audit could lead to delays in implementing corrective actions and the conduct of management reviews.

07.4 Self-Assessments (40500)

07.4.1 Health Physics Self-Assessment

a. Inspection Scope

The inspectors reviewed the licensee's comprehensive self-assessment of Health Physics (HP) areas of responsibility.

b. Observations and Findings

The inspectors reviewed a self-assessment conducted by the HP Department from February 3-7, 1997. The inspectors noted that the self-assessment was conducted by a team of people not only from within the plant staff, but from other nuclear plants within the Southern Nuclear Operating Company, Inc. (SNC) organization, and even from nuclear plants outside the SNC organization. The inspectors determined this aspect of the program to be a strength. The assessment addressed the following seven areas: As Low As Reasonably Achievable (ALARA); contamination control; external radiation; personnel dosimetry; RWPs/posting and labeling; solid radwaste; and surveys and documentation. A generally consistent format was used to report on each area with specific observations, both as strengths and areas for improvement. Overall each area provided numerous insightful and meaningful observations. However, the final document appeared as a disparate collection of work from several individuals with varying quality. The root cause analysis, addressed as pie charts at the end of the assessment, was not always well-defined. The inspectors also reviewed data collection sheets from the individual team members. These sheets were of a standard format and provided more detailed information regarding each observation. These sheets also provided trending codes, defined corrective actions, and tracked status.

c. Conclusions

The HP self-assessment was a comprehensive evaluation of major areas of responsibility. This self-assessment identified numerous aspects of the HP program for improvement, for which specific corrective actions have been developed and were being actively tracked to completion. The use of experienced HP personnel from outside the plant as part of the self-assessment team was considered a significant strength.

07.4.2 Plant Modifications and Maintenance Support (PMMS) Self-Assessment

a. Inspection Scope

The inspectors reviewed the report from a self-assessment of the PMMS department conducted in December 1996. The inspectors also reviewed the PMMS corrective action plan.

b. Observations and Findings

The PMMS self-assessment team performed a detailed assessment of the design change process, modelling and analyzing twenty-two discrete, significant activities of the process. Four specific process areas were identified for assessment: Design Change Control, Design Generation, Design Implementation, and Design Close Out. During the assessment substantial findings were identified and explicit recommendations were made. A comprehensive corrective action plan was developed, with scheduled due dates, which addressed each of the specific recommendations. The inspectors' review indicated that the PMMS department did not address numerous "compliance" and "process" issues in the Design Generation area identified by the assessment team, for which specific recommendations were not made. After discussions with the inspector, PMMS management indicated it planned to go back and address each of the issues. This issue is identified as an example of Inspector Followup Item (IFI) 50-424, 425/97-08-01, Resolution of Self-Assessment Findings.

c. Conclusions

The PMMS self-assessment was thorough and detailed, with substantial findings and recommendations. Corrective actions were planned and scheduled to address all of the recommendations. However, the PMMS department did not address numerous compliance and process issues identified in the report.

07.4.3 Quarterly Human Performance Self-Assessments

a. Inspection Scope

The inspectors reviewed several of the most recent Quarterly RCCA Human Performance Review reports, and discussed these reports with site management and the Independent Safety Engineering Group (ISEG) supervisor.

b. Observations and Findings

In February 1996, the ISEG was requested to conduct quarterly reviews of DC/RCCAs involving human performance errors. The ISEG has conducted five quarterly reviews since February 1996, usually issuing their reports within four to six weeks after the quarter. These reports were comprehensive, thorough and insightful, with detailed observations and some statistical analysis. However, it was difficult for the inspectors to distinguish whether some ISEG report statements were meant to be a general observation of fact, conclusive problem, suggestion, or specific recommendation. There was no formal process in place to disposition these ISEG statements, some of which have been repeated in several quarterly reports with no apparent licensee response. Examples of repetitive ISEG issues were: 1) there is a continued increasing trend of DCs with human performance errors, 2) efforts to ensure individuals with advanced root cause training perform the RCCAs involving human performance issues have been inconsistent; 3) once potential trends are identified, RCCAs should be completed on each recurring incident; and 4) a review group to evaluate quality and consistency of DC dispositions and analyze adverse trends would be beneficial.

Also, attached to each ISEG quarterly report was Attachment A, "Example Human Performance Review Summaries/Assessment Comments." In this attachment were detailed discussions, specific comments, and recommendations regarding selected DC/RCCAs. Many of the ISEG comments clearly questioned whether the disposition, causes, and/or corrective actions of particular DC/RCCAs were appropriate or adequate. These Attachment A comments and findings had not been routed to the responsible departments for resolution. These findings represent potentially inadequate corrective actions and/or incomplete documentation of DC/RCCAs. This issue is identified as an example of IFI 50-424, 425/97-08-01, Resolution of Self-Assessment Findings.

c. Conclusions

ISEG Quarterly Human Performance Reviews were comprehensive, thorough and insightful. However, many of the ISEG report statements were unclear whether they represented general

observations of fact, conclusive problems, suggestions or specific recommendations. Also, the inspectors were unable to ascertain how the licensee was addressing these ISEG statements, especially those that were repeated in several reports. Specific comments regarding the adequacy of particular DC/RCCAs have not been addressed by licensee management.

07.5 Operating Experience Feedback Program (40500)

a. Inspection Scope

The inspectors reviewed the licensee's handling of two Operating Experience Reports (OERs) and the backlog of open OERs, including NRC Information Notices (INs) awaiting disposition.

b. Observations and Findings

Procedure 00414-C, "Operating Experience Program," required ISEG to coordinate the onsite evaluation of certain industry event reports and NRC INs. NSAC was assigned responsibility for onsite coordination of generic letters and other NPC issues requiring a response. The inspectors selected two recently dispositioned OERs from a list of industry event reports that had been received since January 1996 to present. The inspectors reviewed the licensee's evaluations and corrective actions for the OERs selected and found both to be adequate. For the examples reviewed, appropriate departments had been involved in the evaluation and required training on the events had been provided for both licensed and non-licensed personnel. The inspectors found that the ISEG had a goal to have all INs closed within a six-month period. The licensee indicated that all but one 1996 IN had been closed. It was expected to be closed by the end of June, which was consistent with the department goals. The ISEG's total backlog of open OERs was approximately 54 items, somewhat higher than the 1996 year end total of 44 items.

c. Conclusions

The licensee's evaluation and corrective actions for two OERs issued in 1996 were reviewed and found to be adequate. The backlog of industry OERs and INs was being maintained within reasonable levels.

07.6 Independent Safety Engineering Group (40500)

a. Inspection Scope

The inspectors reviewed the ISEG activities to determine if they were consistent with those described in UFSAR Section 17.2.1.3.4 and Procedure VSAER-WP-20, Independent Safety Engineering Group Organization.

b. Observations and Findings

The inspectors found that the ISEG was meeting the activities described in the UFSAR and internal procedures for reviewing and providing recommendations to management on methods to improve plant safety and reliability and reporting to management on the activities reviewed by the ISEG. However, the inspectors found that the ISEG was involved in both assisting and leading event review teams. The practice of ISEG leading event review teams was found to be in conflict with the UFSAR with respect to maintaining independence from the operating organization (see report Section 07.2). The inspectors found that the ISEG had performed several assessments over the last 12 to 18 months. Examples of routine assessments performed by ISEG were Pre-Outage Schedule Review and Risk Assessments, Shutdown Risk Assessments, Post-Outage Review and Risk Assessments, and Quarterly RCCA Human Performance Reviews (see report Section 07.4.3). Examples of special assessments that were performed by the ISEG included the assessment of the UFSAR Review Program and the Configuration Control Assessment. A detailed review of the UFSAR Review Assessment is described in report Section E7.2.

c. Conclusions

The inspectors concluded that the ISEG activities were consistent with UFSAR and procedural requirements, except for leading the ERTs. The assessments performed by the ISEG were effective in identifying areas for improving plant safety.

07.7 Onsite and Offsite Review Committee Activities (40500)

07.7.1 Plant Review Board

The inspectors attended one meeting of the Plant Review Board (PRB) on June 24. Plant management was well represented at the meeting and attendance met UFSAR membership and quorum requirements. The PRB agenda for meeting 97-47 was composed primarily of procedure changes and DCs. Of these, the PRB only actually discussed those procedure changes and DCs that one or more of the members indicated they had comments on. Discussions were detailed and explored relevant aspects of associated procedure changes.

07.7.2 Safety Review Board

a. Inspection Scope

The inspectors reviewed UFSAR and corporate procedural requirements for conducting Safety Review Board (SRB) activities. The inspector also reviewed the last two SRB meeting minutes (i.e., Major Meetings 96-20 and 97-02), including associated SRB open items, and interviewed several SRB members.

b. Observations and Findings

UFSAR Section 17.2.1.1.1 prescribed SRB functions, organization and review responsibilities. Corporate procedure VSRB-05, Safety Review Board, Rev. 0, provided the procedural guidance for defining how the SRB fulfills its regulatory responsibilities. The inspector verified that SRB activities were conducted in accordance with UFSAR Section 17.2.1.1.1 and procedure VSRB-05, except as discussed below. In general, SRB meetings were comprehensive and routinely identified specific problem areas requiring site and/or corporate attention. For each identified problem an SRB open item was initiated, tracked and usually resolved in a timely manner prior to the next SRB meeting whereupon it would be reviewed and closed out. Of the eleven SRB open items from the SRB meeting (Major Meeting 96-20) on December 18, 1996, only one item remained open following the meeting on April 30, 1997. The SRB meeting on April 30 also identified an additional 19 open items. Responses to 14 of these new SRB open items had already been received within about 45 days following the SRB meeting. The inspector noted that, except for some SRB open items assigned to the VEGP General Manager (GM), most open items were not entered into the site corrective action program for trending or RCCA.

The inspectors identified the following deficiencies in procedural guidance and implementation of SRB responsibilities:

- UFSAR, Rev. 6, Section 17.2.1.1.7.F, states that the SRB shall be responsible for reviewing significant operating abnormalities or deviations from normal and expected performance of plant equipment that affect nuclear safety. Section 17.2.1.1.7.H states that the SRB shall review all recognized indications of an unanticipated deficiency in some aspect of design or operation of structures, systems, or components that could affect nuclear safety. These areas of review were in addition to SRB responsibilities to review violations, AFRs, and LERs. However, the inspector was unable to discover any examples within the scope of UFSAR Sections 17.2.1.1.7.F and H that had been reviewed by the SRB, unless it also involved a violation, AFR, or LER. Although these UFSAR review requirements were replicated in VSRB-005, the procedure did not provide any defining guidance.

As documented in inspection report Section 07.2, the inspectors examined 11 ERT reports of significant plant events according to procedure 00057-C. Of these events (that occurred within the past year), eight were reviewed by the SRB primarily because they resulted in an LER, special report, and/or violation. However, three events were not

reviewed. In general, ERT reports that don't result in violations. LERs, AFRs, etc. are considered to be examples of the aforementioned UFSAR sections that require SRB review.

- The inspectors were provided little or no documentation to demonstrate how several SRB responsibilities described in Section 5.2 of VSRB-005 were being accomplished, such as: a) "Verifying that certain aspects of plant operations in accordance with license provisions;" b) "Making recommendations for improvements in plant operations and in effectiveness of operations quality assurance;" and c) "Re-audit of deficient areas where indicated, shall be initiated by the SRB."

Implementation of UFSAR Sections 17.2.1.1.1.7.F and H, as described above, constitute a deviation from UFSAR commitments and is identified as DEV 50-424, 425/97-08-02, Failure to Fulfill All SRB Review Commitments.

The most recent annual SAER assessment of the VEGP SAER group and SRB was issued in an audit report dated December 6, 1996. This audit report did not identify any "Findings" or make any "Comments" regarding conduct of SRB functions. SRB members themselves did not provide any comments regarding the conduct or suggestions for improvement of the last two SRB meetings using the provided feedback forms.

c. Conclusions

In general, SRB meetings appeared to be comprehensive and routinely identified specific problem areas requiring site and/or corporate attention. For each identified problem, an SRB open item was initiated, tracked, and wholly resolved in a timely manner. SRB activities were conducted in accordance with FSAR Section 17.2.1.1.1 and procedure VSRB-05, except as identified above. DEV 50-424, 425/97-08-02 was identified for insufficient implementation of UFSAR commitments regarding SRB review.

08 Miscellaneous Operations Issues (92901)

08.1 (Closed) Violation (VIO) 50-425/96-11-01: Improperly Positioned Clearance Hold Points on Unit 2 Main Control Room Boards - Two Examples.

This item was addressed in Sections 02.1 and 02.2 of Inspection Report (IR) 50-424, 425/96-11. The licensee submitted its reply to the VIO by letter dated December 30, 1996. The inspectors reviewed the root cause determination and corrective actions completed by the licensee to avoid recurrence. The inspectors verified completion of the corrective actions, which included the counseling of the operations supervisors

Enclosure 2

regarding clearance and tagging restrictions using solenoid valves as clearance points. Also, the counseling of the individual operator directly involved regarding tagging requirements and the importance of ensuring that component position is in accordance with the clearance requirements. The topic was included in the operation department's continuing training for licensed and non-licensed operators, scheduled for completion in March 1997. The inspectors also reviewed the training lesson plan and personnel attendance sheets for the training. The lesson plan was determined to be adequate and the training was completed as scheduled. This VIO is closed.

II. Maintenance

M8 Miscellaneous Maintenance Issues (92902)

M8.1 (Closed) VIO 50-424/96-479-01013: Inoperable 1B SIP Due To Inadequate Cooling Flow To Its Motor Coolers.

This issue was documented in IR 50-424, 425/96-12 (Section M8.4), 50-424, 425/96-11 (Section M3.1), LER 50-424/96-10, Rev. 0, and LER 50-424/96-10, Rev. 1.

The inspectors reviewed the licensee's corrective actions identified in the LER and ERT report 1-96-06, "Inadequate Cooling for Safety Injection Pump 1B Motor", dated October 15, 1996. Based on this review the licensee's corrective actions should preclude repetition. This VIO is closed.

M8.2 (Closed) VIO 50-424, 425/96-479-01023: Inadequate Procedural Guidance To Assure Correct Installation Of Motor Cooler Gaskets And Plenums For Safety-Related Equipment.

This violation was documented in IR 50-424, 425/96-12 and addressed the lack of adequate procedural guidance.

As part of the licensee's corrective action, maintenance procedure 27118-C, "Westinghouse Large Frame Motor Heat Exchanger Maintenance," Revision 2, was developed.

Based on the review of the maintenance procedure performed by the inspectors and the review documented in report Section M8.1, the licensee's corrective actions should preclude repetition. This VIO is closed.

- M8.3 (Closed) LER 50-424/96-010: SIP Rendered Inoperable Due to Lack of Motor Cooling.

This LER documented issues discussed in report Sections M8.1 and M8.2. Based on that review, this LER is closed.

- M8.4 (Closed) LER 50-424/96-010, Rev. 1: SIP Rendered Inoperable Due to Lack of Motor Cooling.

This LER documented further analysis performed by the licensee of the impact that the inoperable SI pump had on the small break loss-of-coolant-accident. In addition, further corrective actions were developed as a result of the licensee's continued review of the issue.

Based on this review, and that documented in report Sections M8.1 and M8.2, this LER is closed.

- M8.5 (Closed) LER 50-424/97-001: Thermal Overload Bypass Jumper Connection Renders ECCS Valve Inoperable

This LER documented the identification of a thermal overload bypass jumper for valve 1HV-8802A, SI Pump A to Hot Leg 1 and 4 Isolation Valve, being improperly connected.

Previous inspection of this issue was documented in IR 50-424, 424/96-14 (Section 02.4) and 50-424, 425/97-04 (Section 08.1).

The inspectors reviewed the licensee's corrective actions identified in the LER and the event report developed as a result of this event.

As a result of the event, the licensee verified that other ECCS valves' thermal overload jumpers in both Units 1 and 2 were properly installed. In addition, the licensee developed supplemental training for maintenance personnel on proper installation of lifted leads with an emphasis on independent verification. The licensee also counseled the involved maintenance personnel.

The licensee's corrective actions should preclude repetition. Based on this review, this LER is closed.

III. Engineering

E7 Quality Assurance in Engineering Activities

E7.1 UFSAR Accuracy Reverification Program (40500)

a. Inspection Scope

The inspectors reviewed the licensee's activities associated with the resolution of numerous discrepancies identified by the UFSAR Accuracy Reverification Program to determine if these actions were consistent with the requirements of title 10 of the Code of Federal Regulations Parts 50.59, 50.72, 50.73, and Part 50 Appendix B, Criterion XVI.

b. Observations and Findings

The licensee, in response to IN 96-17, "Reactor Operation Inconsistent with the Updated FSAR," conducted a review of over 600 sections of the VEGP UFSAR to verify that it accurately reflected the plant design, as-built condition, and/or operating practices. This review, performed by individuals from the operating plant staff, SNC corporate, Southern Company Services (SCS), and Westinghouse, took place over approximately a six-month period from July 1996 through December 1996, and resulted in the identification and documentation of over 700 discrepancies between the UFSAR and as-built plant and operating practices. Of those the licensee considered that approximately 500 were associated with original errors in the UFSAR.

The deficiencies were documented on approximately 100 DCs, and approximately 125 Licensing Document Change Requests (LDCRs) were generated to revise the UFSAR. The licensee indicated that discrepancies identified by site reviewers were documented on DCs and that those identified by offsite reviewers (i.e., SNC corporate, SCS, and Westinghouse personnel) were primarily documented on LDCRs. Site procedures required DCs to be evaluated for operability and reportability; however, a similar requirement did not exist for LDCRs. In the latter case, the licensee relied on the knowledge of the personnel doing the review to identify any operability or reportability concerns. This was considered to be a weakness in the UFSAR Review Program, although no operability or reportability issues were identified.

The inspectors reviewed the adequacy of the licensee's corrective actions for the UFSAR discrepancies documented in DCs 1-96-412, 1-96-449, 1-96-431, 1-96-499, and 1-96-375 involving various discrepancies with UFSAR Sections 15.0.13, 15.6.3, 3.1.2, 3.1.4, 6.5.2, 15.6.5, and 9.3.4. The inspector found that the DCs had been adequately dispositioned, but not all of the required corrective actions had been

completed. The inspector did not identify any concerns documented on the above DCs that required reporting in accordance with 10 CFR 50.72 or 10 CFR 50.73. With one exception, DC 1-96-499, a root cause evaluation was not performed for each discrepancy, rather, an assessment was made of the UFSAR review results and the most likely causes were determined, for which recommendations made and corrective actions were identified to reduce the likelihood of new discrepancies being introduced. The inspector found this to be acceptable.

DC 1-96-375, identified a discrepancy between plant operating practices in the use of the Centrifugal Charging Pumps (CCPs) for normal charging. The UFSAR that stated normal charging flow was provided by the positive displacement charging pump (PDP). The corrective action taken by the licensee was to revise the UFSAR to allow the PDP or CCP to provide normal charging to the reactor coolant system. The licensee's 10 CFR 50.59 Safety Evaluation stated, in part, that "utilization of centrifugal charging pumps to provide normal charging flow does not raise the probability of occurrence of a malfunction of centrifugal charging pumps. This is assured by routine preventive and predictive maintenance."

Considering the above evaluation, the inspectors requested and reviewed information on the environmental qualification (EQ) of the CCP motors. A one-page document identified as Attachment 11, Sheet 2 of 2, of Calculation X4CPS.0075.335, Rev. 8, was provided to demonstrate the EQ-qualified life for the CCP Motors. This document indicated that the motors had a qualified life of greater than 60 years operating continuously for 60.1 percent of the time at a normal service temperature of 100.88 degrees Centigrade (C). A single page from a draft calculation was also provided to the inspectors in which the motor qualified life had been re-analyzed based on the motor operating 100 percent of the time. This draft calculation indicated the motor had a qualified life under these conditions of greater than 40 years at a normal service temperature of 100.88 degrees C. The one page document from the draft calculation indicated that the motor service temperature of 100.88 degrees C consisted of 30 degrees C ambient temperature, plus 60.88 degrees C heat rise at 640 HP, plus 10 degrees C hot spot.

EQ Documentation Package No. X6AA15 indicated that the CCPs were located in the Auxiliary Building in areas 8RC115, 8RC118, 8RC16, and 8RC17. The normal ambient temperature for these areas was shown in FSAR Table 3.11.B.1 as 100 degrees Fahrenheit (F), which is approximately 37.78 degrees C. The inspectors noted that the 30 degrees C did not appear to be consistent with the UFSAR. Discussions with SNC corporate personnel indicated that temperature surveys had previously been done at the site and these results were used in the analysis to establish a qualified life for the CCP motors. This issue is unresolved, pending further review by the inspector to determine the design basis for the 30 degree C ambient temperature used in the evaluation of the CCP motor qualified life. This issue will be identified as Unresolved Item (URI)

50-424, 425/97-08-03, Determine Design Basis for Ambient Temperatures Used in Qualified Life Evaluations of CCP Motors.

The inspectors found that the backlog of incomplete corrective actions for the UFSAR discrepancies was small, consisting of approximately six LDCRs that required processing; approximately three requests for engineering assistance that were still open; approximately 11 miscellaneous corrective action items; and those corrective actions to address recommendations made by the ISEG on actions to help preclude similar UFSAR problems in the future. The corrective actions in response to the ISEG recommendations were scheduled to be completed by the end of the year.

c. Conclusions

The licensee's corrective actions to resolve numerous UFSAR discrepancies were found to be adequate and timely. The backlog of UFSAR deficiencies was small. A weakness was identified in the UFSAR Review Program in that issues identified by offsite groups (i.e., SNC corporate, SCS, and Westinghouse) were not formally evaluated for operability or reportability. In those cases, the licensee relied on the knowledge of the personnel doing the review to identify any operability or reportability concerns.

E7.2 Self-Assessment of the UFSAR Review Program (40500)

a. Inspection Scope

The inspectors reviewed the licensee's self-assessment of the UFSAR Accuracy Reverification Program results.

b. Observation and Findings

An assessment of the UFSAR Accuracy Reverification Program results was performed by the ISEG in response to a management request to identify reasons for the various identified discrepancies and recommend corrective actions to help preclude similar problems from occurring in the future. The assessment report, dated February 12, 1997, identified that the most common causes for the discrepancies were:

- Incomplete identification of all UFSAR sections affected by a change (omissions);
- Change process responsibilities not clearly defined/understood (affected documents not identified);
- Inadequate safety evaluations (did not address all potential issues, or recognize affected UFSAR sections and explain why they were or were not affected; commitments not identified);

- Administrative oversight less than adequate (backlog); and
- Minor original UFSAR errors.

The assessment team found that the tracking of corrective actions for DCs with multiple UFSAR discrepancies had been poor and that certain items could not be verified as being complete. A recommendation was made by the ISEG to have each department responsible for the disposition of deficiency cards generated as part of the UFSAR review to ensure one-for-one correlation between each item on the DC and the corrective documentation. Management agreed with the recommendation and action items were assigned to track completion of this review. In addition to the above, the assessment team identified some miscellaneous corrective actions that needed to be tracked to completion. These were given open item status and identified in an attachment to the report.

The assessment team concluded that a majority of the UFSAR discrepancies were minor errors and had been in place since the plant was licensed. It further concluded that the programs and processes in place were adequate to ensure that the plant was operated and maintained in accordance with its design bases. The assessment team provided several recommendations to management on actions that should be taken to reduce the likelihood of new discrepancies being introduced. By internal letter dated June 12, 1997, entitled, "Response to Recommendations of Updated FSAR Assessment," plant management summarized the corrective actions that would be taken in response to the recommendations made by the assessment team. These corrective actions were being tracked by the licensee's open item/commitment tracking system and were scheduled to be completed by the end of the year.

c. Conclusions

The ISEG assessment of the UFSAR Review Program results provided good insights as to the causes of the UFSAR discrepancies and provided several recommendations to management on how to improve performance and reduce the likelihood of new discrepancies being introduced.

V. Management Meetings and Other Areas

X. Review of Updated Final Safety Analysis Report (UFSAR)

A recent discovery of a licensee operating its facility in a manner contrary to the UFSAR description highlighted the need for a special focused review that compares plant practices, procedures and/or parameters to the UFSAR descriptions. While performing the inspections discussed in this report, the inspectors reviewed the applicable portions of the UFSAR that related to the areas inspected. The inspectors verified that the UFSAR wording was consistent with the

observed plant practices, procedures and/or parameters, except as described in report Section 07.2, regarding SRB review responsibilities.

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on June 27, 1997. The licensee acknowledged the findings presented and expressed additional and/or dissenting comments regarding the following areas inspected:

a) NSAC processing of ICs, b) Open Item tracking, c) Self-Assessments, d) SAER audit scheduling, e) ISEG involvement on ERTs, and f) SRB functions.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Beasley, Nuclear Plant General Manager
 W. Burmeister, Manager Engineering Support
 D. Carter, Site Supervisor SAER
 S. Chestnut, Manager Operations
 R. Dorman, Manager SAER - Corporate
 K. Duquette, Plant Health Physicist
 J. Gasser, Assistant General Manager Plant Operations
 J. Goodrum, NSAC Nuclear Specialist
 K. Holmes, Manager Maintenance
 P. Rushton, Assistant General Manager Plant Support
 M. Sheibani, NSAC Supervisor
 M. Slivka, ISEG Supervisor
 C. Tippins, Jr., NSAC Nuclear Specialist

INSPECTION PROCEDURES USED

IP 40500: Effectiveness of Licensee Controls In Identifying, Resolving, and Preventing Problems
 IP 92901: Followup - Operations
 IP 92902: Followup - Maintenance

ITEMS OPENED AND CLOSED

Opened

<u>Type</u>	<u>Item Number</u>	<u>Status</u>	<u>Description and Reference</u>
IFI	50-424, 425/97-08-01	Open	Resolution of Self-Assessment Findings (Sections 07.4.2 and 07.4.3)
DEV	50-424, 425/97-08-02	Open	Failure to Fulfill All SRB Review Commitments (Section 07.7.2)
URI	50-424, 425/97-08-03	Open	Determine Design Basis for Ambient Temperatures Used in Qualified Life Evaluations of CCP Motors (Section E7.1)

Closed

<u>Type</u>	<u>Item Number</u>	<u>Status</u>	<u>Description and Reference</u>
VIO	50-425/96-11-01	Closed	Improperly Positioned Clearance Hold Points on Unit 2 Main Control Room Boards - Two Examples (Section 08.1)
VIO	50-424/96-479-01013	Closed	Inoperable 1B SIP Due to Inadequate Cooling Flow to Its Motor Coolers (Section M8.1)
VIO VIO	50-424/96-479-01023 50-425/96-479-01023	Closed	Inadequate Procedural Guidance to Assure Correct Installation of Motor Cooler Gaskets and Plenums for Safety-Related Equipment (Section M8.2)
LER	50-424/96-010	Closed	SIP Rendered Inoperable Due to Lack of Motor Cooling (Section M8.3)
LER	50-424/96-010-01	Closed	SIP Rendered Inoperable Due to Lack of Motor Cooling (Section M8.4)
LER	50-424/97-001	Closed	Thermal Overload Bypass Jumper Connection Renders ECCS Valve Inoperable (Section M8.5)