SALP BOARD REPORT

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

50-315/89001; 50-316/89001
Inspection Report Nos.

Indiana Michigan Power Company
Name of Licensee

Donald C. Cook Units 1 and 2
Name of Facility

March 1, 1988 through June 30, 1989
Assessment period

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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 on the basis of this information. The program 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 feedback to the licensee's management regarding the NRC's assessment of their facility's performance in each functional area.

An NRC SALP Board, composed of the staff members listed below, met on August 21, 1989, to review the observations and data on performance, and to assess licensee performance in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance." The guidance and evaluation criteria are summarized in Section III of this report. The Board's findings and recommendations were forwarded to the NRC Regional Administrator for approval and issuance.

This report is the NRC's assessment of the licensee's safety performance at the Donald C. Cook Nuclear Generating Plant for the period March 1, 1988, through June 30, 1989.

The SALP Board for Donald C. Cook Nuclear Generating Plant was composed of:

C. J. Paperiello, Deputy Regional Administrator
*C. E. Norelius, SALP Board Chairman, Director, Division of Radiation Safety and Safeguards
*W. L. Forney, Deputy Director, Division of Reactor Projects
*T. O. Martin, Deputy Director, Division of Reactor Safety
*J. F. Stang, Acting Director, NRR Project Directorate III-1
*W. L. Axelson, Chief, Reactor Projects Branch 2
**L. R. Greger, Chief, Reactor Programs Branch, DRSS
***R. W. Cooper, II, Chief, Engineering Branch, DRS
#G. C. Wright, Chief, Operations Branch, DRS
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B. L. Burgess, Chief, Reactor Projects Section 2A
M. C. Schumacher, Chief, Radiological Controls and Chemistry Section, DRSS
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C. D. Pederson, Reactor Engineer, Technical Support Staff

*Denotes voting members.
**Denotes voting member for Radiological Controls, Emergency Preparedness, and Security functional areas.
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#Denotes voting member for Engineering/Technical Support functional area.

C. F. Gill, Senior Radiation Specialist, DRSS
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D. G. Passehl, Resident Inspector
D. L. Schrum, Project Inspector, Reactor Projects Section 2B

II. SUMMARY OF RESULTS

A. Overview

The licensees overall performance during this assessment period indicated effective management attention in all areas. Most SALP functional areas showed improved performance when compared to previous assessment periods. The gradual improvements were considered slow on some issues and were not sufficient to warrant a higher SALP rating in several functional areas.

The licensee performance generally conformed to licensee standards that had become more committed to excellence. The licensee exhibited a conservative safety philosophy but was not easily convinced of the importance of some issues by the NRC.

Management anticipated some NRC and industry initiatives in evolving its criteria and standards of performance, most notably in operations, emergency preparedness, and safety assessment and quality verification.

Materials and personnel resources were generally adequate. The site-specific simulator contributed positively in several functional areas. Contracted personnel were heavily utilized in many areas, and disproportionately involved in incidents and allegations requiring corrective actions. The personnel had a positive attitude that if problems occurred, they would be identified and resolved.

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

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

NR - Not rated

B. Other Areas of Interest

None.

III. CRITERIA

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

The following evaluation criteria were used to assess each functional area:

1. Assurance of quality, including management involvement and control;

2. Approach to the resolution of technical issues from a safety standpoint;

3. Responsiveness to NRC initiatives;

4. Enforcement history;

5. Operational events (including response to, analysis of, reporting of, and corrective actions for);

6. Staffing (including management); and

7. Effectiveness of training and qualification program.

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

On the basis of the NRC assessment, each functional area evaluated is rated according to three performance categories. The definitions of these performance categories are as follows:

Category 1: Licensee management attention and involvement are readily evident and place emphasis on superior performance of nuclear safety or safeguards activities, with the resulting performance substantially exceeding regulatory requirements. Licensee resources are ample and effectively used so that a high level of plant and personnel performance is being achieved. Reduced NRC attention may be appropriate.

Category 2: Licensee management attention to and involvement in the performance of nuclear safety or safeguards activities are good. The licensee has attained a level of performance above that needed to meet regulatory requirements. Licensee resources are adequate and reasonably allocated so that good plant and personnel performance is being achieved. NRC attention may be maintained at normal levels.

Category 3: Licensee management attention to and involvement in the performance of nuclear safety or safeguards activities are not sufficient. The licensee's performance does not significantly exceed that needed to meet minimal regulatory requirements. Licensee resources appear to be strained or not effectively used. NRC attention should be increased above normal levels.

The SALP Report may include an appraisal of the performance trend in a functional are for use as a predictive indicator if near-term performance is of interest. Licensee performance during the last quarter of the assessment period should be examined to determine whether a trend exists. Normally, this performance trend should only be used if both a definite trend is discernable and continuation of the trend may result in a change in performance rating.

The trend, if used, is defined as:

Improving: Licensee performance was determined to be improving near the close of the assessment period.

Declining: Licensee performance was determined to be declining near the close of the assessment period, and the licensee had not taken meaningful steps to address this pattern.

IV. PERFORMANCE ANALYSIS

A. Plant Operations

1. Analysis

Evaluation of this functional area was based on the results of nine routine inspections by resident and regional inspectors and one special Emergency Operating Procedures (EOP) team inspection. Plant operations and fire protection were considered separate functional areas in the previous assessment period, but have been combined as one functional area for this assessment period.

Enforcement history in this functional area was good and showed improvement from the previous period. Two Severity Level IV violations were identified during the current assessment period compared with four Severity Level IV violations and one Severity Level III violation in the previous assessment period (three related to Fire Protection and two concerned Operations). Both violations associated with this period involved the lack of positive valve position control. Equipment control is a parameter the licensee has tracked for several years and one in which overall performance actually improved during 1988 (when the violations occurred) compared to the previous year. This is further discussed below.

The licensee made progress in reducing the number of events requiring submittal of Licensee Event Reports (LERs). There were 13 LERs (five involving fire protection) attributed to this functional area for the current 16 month assessment period versus 18 (one involving fire protection) for the previous 17 month period. Six of the current LERs involved four automatic reactor trips on Unit 1 and two trip signals with no rod motion on Unit 2. Of the remaining LERs, one involved the mispositioning of hydrogen skimmer dampers, which resulted in a violation. Another LER involved an event in which the plant slightly exceeded the rated thermal power limit due to a heat balance error in the Westinghouse Prodac-250 computer calculation. All five of the fire protection LERs involved incomplete implementation of compensatory measures for out-of-service equipment. Four of these resulted from personnel error and one resulted from component failure.

All four automatic reactor trips occurred on Unit 1, which accumulated over 10,000 hours of critical operation. The overall trip rate demonstrated improved performance during the assessment period as compared with 7 reactor trips (both units) during the last appraisal period. Unit 1 exceeded the licensee's goal of 95% availability during 1988. Unit 2 experienced no trips in over 4,700 critical hours, although it was in an extended outage during most of the assessment period.

Management involvement and control in the assurance of quality were evident throughout the assessment period. System anomalies were recognized early and dealt with effectively. Management responses included forming task forces to investigate and resolve an unusual Unit 2 containment pressure behavior pattern, and a case of gradually increasing unidentified reactor coolant system leakage. Management was always physically present and visible for plant startups, shutdowns, and any unusual operating problems.

The licensee demonstrated an ability to anticipate potential safety concerns. For example, an issue arose concerning the need to avoid breaking fire seals for the control room heating, ventilation, and air conditioning (HVAC) pressurization boundary, in order to declare the HVAC "operable." In this instance, the inspector found that the plant had already developed a procedural system that maintained control over this boundary.

The licensee's approach to the resolution of technical issues from a safety standpoint was typically both sound and conservative. In October 1988, with Unit 1 operating at 90-percent power, a leak developed in an incore flux detector thimble tube. Even though the leak was only about 0.02 gpm, the licensee shut the tube isolation valve, sacrificing the detector that was still inserted, to eliminate the possibility of a large-scale leak and increased radioactive contamination levels inside containment. Also, the licensee responded immediately to identify and control reactor trip breakers identified as belonging to a batch suspected of having weld discrepancies.

The licensee demonstrated a clear technical understanding of operational issues. Inspector review noted proper prior safety and technical considerations related to an unusual valve lineup for residual heat removal system testing in March 1988 and an unusual circuit breaker alignment for maintenance in August 1988. The licensee had implemented conservative administrative limits for several operating parameters, and the licensee immediately developed and implemented new administrative limits in a case involving notification from Westinghouse that "controlled leakage" had not been analyzed over the range previously thought. A condition involving potential post-trip overcooling of the reactor coolant system that had caused a similarly-designed plant to be outside analyzed bounds, was found to be both well-controlled and more broadly analyzed at D. C. Cook.

The licensee's responses to NRC initiatives were technically sound and timely in almost all cases. The Operations Department developed a "Code of Excellence" for operators in anticipation of the Commission's Policy Statement on the "Conduct of Nuclear Power Plant Operators." Resident inspector requests for action or information in response to concerns from NRC Region III were uniformly dealt with in a timely and technically sound manner.

The inspectors frequently found that the licensee had already initiated corrective actions for minor discrepancies found on plant tours. When the inspector questioned the licensee about the turbine driven auxiliary feedwater pump bearing cooling system design and operating limits, based on information from a similar plant, the licensee treated the question analogous to a Limiting Condition for Operation to ensure timely resolution.

The licensee made slow but steady progress on initiatives involving the achievement of a "black board" (no illuminated annunciators) at normal power operation. The licensee achieved similar progress on a general upgrade of alarm response procedures to eliminate erroneous or outdated cross-references and to reformat and validate technical content of the procedures. Actions on both of these major initiatives were substantially complete by the end of the appraisal period.

Plant housekeeping was generally good, but a weakness was occasionally noted in post-job cleanup. The licensee used major areas of the auxiliary building floor for storage space. Items such as gloves, tape, insulation, and other items left over from previous maintenance and surveillance activities remained throughout the plant. Lighting in some areas of the plant appeared minimal which could hinder efficient completion of some activities, and is adverse to good plant operations.

The Operations Department was well-staffed. The plant utilized five operating shifts which alternated between on-watch assignments, training, and time off. A total of 20 to 21 personnel staffed each shift, including five or six Senior Reactor Operators (SROs), four to six Reactor Operators (ROs), and one Shift Technical Advisor. This staffing level exceeded the Technical Specification staffing minimums.

The licensee adequately staffed its fire protection organization with well-qualified personnel. Based on interviews, contracted fire watch personnel were adequately trained and knowledgeable of their assigned duties. For example, each fire watch individual interviewed was able to describe the required emergency actions that they would take upon spotting a fire. As noted previously, however, lapses in performance resulted in a total of four LERs. Based on the number of LERs involving fire watches, the licensee met with the NRC staff to resolve the situation. Based on the meeting, the licensee proposed a change to the Technical Specifications (TS) and the Fire Protection Program.

The training and qualification program made a positive contribution, commensurate with procedures and staffing, to the overall effectiveness of the Operations staff. As a result,

there was a decrease, relative to the previous SALP period, in problems related to equipment control during the removal and return of equipment to service. Most significantly, there were only three events during 1988, compared to seven in 1987, involving a wrong component or wrong position problem.

The D.C. Cook plant simulator, located onsite in the new training center, was declared operational for training in May 1988. In addition to licensed operator training, it was used for training corporate and plant technical staff and for the development and verification of procedures. In these capacities, the simulator proved itself a major asset.

2. Performance Rating

The licensee's performance is rated Category 1 in this area. The licensee's performance was rated Category 2 and Improving in the previous assessment period.

3. Recommendations

None.

B. Radiological Controls

1. Analysis

Evaluation of this functional area was based on the results of one team, one special, and five routine inspections by regional inspectors, and routine and special observations by resident inspectors.

Enforcement history improved in this area during the assessment period. One Severity Level IV violation was identified, compared to five Severity Level IV violations identified during the previous period. The violation revealed a weakness in the administrative controls for extreme high radiation areas (EHRA) and could have resulted in significant personnel exposures but for good performance by individual radiation protection personnel.

There were four events during the assessment period that resulted in LERs in this functional area. The cause of the events were personnel errors resulting from misunderstandings of TS requirements, miscommunications, or a poor understanding of equipment. None of the events was a significant breakdown in radiological controls.

Staffing has improved and satisfies routine operating requirements. Both the Plant and Chemistry Supervisor and the

Radiation Protection Manager (RPM) were replaced. Region III initially had concerns regarding experience of the RPM replacement but they have generally been alleviated by the individual's performance together with corporate support. Overall, staff stability improved significantly as the licensee continued to reduce dependence on contract technicians, and staff experience increased. The area of radioactive material control (radwaste), where only one of four technical support staff members has significant relevant experience, was an exception to this trend. Staffing levels and qualifications were adequate to implement the chemistry program.

Management involvement in the assurance of quality was evident in improved administrative controls and support for RP, in the effort applied to reduce chloride in the secondary system to the 5-10 ppb range, and in the installation of new in-line process monitors to follow secondary system water quality. Weaknesses were noted in licensee followup of an incident involving entry into the reactor cavity where extremely high radiation fields unexpectedly existed. In that instance, an inadequate evaluation resulted in improper posting of the area. The licensee's review misjudged the significance of the event and the initially proposed long-term corrective actions were inadequate. A weakness was noted in radiochemistry where the licensee review failed to detect a bias in cross-check beta analyses.

Licensee responsiveness to NRC issues was mixed with significant improvement during the later part of the assessment period. The licensee adequately addressed most of the concerns raised during health physics inspections and was timely in resolving concerns about ventilation system filter surveillance test acceptance criteria. However, the licensee was slow to resolve concerns regarding experience and qualifications of the RPM, turbine room sump discharge monitoring and gaseous effluent batch releases, and was slow to perform corrective actions for a facility contamination event caused by changing containment air flow during an outage. In response to NRC initiatives, the licensee made improvements in the chemistry Quality Assurance/ Quality Control (QA/QC) program, including trending the water chemistry parameters, and enhancing the laboratory QA/QC program, especially with regard to control charts and data assessment. In response to problems identified in the nonradiological confirmatory measurements program during the previous assessment period, the licensee improved laboratory instrumentation.

The licensee continued to demonstrate an adequate approach to the resolution of technical issues. The plant water quality control program was generally good and in conformance with industry guidelines. Occasional weaknesses in maintenance scheduling and planning sometimes resulted in insufficient

pre-job notice being provided to the RP group and, therefore, weakened RP job support. When lead time was adequate As-Low-Reasonably-Achievable (ALARA) implementation appeared good. Other weaknesses included omission of information from the semiannual radioactive effluent release reports, and lack of timeliness in correcting effluent radiation monitoring system deficiencies; in addition, excessive use of leakage containment devices, instead of leak repair, is an issue that the licensee has not yet resolved.

Whole-body dose for station activities in 1988 was approximately 875 person-rem, of which approximately 550 person-rem resulted from the Unit 2 steam generator repair project (SGRP) work; these dose totals reflect good performance. Dose totals for 1989 through the end of the SALP period have exceeded licensee projections, but are not excessive. The licensee continues to make progress in reducing the number of personnel contamination events and the extent of contaminated plant areas. Both gaseous and liquid radioactive release data indicate an apparent positive performance trend during this assessment period. The licensee also continues to make progress in reducing the volume of solid radwaste generated. No radioactive shipment transportation incidents occurred during this assessment period.

The results of radiological (46 agreements in 51 comparisons) and nonradiological (30 agreements in 33 comparisons) confirmatory measurements verified the licensee's capability for good analytical measurements. Two of the samples in disagreement were reanalyzed and the differences resolved. However, some weaknesses remain. For example, the trend charts used in the plant cover too short a time period (about two weeks) and are difficult to read; the licensee is investigating possible improvements.

2. Performance Rating

The licensee's performance is rated Category 2 in this area. The licensee's performance was rated Category 2 in the previous assessment period.

3. Recommendations

None.

C. Maintenance/Surveillance

1. Analysis

Evaluation of this functional area was based on the results of nine routine inspections conducted by resident inspectors and five routine and special inspections by regional inspectors. Maintenance and surveillance were considered separate functional areas in the previous assessment period, but have been combined into one functional area for this assessment period.

The enforcement history declined slightly when compared with the previous assessment period. Eight Severity Level IV violations were identified during this 16 month assessment period, compared with six violations (four Severity Level IV and two Severity Level V) identified during the previous 17 month assessment period. Two of the violations involved failures to update or follow surveillance test procedures. Three other violations involved deficiencies in the type B and C containment leakrate test program. One for failure to control the test valve configuration and two for unrelated procedure deficiencies. The three remaining violations involving maintenance were: declaring a safety-related component operable with unapproved material installed, using only general guidelines in lieu of reviewed and approved specific procedures, and several examples of failing to follow maintenance procedures in performing activities associated with two separate incidents of overspeed on Unit 1 diesel generators. Failure to follow procedures resulted in incomplete inspection, action exceeding the scope of a nuclear work request, and not obtaining approval from operations prior to starting maintenance work. None of the violations was especially safety-significant, nor did the violations appear to indicate any programmatic breakdown. Although no safety impact or significant hardware problems resulted, procedural compliance was considered weak during periods where an outage was close to completion and critical path items received additional management attention.

The number of events in this functional area requiring the submittal of LERs decreased during this assessment period. Sixteen LERs were issued regarding surveillance, compared with 21 LERs (2 maintenance, 19 surveillance) during the previous period. Nine of the current events resulted from system problems; four resulted from procedural deficiencies; two resulted from personnel error; and one resulted from a combination of personnel and procedural causes. Of the nine events caused by system problems, seven concerned three repetitive phenomena: safety valve setpoint drift, ice sublimation and redeposition, and change over time in standby system flow balances. None of the event reports in this functional area described instances of major safety significance.

Management involvement in the assurance of quality in the maintenance area was generally good; maintenance was accomplished, effective, and self-assessed. Coordination of contractor and site maintenance personnel was well-planned and effective for the accomplishment of maintenance, and the program for improving motor-operated valve (MOV) performance was adequate. Areas that need management attention include formalizing a method to track maintenance rework and documentation of "as found" conditions on work orders to enhance

root-cause analysis of component problems. Adequate priorities were established and used in maintenance of the emergency diesel generators. Management was adequately involved in decisions regarding the problems with the diesel generator overspeed; however, decisions were not always thoroughly investigated and evaluated. For example, the overspeed problems on the Unit 1 AB and CD diesel generators were considered as separate incidents and were not thoroughly investigated for possible common cause failures.

The scope of the existing mechanical and electrical PM program has increased from 38 to 62 areas in the last two years. The plant is establishing "reliability-centered" preventive maintenance (PM) programs for mechanical and electrical maintenance. The reliability-centered program encompasses such factors as equipment history, failure mode, significance, and risk significance. The Instrument and Control (I&C) department also revised its PM calibration program in January 1989, replacing an unworkable schedule-driven system with a performance-based system. This system was primarily derived from a corrective maintenance trending program, but also considered "as-found" calibration history.

In general, the licensee's surveillance procedures were quite good and maintenance procedures were adequate and were correctly implemented. Both improved over the course of the assessment period, showing continuing management support in these areas. Surveillance tests were generally performed on schedule during this assessment period. The violation that involved the use of guidelines instead of reviewed, approved procedures, reflected negatively on management involvement with the work. First-line supervisors were relied upon to decide when maintenance procedures were required, but often opted for informal instructions to control work.

The licensee's approach to the resolution of technical issues from a safety standpoint was mixed. For example, when an unplanned Unit 1 outage occurred in September 1988, the licensee conservatively withdrew a pending surveillance extension request. The licensee performed the containment ice condenser test despite an adverse outage schedule impact and an analysis that concluded the testing could safely be deferred to the next scheduled refueling outage. The licensee exhibited similar conservatism in its decision to expand corrective actions for replacement of carbon steel fasteners with stainless steel, which was beyond the scope required by NRC Bulletin 82-02, "Degradation of Threaded Fasteners in the Reactor Coolant Pressure Boundary."

As an example of inadequate resolution of technical issues from a safety standpoint, a DC ground existed for nine months on a normally ungrounded battery system. The licensee failed to perform an analysis of the effect of the ground on operation of

safety-related equipment until questioned by NRC inspectors. Although the ground did not actually affect operability of any safety-related equipment, the licensee's response to the evaluation of the grounded condition was considered less than adequate. In another example, in determining the cause of diesel generator overspeed failures, the licensee seemed reluctant to address NRC concerns. Although diesel overspeed problems on Unit 1 AB diesel were attributed to a faulty governor, the licensee took no action to investigate possible governor contributions to a previous overspeed problem on Unit 1 CD diesel until NRC questioned this possibility. After extensive discussions, licensee personnel agreed to perform tests to verify correct operation of the governor.

Licensee responses to NRC initiatives were technically sound and thorough in most cases. Operator identification of correct valve positions was actively followed by the licensee until resolution. A similar course was taken for concerns about ice condenser floor drain valve opening forces. In general, the licensee was proactive in communicating with and responding to the resident inspectors on matters relating to these concerns.

The licensee made good progress in reducing the backlog of open job orders. This was considered an area needing management attention during the previous assessment period. In the first half of 1989, the I&C department reduced open job orders by about 60%, with those requiring corrective maintenance numbering fewer than half of the total. The maintenance department reduced its open job order backlog by over 30% in the same time period.

During the last few months of the assessment period, maintenance that required reworking adversely affected plant operations. Examples included rework performed in check valve 2SI-158, manway covers on steam generators, and reactor coolant lube oil system leakage. Licensee management was keenly aware of these developments and, in fact, grouped several for a special common-cause corrective action review under the new Human Performance Evaluation System (HPES) process.

Staffing in this area was adequate; however, due to the amount of outage work performed during this appraisal period, overtime was typically 20 percent or more. Although this level of overtime exceeds general plant goals for normal operating periods, it did not approach NRC guidelines. Staffing in the surveillance area was adequate, as evidenced by the completion of surveillance testing on schedule.

The licensee relied on contracted services to supplement plant staff particularly in the performance of specialized maintenance. The degree of compliance to plant administrative

procedures was often less for contracted workers than for full-time plant staff, but was usually acceptable.

The licensee's training and qualification program contributed to a good understanding of work activities and generally good adherence to procedures. Maintenance craft personnel appeared knowledgeable and exhibited skills appropriate to the tasks performed. This was evidenced by a maintenance mechanic's recognition of unusual coloration of lubricant in two MOV assemblies destined for Unit 2. A review established that one "qualified" lubricant had been contaminated with another at the factory. The mixture was replaced by new grease.

2. Performance Rating

The licensee's performance is rated Category 2 in this area. The licensee's performance was rated Category 2 in both the maintenance and surveillance areas in the previous assessment period.

3. Recommendations

None.

D. Emergency Preparedness

1. Analysis

Evaluation of this functional area was based on one emergency preparedness (EP) exercise, one remedial drill, and one routine inspection conducted by regional inspectors during this assessment period.

Enforcement history improved during this assessment period, with no violations, deficiencies, or deviations identified, compared to one Severity Level IV violation during the previous assessment period.

The licensee's approach to the resolution of technical issues from a safety standpoint was good. The 1988 exercise identified one weakness involving the offsite dose projection program. In response to the weakness, the licensee instituted timely procedural changes and additional training. In addition to these adequately responsive actions, a voluntary remedial drill was then conducted in which the licensee demonstrated its capability to perform dose projections and communicate its findings to offsite support groups.

Management support of the emergency preparedness program was very good, and program requirements have become part of the daily plant surveillances and operations. Program enhancements during this assessment period included proceduralizing an administrative program for the EP Coordinator. The program

included a system to track the EP Coordinator's responsibilities, program maintenance procedures, and development of new EP procedures and checklists. This administrative program led to improved efficiency in the EP program as a whole. The licensee's response to NRC- and self-identified items was timely and program maintenance was good.

Staffing of the Emergency Response Organization (ERO) was good throughout this assessment period. The licensee maintained a roster with the qualified personnel available to fill all key positions in the ERO.

The emergency plan training program is integrated into the plant's overall training program. This training is administered by the Training Department with close coordination maintained between the EP Coordinator and the Training Department. Training and drill records indicated a good level of participation in training and drills. The licensee now has the capability to use the simulator and will have the capacity to use a simulated TSC (a unique facility) during drills and exercises. Interviews indicated that staff members possess a good awareness of their individual ERO responsibilities. All reviews of the training program revealed in-depth training and a good drill program, indicative of strong management support of the program.

The licensee's resolution of technical issues from a safety standpoint was good, as evidenced by the timeliness and thoroughness of corrective actions in response to NRC and self-identified concerns. An example of this is the thorough review and subsequent upgrade of the meteorological monitoring system . Tracking systems were used effectively to track corrective actions taken on items identified during previous inspections and items identified by the plant audit program.

Events that resulted in the activation of the emergency plan were properly identified and classified. Offsite notifications, including those to the NRC, were made within the required timeframes. Interface with offsite agencies has been adequate. Exercise scenarios have been adequately challenging to the staff.

2. Performance Rating

The licensee's performance is rated Category 1 in this area. The licensee was rated a Category 2 in the previous assessment period.

3. Recommendations

None.

E. Security

1. Analysis

Evaluation of this functional area was based on the results of three routine inspections conducted by regional physical security inspectors and by the resident inspectors who routinely observe security activities.

Enforcement history in this area declined from the licensee's performance during the previous assessment period. Four Severity Level IV violations were identified, of which three occurred within the first third of the assessment period. By contrast, two Severity Level IV violations were noted during the previous assessment period. No major safety concerns were identified during the current period. The four violations pertained to failures relating to the intrusion detection system and compensatory measures, training deficiencies, and an isolated access control incident.

Management's role in assuring quality was adequate, with improvements noted during the latter half of the assessment period. Management's support for improvements to the security system, necessitated by aging equipment and NRC concerns, was evidenced by retention of a consultant to conduct a complete component evaluation, strengthening of vital area barriers, and purchase of security badge detectors for use at personnel exits. Additionally, on its own initiative, the licensee completed a secondary security control center equipped with state-of-the-art access control equipment. The new facility expedites plant contractor access for major projects during outages. The lack of a comprehensive formalized security tracking and trending program detracted from the improvements noted. Additionally, as noted below, management failed to provide a high level of attention to ensure quality of the closed circuit television (CCTV) system, which is still marginal.

The licensee's responsiveness to NRC initiatives was generally adequate. The responses to inspection findings, licensing matters, and allegation reviews were usually technically sound and timely. Exceptions included the licensee's failure to address in a timely manner NRC concerns for CCTV video switching and lost or misplaced security badges. The weakness with video switching was first identified during a Regulatory Effectiveness Review (RER) in 1984. Both issues remain open, although recent licensee efforts have resulted in vast improvements with security badges. With the one exception noted above, all RER-identified concerns have been satisfactorily addressed.

The licensee's program for reporting required security events and keeping the NRC informed of security-related matters is good. Required reports were accurate and timely. This was demonstrated during the review of a tampering event. There were

two security event reports made during this assessment period. The licensee's program for logging security events generally utilizes the NRC guidance. In general, security-related records were complete, well-maintained, and readily available.

The licensee's identification and resolution of technical issues was mixed. The licensee's measures to improve upon the aging perimeter alarm system, which required constant maintenance, have enhanced detection capabilities. Additionally, the currently approved upgrades, if implemented as planned and budgeted, will significantly improve the security force's ability to detect, assess, and respond. In contrast, the initial handling of a suspected tampering event was hampered by confusion over technical aspects of circuit breakers. This caused the security organization's actions to be inconsistent. Licensee management's initial passive response precluded early resolution of the breaker issue, and the subsequent written response to the NRC confirming the licensee's actions was not timely.

Staffing continued to be ample. Positions and responsibilities within the security organization are well-defined, and overtime has been adequately monitored and controlled. Prior planning was evident during the licensee's preparation for the SGRP. Assignment of a member of the security staff to the initial planning phase and throughout the project, enabled concerns of additional manpower, compensatory measures, and overtime to be effectively addressed.

The training and qualification program for the security organization continued to be effective and innovative. The utilization of non-security specialized training courses related to personnel behavior topics and offsite training by professional instructors on security tactics helped to provide experienced and knowledgeable security officers. The tactical contingency drill conducted onsite with local law enforcement and FBI personnel exceeded the licensee's commitment.

2. Performance Rating

The licensee's performance is rated a Category 2 in this area. The licensee's performance was rated a Category 2 in the previous assessment period.

3. Recommendations

None.

F. Engineering/Technical Support

1. Analysis

Evaluation of this functional area was based on four inspections conducted by regional inspectors, routine inspections by the resident inspectors, an EOP team inspection, and the evaluation of technical submittals by NRR.

Enforcement history declined this period with five Severity Level IV violations identified, compared to only one for the previous period. However, the licensee took timely and adequate corrective action for all of these violations.

Six LERs (three were voluntary) attributable to this functional area were issued during the assessment period, the same number issued during the preceding SALP period. The current LERs did not indicate programmatic problems, and had only minor safety significance.

Management involvement in assuring quality continued to be mixed. Some licensee submittals reflected quality engineering input. As an example, the licensee's steamline break analysis and associated TS changes comprised a thorough and accurate engineering submittal in response to NRC concerns over the adequacy of Advanced Nuclear Fuels safety analysis methods. Another example was the TS change submittal associated with reduced temperature and pressure operation for future Unit 1 cycles to prevent stress corrosion cracking of the steam generator tubes. A generally sound and timely approach to plant issues was observed for resolution of issues addressed by the MOV task force, the Copes-Vulcan and Mak-It Foundry problems, and NRC concerns regarding breaker relay settings and controls. Management involvement in assignments for advanced planning for modifications appeared adequate, based on the observed assignment of priorities and evidence of advanced planning. Programs for classification and control of safety-related structures, systems, and components included an excellent computerized equipment classification program including vendor references and maintenance history. Control of EOP procedures was good, with only minor discrepancies noted.

In contrast, there were several examples where engineering support was weak. Local leakrate calculations using non-conservative values showed improper understanding of such testing practices. There were multiple examples of poor design control (i.e., a chemical and volume control system pipe support specified and installed on the wrong piping system and failure to specify fillet welds on socket weld fittings). These were compounded by poor communication that delayed effective corrective actions for nearly three months.

The lack of site involvement by corporate engineering contributed to design implementation problems onsite, which are now being resolved by formation of an engineering group onsite that reports to corporate engineering. Other observed modification design weaknesses included numerous design calculation errors and root-cause analyses that failed to pursue the generic aspects of problems.

The licensee's approach to resolution of technical issues from a safety standpoint was generally good. The licensee routinely anticipated potential concerns and provided proper controls, for such problems as high lake ambient water temperatures and the use of sealant injection materials in safety-related systems, in advance of needs. The licensee's corporate staff conducted a thorough investigation into the problem of missed estimated critical position (ECP) calculations and subsequently refined the ECP calculations and updated computer codes for greater accuracy, which from a safety standpoint was very good. For EOP activities, technical deviations from the Emergency Response Guidelines were fully justified and appropriate. However, this was somewhat offset by inconsistent use of adverse containment setpoint values under adverse environmental conditions. The licensee routinely exhibited conservatism in modification calculations reviewed, and the technical approaches used were generally appropriate. Also, after several years of delay, the licensee has begun the implementation of an onsite system engineer concept.

The licensee's responsiveness to NRC initiatives was good. The licensee's submittals in response to NRC initiatives generally demonstrated an in-depth, conservative approach. Once design control inadequacies were identified, the licensee was very responsive in developing resolutions to all concerns including establishing an assessment task group to develop recommendations that include the performance of a detailed, technically oriented design process audit. Bulletin 79-14, "Seismic Analysis for As-Built Safety Related Piping Systems," resolution activities were a concern when unacceptable conditions were found in work that had previously been considered acceptable. The licensee took timely corrective action to address these concerns and progress to date has been adequate. NRC concerns were resolved with recently missed ECP calculations and boron-10 depletion with the inspector's questions answered promptly, appropriate documents provided, and procedures revised, when necessary. Requalification concerns, identified in a Confirmatory Action Letter (CAL) issued during the previous assessment period, are considered resolved and the CAL closed. Further inspection revealed that the licensee has begun to successfully implement its requalification program. Reactor trip system reliability testing was thorough and responsive to the Generic Letter 83-28 requirements. However, one licensee weakness was noted in the design bases in that data is not readily retrievable, with a major effort required following NRC requests.

The staffing of site engineering and corporate engineering appeared to be adequate and highly qualified. Technical expertise was usually available within the staff and consultants were utilized when needed. Adequate technical oversight was provided when consultants were employed. During the assessment period, a corporate office reorganization occurred within the engineering function that consolidated plant engineering support under one division. This improved the resources directly available to the nuclear power division. The current operator training staff was considered sufficient to develop the required requalification materials.

Licensee training activities appeared adequate, however, the licensee failed to fully evaluate the fast pace of the simulator scenarios and evaluate the training needs and program for SROs and ROs taking the initial replacement qualifications. Highly skilled engineering personnel made positive contributions to the design process and compensated for the previously mentioned weaknesses in design control. The effectiveness of the Licensed Operator Requalification Program was not evaluated during this period through the NRC examination process, although the licensee's implementation of the revised program was progressing well.

2. Performance Rating

The licensee's performance is rated Category 2 in this area. The licensee's performance was rated Category 2 in the previous assessment period.

3. Recommendations

None.

G. Safety Assessment/Quality Verification

1. Analysis

This is a new functional area and consequently was not rated during previous SALP reports. It contains similar attributes, however, to the previous SALP functional area of Quality Programs and Administrative Controls Affecting Quality. Evaluation of this functional area was based on fifteen routine inspections performed by resident and regional inspectors and the EOP team inspection. Interactions with NRC staff on licensing matters were also considered.

Enforcement history was good, with only two unrelated Level IV violations identified. This continued an improving trend, when compared to the six violations noted in Quality Programs and Administrative Controls Affecting Quality during the previous assessment period.

No reportable or otherwise significant events occurred that were relevant to this functional area.

Management was involved in and supported programs to assure quality in this functional area. The onsite Safety and Assessment Department showed increasing maturity and independence in its conduct of QC surveillances and in its administration of corrective actions, trending, and industry operating experience review programs. QC was responsive to a QA audit finding early in the assessment period, and improved procedural detail and documentation of its activities. Resource adjustments permitted expansion of QC coverage of plant activities into additional areas such as laboratory activities, operational valve lineups, equipment clearances, outage activities, and surveillance testing.

The licensee's QA and QC departments performed numerous surveillances of maintenance activities and identified several problems. Audits of maintenance in late 1987 and 1988 included performance aspects by direct observations of activities, although continued management involvement is needed in this endeavor. Tracking of audits and surveillance findings appeared to be good. The QA department was very demanding in corrective action to audit findings. Sometimes corrective action commitments were rejected and sent back to the group responsible for resolution. This action was considered a strength for the QA department but a weakness for the respondents.

Audits were generally independent and technically oriented. One corporate fire protection audit team, however, lacked some independence because it included two team members with fire protection line management functions. The licensee's QA audit/surveillance program appeared adequate to assess technical performance relating to the radiation protection, radwaste, and transportation programs. Consultants are used to supplement the QA department staff resulting in improved quality and extent of audits in this area. Licensee followup of radiological events is generally adequate. However, the extent and depth of investigation/review in some cases needs to be enhanced.

Management supported several self-improvement initiatives, including: development of computerized long-range planning, implementation of an integrated computerized information management system, establishment of Quality Maintenance Teams, and execution of critical self-assessments. The self-assessments included the use of outside consultants for specialized reviews. An example is the evaluation performed by NUS in the area of corporate QA procurement practices.

Corrective action program enhancements continued through this assessment period. The licensee maintained a large-volume, low-threshold program, but properly focused on timely segregation of more significant matters from the rest and early

identification of repetitive problems or adverse trends. Root-cause analyses were typically accurate and the licensee was willingly self-critical. The licensee is implementing the Human Performance Evaluation System (HPES).

The licensee typically applied a conservative safety viewpoint in dealing with quality questions. Corrective action items were classified by operating mode, when appropriate, to prevent entry into conditions with potentially adverse safety implications. When generic questions arose about nuclear industry QA controls on leak-sealant injection and on diesel fuel oil, the licensee already had such controls in place. A safety-related fastener supplier (Hardware Specialties) implicated in Information Notice 89-22 had been removed from the licensee's Quality Suppliers List more than a year earlier because of quality concerns. When some of the Unit 2 incore flux monitoring system thimble tubes showed wall thinning, the licensee promptly decided to replace all the thimble tubes in both units.

The licensee's submittals in support of license amendment applications and exemptions were generally complete and adequately addressed the safety significance of the proposed changes. When additional information was requested by the staff, the licensee usually responded promptly and in a manner that fully addressed the request for information. A number of generic letters and bulletins were sent to the licensee during the evaluation period. In almost all cases, the licensee's responses were thorough and technically sound.

The licensee exhibited improved responsiveness to NRC initiatives during this assessment period, but progress was slow in some areas of concern. The issue of commercial grade product dedication to safety grade was acknowledged early, but significant enhancements to address potential weaknesses were deferred for some time pending the results of a generic industry group study. When the NRC pointed out that the corporate office corrective action timetable was excessive for any matters that might require a 30-day report, practices were strengthened. Nevertheless, delayed reporting subsequently occurred in a couple of cases.

The licensee occasionally underestimated the potential significance of events or findings, as in the case of the overspeed event in Unit 1 diesel generator CD in April 1989 and in the case of broken or cracked retaining block studs in safety-related check valves manufactured by Anchor-Darling, which were found in September 1988. Consequently, response and communications to NRC concerning these events did not initially exhibit an adequate technical and safety emphasis.

At the plant level, the licensee was very responsive to resident inspector requests for information or evaluations. The number of open or unresolved items in this functional area declined due

to licensee efforts. The licensee was rarely defensive or argumentative; this was in contrast to the previous assessment period. The corporate Director of QA, newly appointed during the current period, exhibited a specific sensitivity to areas of NRC concern, and took the initiative in arranging for discussions to clarify issues and keep the NRC informed of licensee actions.

Allegations were investigated competently with the aid of a trained professional investigator on staff and within the time frames established by NRC. The information developed by the licensee was always sufficient to resolve any associated safety concerns and generally required little independent augmentation during NRC followup to closure.

Staffing levels, including those related to management, were numerically sufficient and stable. In areas requiring specific technical expertise, quality verification functions were accomplished by contracted personnel. However, in some instances contractor personnel were found not meeting the same standards as plant personnel in preventing the spread of contamination and following procedural requirements. This is an issue requiring additional management attention. Onsite and Offsite Safety Review Committees were properly staffed; however, in one isolated case, an alternate was appointed before all training was complete. The committees were generally effective, usually exceeding the performance guidelines established by TS. NRC review of onsite committee conclusions concerning 10 CFR 50.59 and TS interpretations found no problems.

Training and qualification of personnel appeared to make positive contributions to the identification and resolution of potential problems. QA personnel appeared to be well-trained and qualified. The QA and QC departments had qualified personnel with a mixture of experience in mechanical, electrical, radiation protection, chemistry, codes, non-destructive examination (NDE), and security. Further, the Quality Maintenance Team process yielded ideas and suggestions for improvements in some activities. The training program was well-defined for "certified" personnel, such as QA or QC auditors and inspectors. Training of QC inspectors paralleled the accreditation technique of the Institute of Nuclear Power Operations (INPO), but was more generalized for others, such as work group peer inspectors. Definition has been improving for these training programs as well. Results of peer inspection activities are not highly visible, and thus are not amenable to analysis; however, QA and QC findings are openly documented and show examples of potential problems being prevented by competent intervention.

2. Performance Rating

The licensee's performance is rated Category 2 in this area. The licensee's performance was rated Category 2 in the similar Quality Programs and Administrative Controls Affecting Quality area during the previous assessment period.

3. Recommendations

None.

H. Major Outages

1. Analysis

This is a special functional area for this SALP report due to the extraordinary nature of the outage activities, especially an 11-month outage for Unit 2 steam generator lower assembly replacement, during the assessment period. Evaluation of this functional area was based on thirteen routine and special inspections by resident and regional inspectors, a special inspection involving the NRC mobile NDE lab, and interactions with NRC staff on licensing matters.

Three Level IV violations were identified. Of these, two violations were issued in the area of nondestructive testing and were potentially significant; however, the findings were not extraordinary considering the amount of inspection. Ineffective source placement for the girth weld radiography resulted in the licensee's failure to notice unacceptable weld deficiencies. NRC verification of a liquid penetrant examination revealed previously unrecorded weld deficiencies. Corrective action for both issues was timely and effective. The third violation involved an isolated failure to provide a dedicated firewatch on a small welding job.

No reportable events occurred relevant to this functional area. Occasional significant construction events occurred, which were attributable to causes under the licensee's control. More aggressive action early on might have reduced the amount of rework on the coolant loop welds and on the inappropriate joint design on the steam generator girth welds which resulted in weld defects necessitating extensive repairs.

Management involvement in planning, scheduling, allocating resources for, and conducting major outages was intense. The Unit 2 SGRP involved years of overall planning and preparation by both plant and corporate managers and staff. The overall planning of this effort was excellent. Good site, equipment, and personnel preparation contributed to an efficient outage. Procedures for control of activities were prepared in a timely fashion and appeared to be well-written and effective. Engineering evaluations were generally adequate and records were

complete, well-maintained, and available. Corrective actions to resolve deficiencies were generally effective in correcting the root causes of problems with the exception of some welding issues. An integrated corporate, plant, and contractor management organization was developed for SGRP implementation, such that plant resources were not heavily impacted. The plant did retain responsibilities, which required considerable manpower investment, to lift instrument leads to establish the SGRP work area isolation boundary at the start of the project and to re-land the lifted leads on project completion. The plant also managed the start-up test programs.

Management involvement to assure quality in the radiological controls program of the SGRP was also generally good. Radiological control activities of the SGRP staff and the operating staff during the movement of the four steam generator lower assemblies from containment to a storage facility were notably well-coordinated. In addition, numerous audits and appraisals were conducted by SGRP radiation protection staff, by the corporate and site SGRP QA staff, by corporate SGRP general management, by the American Nuclear Insurers, and by industry groups. The focus of these audits and appraisals ranged from a review of compliance with specific technical requirements and commitments to broader scope programmatic reviews. Identified deficiencies were usually corrected promptly.

An ad hoc outage organization, headed by an assistant plant manager, was established for the first time for a refueling outage on Unit 1 during this appraisal period. This served to segregate functions and minimize dual-role assignments.

Management made prudent, safety-oriented decisions when faced with emergent problems. For example, application of current-day standards to small-bore piping restraint design and to steam generator and reactor coolant pump shims resulted in substantial expenditures but yielded upgraded conditions.

The licensee's approach to resolution of technical issues from a safety standpoint was generally thorough and conservative. This also involved an integrated corporate approach because of the management structure discussed above. Substantial advance planning was evident in several areas. Particularly effective and well-implemented controls were used in isolating the SGRP work areas and activities from affecting the operating unit, and in turning back isolated systems and areas at the end of the project.

The licensee's resolutions for technical issues involving radiological controls during the SGRP were also generally good. The ALARA program was particularly effective. The whole-body dose received during approximately seven months that the SGRP staff was responsible for the Unit 2 containment was approximately 550 person-rem, compared to the original estimate

of 1733 person-rem. The low dose total is attributed not only to lower than expected dose fields, but also good radiological controls.

The licensee experienced technical difficulties in performing and examining large field welds during installation of the new lower assemblies, as evidenced by two violations. Ultimately, however, the quality of these welds was well-documented to meet applicable requirements. It was concluded that more aggressive action on the part of the licensee, during the early stages of the problem, might have significantly reduced the amount of rework required. The licensee took a conservative approach in dealing with such matters as a stuck reactor vessel head stud, fuel integrity verification, and maintaining opposite unit fire protection safe shutdown equipment available.

The licensee performed complete core offloads for both units during refueling outages in this assessment period. This eliminated the need to have a reduced primary system inventory and do certain repairs while fuel was still present in the reactor. This was both conservative and responsive to NRC concerns for reduced inventory operations.

The licensee's responsiveness to NRC initiatives was generally good. The quality and timeliness of licensee submittals supported timely NRC decision-making on the license amendment and on a request under 10 CFR 20.302 for handling some waste materials generated by the SGRP. Inspection questions involving control rod driveshaft chemical contamination, hydrostatic and blackout procedure specificity and data recording, and turbine-driven auxiliary feedwater pump post-modification testing were all resolved satisfactorily by responsive licensee actions.

Staffing for performing outage activities was more than adequate. In the radiation protection area, a large number of experienced technicians and staff health physicists were contracted specifically for the outage, and augmented with radiation protection personnel. The licensee relied extensively upon contractors for many outage activities in addition to the SGRP. These included performance of maintenance and plant modifications and the refueling processes themselves. Licensee oversight of the various contractors was generally sufficient to ensure that activities were performed carefully and in accordance with requirements. Despite this, three fuel bundles incurred minor damage in two separate incidents during the Unit 1 reload.

The licensee's training and qualification activities were generally effective and contributed positively to proper performance of outage activities. When errors or problems occurred, as, for example, with the polar crane rigging and handling problems early in the SGRP, they were effectively addressed. There were several instances in which personnel took

excessive latitude with administrative controls when focusing on job completion. Examples included an aborted attempt to modify main steam safety valves by drilling dimples in the valve-stem ends, and troubleshooting a gas binding problem on the centrifugal charging pumps using methods not described by procedure. Formal training and qualification requirements for qualification of welders were uniformly met.

2. Performance Rating

The licensee's performance is rated Category 2 in this area. The licensee's performance was rated Category 1 in the somewhat similar Outages area during the previous assessment period.

3. Recommendations

None.

f. On January 16, 1989, Unit 1 experienced a reactor trip due to an operator valve sequencing error in the main control room which caused a loss of condenser vacuum. The Unit was restarted the next day.

g. During March 18 through June 30, 1989, Unit 1 was shut down for its scheduled cycle 10-11 refueling, maintenance, modification, and testing outage.

2. Unit 2

D.C. Cook, Unit 2, began the assessment period operating at its administratively imposed power level of 80%, until mid-April 1988, when it began an eleven month refueling and maintenance outage that included a multi-million dollar project for steam generator repairs. Unit 2 restarted March 17, 1989, and operated routinely at power levels up to 100% until June 11, 1989, when the unit was shut down for maintenance. The unit was restarted on June 24 and operated through the remainder of the period.

As a result of a personnel error and an equipment failure, Unit 2 experienced two reactor trip signals with no rod movement at zero percent power. One ESF actuation occurred at zero percent power due to a procedure deficiency.

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

Unit 2 Significant Outages and Events

a. During April 23, 1988, through March 17, 1989, Unit 2 was shut down for its cycle 6-7 refueling outage. Major outage activities included refueling, several thousand maintenance jobs (about a thousand valves were repacked), almost one hundred safety-related plant modifications (including the steam generator repairs and replacement as one item), a ten-year inservice inspection, a containment integrated leakrate test, and routine and special outage-related testing.

b. During March 24-25, 1989, Unit 2 generator was off line with the reactor critical to permit repair of letdown isolation valves.

c. During June 11-24, 1989, the Unit was shut down to repair a circulating water pump, the lower containment cooling units, and a leaking check valve.

B. Inspection Activities

Forty inspection reports are discussed in this SALP report (March 1, 1988 through June 30, 1989) and are listed in Paragraph 1 of this section, Inspection Data. Table 1 lists the violations by functional area and severity levels. Significant inspection activities are listed in Paragraph 2 of this section, Special Inspection Summary.

1. Inspection Data

a. Unit 1
Docket No.: 50-315
Inspection Reports Nos.: 88008, 88010 through 88020, 88022 through 88028, 89002 through 89009, and 89012 through 89020.

b. Unit 2
Docket No.: 50-316
Inspection Reports Nos.: 88009, 88011 through 88032, 89002 through 89009, and 89012 through 89020.

Table I

Number of Violations in Each Severity Level

Functional Areas	Unit 1			Unit 2			COMMON		
	III	IV	V	III	IV	V	III	IV	V
A. Plant Operations	-	1	-	-	-	-	-	1	-
B. Radiological Controls	-	-	-	-	-	-	-	1	-
C. Maintenance/Surveillance	-	1	-	-	3	-	-	4	-
D. Emergency Preparedness	-	-	-	-	-	-	-	-	-
E. Security	-	-	-	-	-	-	-	4	-
F. Engineering/Technical Support	-	-	-	-	1	-	-	4	-
G. Safety Assessment/ Quality Verification	-	1	-	-	-	-	-	1	-
H. Majors Outages	-	-	-	-	3	-	-	-	-

TOTALS	Unit 1			Unit 2			Common		
	III	IV	V	III	IV	V	III	IV	V
	-	3	-	-	7	-	-	15	-

2. Special Inspection Summary

a. During May 9 through June 13, 1988, a special health physics team inspection of operational radiation protection and radwaste management program was conducted (Inspection Report Nos. 315/88011; 316/88013).

b. During July 5-15, 1988, a special EOP team inspection, led by NRC Region II, was conducted (Inspection Report Nos. 315/88015; 316/88017).

c. During August 22-26, 1988, the annual emergency preparedness exercise was conducted (Inspection Report Nos. 315/88022; 316/88025).

C. Escalated Enforcement Actions

None.

D. Confirmatory Action Letters

A Confirmatory Action Letter (No. CAL-RIII-88-007) was issued April 5, 1988, relating to a potential tampering event involving foreign material found in the Unit 1 turbine driven auxiliary feedwater pump bearing housing.

E. License Amendments Issued

Amendments No. Unit 1/Unit 2	Description	Date
/100	Authorizes repair of steam generator by replacement of major components.	03/08/88
115/101	Changes Radiological Environmental TS surveillance of incinerated oil and radioactive release requirements.	05/09/88
116/102	Revises TS to extend snubber functional test frequency from 18 to 24 months.	06/15/88
117/103	Reflects new liquid radwaste effluent line monitor and adds periodic channel functional tests.	06/15/88
118/104	Increases the maximum enrichment of the fuel assemblies.	11/14/88
119/105	Revises TS concerning analysis of milk samples.	12/06/88
/106	Increases required shutdown margin requirements for Cycle 7 reload.	01/13/89
120/107	Revises boron concentrations and changes moderator temperature coefficient to ramp function.	02/09/89

Amendments No. Unit 1/Unit 2	Description	Date
/108	Revises moderator temperature coefficient, shutdown margin, and engineered safeguards requirements.	02/15/89
121/	Provides surveillance interval extensions for ice basket weighing and resistance temperature detector calibrations to permit operations until refueling outage.	02/23/89
122/109	Requires compliance with the amended Physical Security Plan.	03/15/89
123/110	Changes surveillance requirements to allow the use of simulated loads for battery tests.	04/11/89
124/111	Updates ventilation system testing standard and clarifies several aspects of systems operation.	05/19/89
125/112	Provides TS to promote diesel generator reliability, addresses Generic Letter 84-15, and provides standardization between Units 1 and 2.	05/31/89
126/	Revises TS to allow operation of future reload cycles of Unit 1 at reduced primary temperature and pressure for steam generator tube stress corrosion cracking concerns.	06/09/89

F. Review of Licensee Events Reports

Unit 1 LER Nos.: 88002 through 88013, 89001 through 89004, and 89006 through 89008.

Unit 2 LER Nos.: 88002 through 88011 and 89001 through 89010.

Collectively, 39 LERs (including three voluntary LERs No. 315/88-002, No. 315/88-007 and No. 316/88-005) were issued during this assessment, in accordance with NUREG-1022 guidelines. These are addressed in this SALP 8 report.

Table 2

Number of LERS By Cause

Cause Areas	Unit 1	Unit 2
Personnel Errors	9	7
Design Deficiencies	0	1
External	0	0
Procedure Inadequacies	3	2
Equipment/Component	5	7
Other/Unknown	2	3
TOTALS	19	20

Table 3 shows a cause code comparison of SALP 7 and SALP 8.

Table 3

Cause Areas	(17 MO) SALP 7		(16 MO) SALP 8	
Personnel Errors	23	(46.0%)	16	(41.0%)
Design Problems	4	(8.0%)	1	(2.6%)
External Causes	0	(0.0%)	0	(0.0%)
Procedure Inadequacies	7	(14.0%)	5	(12.8%)
Equipment/Component	13	(26.0%)	12	(30.8%)
Other/Unknown	3	(6.0%)	5	(12.8%)
TOTALS	50	(100%)	39*	(100 %)
FREQUENCY (LERs/Month)	2.9		2.4	

* Includes three voluntary LERs

NOTE: The above LER information was derived from a review of LERs performed by the NRC and may not completely coincide with the licensee's cause code assignments.