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SALP BOARD REPORT

U. S. NUCLEAR REGULATORY COMMISSION
REGION II

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE
INSPECTION REPORT NUMBERS
50-413/85-42 AND 50-414/85-44

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION UNITS 1 AND 2
MARCH 1, 1984 THROUGH SEPTEMBER 30, 1985

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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 based upon this information. SALP is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. SALP is intended to be sufficiently diagnostic to provide a rational basis for allocating NRC resources and to provide meaningful guidance to the licensee's management to promote quality and safety of plant construction and operation.

An NRC SALP Board, composed of the staff members listed below, met on November 19, 1985, to review the collection of performance observations and data to assess the licensee performance in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance." A summary of the guidance and evaluation criteria is provided in Section II of this report.

This report is the SALP Board's assessment of the licensee's safety performance at Catawba for the period March 1, 1984 through September 30, 1985.

SALP Board for Catawba:

- R. D. Walker, Director, Division of Reactor Projects (DRP), Region II (RII) (Chairman)
- J. P. Stohr, Director, Division of Radiation Safety and Safeguards (DRSS), RII
- A. F. Gibson, Director, Division of Reactor Safety (DRS), RII
- T. M. Novak, Assistant Director, Division of Licensing, Office of Nuclear Reactor Regulation (NRR)
- V. L. Brownlee, Chief, Projects Branch 2, DRP, RII

Attendees at SALP Board Meeting:

- D. M. Collins, Chief, Emergency Preparedness and Radiological Protection Branch, DRSS, RII
- K. P. Barr, Chief, Nuclear, Material Safety and Safeguards Branch, DRSS, RII
- C. A. Julian, Acting Chief, Operations Branch, DRS, RII
- H. C. Dance, Chief, Projects Section 2A, DRP, RII
- K. D. Landis, Chief, Technical Support Staff, (TSS), DRP, RII
- G. A. Belisle, Acting Chief, Quality Assurance Program Section, DRS, RII
- D. R. McGuire, Chief, Physical Security Section, DRSS, RII
- F. Jape, Chief, Test Program Section, DRS, RII
- T. E. Conlon, Chief, Plant Systems Section, DRS, RII
- J. J. Blake, Chief, Materials and Processes Section, DRS, RII
- C. M. Hosey, Chief, Facilities Radiation Protection Section, DRSS, RII
- P. H. Skinner, Senior Resident Inspector (Operations), Catawba, DRP, RII
- P. K. Van Doorn, Senior Resident Inspector (Construction), Catawba, DRP, RII
- K. N. Jabbour, Project Manager, Operating Reactors Branch 4, Division of Licensing, NRR

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D. B. Gruber, Technical Support Inspector, TSS, DRP, RII
G. A. Pick, Technical Support Inspector, TSS, DRP, RII
T. S. MacArthur, Radiation Specialist, TSS, DRP, RII
L. H. Jackson, Reactor Inspector, Quality Assurance Programs Section,
DRS, RII
F. R. McCoy, Reactor Engineer, Operational Programs Section, DRS, RII

II. CRITERIA

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

One or more of the following evaluation criteria was used to assess each functional area.

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

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

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

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

Category 2: NRC attention should be maintained at normal level. Licensee management attention and involvement are evident and are concerned with nuclear safety; licensee resources are adequate and are reasonably effective so that satisfactory performance with respect to operational safety or construction is being achieved.

Category 3: Both NRC and licensee attention should be increased. Licensee management attention or involvement is acceptable and considers nuclear safety, but weaknesses are evident; licensee resources appear to be strained

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or not effectively used so that minimally satisfactory performance with respect to operational safety or construction is being achieved.

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

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

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

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

III. SUMMARY OF RESULTS

Overall Facility Evaluation

Management attention and involvement in both the remaining construction and operating activities were evident as reflected by satisfactory performance during this review period. A continuing major strength in the construction area as noted in the last SALP report was the dedication, at all levels, toward producing quality work. Coordination of plant completion, checkout of systems, and turnover of systems from construction to operations was well organized and well managed. Management dedication had also been noted in the operations area as well, as evidenced by their intimate involvement in incident evaluations, frequent in-plant visits, attendance at coordination and status meetings, and regular overtime hours spent on site.

The licensee exhibited technical competence in understanding complex issues and developing sound and thorough resolutions. The licensee's approach to the resolution of technical issues was generally conservative and the licensee was usually responsive to NRC initiatives. Weaknesses existed in the operational Quality Assurance (QA) programs although some improvement had been noted. This weakness was primarily identified in the area of the corrective action program which was in the developmental process.

No major deficiencies affecting licensing activities became apparent during the evaluation period; however, Duke Power Company should focus on improving the quality and timeliness of submittals to the NRC.

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<u>Functional Areas</u>	<u>5/1/83- 2/28/84</u>	<u>3/1/84- 9/30/85</u>	<u>Trend During This Period</u>
<u>Operating Phase</u>			
Plant Operations	Not Rated	2	Constant
Radiological Controls	Not Rated	2	Improving
Maintenance	Not Rated	2	Constant
Surveillance	Not Rated	2	Constant
Fire Protection	2	1	Improving
Emergency Preparedness	2	2	Constant
Security	Not Rated	1	Constant
Quality Programs and Administrative Controls			
Affecting Quality (Operations)	3	2	Improving
Licensing Activities	2	2	Constant
Training (Units 1 and 2)	Not Rated	2	Constant
Operator Licensing	3	Not Rated*	-
Preoperational and Startup Testing (Units 1 and 2)	2	2	Improving
<u>Construction Phase</u>			
Soils and Foundations	Not Rated	Not Rated	Not Rated
Containment, Safety- Related Structures, and Major Steel Supports	2	1	Constant
Piping Systems and Supports	2	1	Improving
Safety-Related Components- Mechanical	Not Rated	2	Constant
Electrical Equipment and Cables	2	2	Constant
Instrumentation	2	2	Constant
Quality Programs and Administrative Controls			
Affecting Quality (Construction)	1	2	Constant

*Operator Licensing was included in Training for the current SALP

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IV. PERFORMANCE ANALYSIS

Functional Areas For Operating Phase

A. Plant Operations

1. Analysis

During the evaluation period, routine inspections were performed by the resident and regional based inspectors. Facility operation reflected consistent evidence of prior planning of activities and assignment of priorities. Operational decisions were consistently made at a level that ensures adequate management review. Procedures and policies were rarely violated with most being adequately written for the education and training required by the user. A few inadequate procedures were identified, but this was not considered excessive for a plant that had just begun operation.

The major accomplishment during this assessment period that required the coordination of the total plant staff was the preparation for plant operation including the satisfactory completion of the startup test program as discussed in another section of this report. Significant operational events that occurred prior to initial criticality included a leak in the reactor vessel head area due to an installation error while assembling incore thermocouples and a manufacturing deficiency associated with a potential loosening of control rod drive mechanism set screws. Both of these events were attributable to vendor errors. Each required a short outage to correct the conditions. Management took strong effective actions for these problems.

Following initial criticality, there were a total of 14 planned and unplanned reactor trips during this period. Five of these trips were performed as required by various test procedures during the power ascension program. Three reactor trips were caused by component malfunctions. One manual reactor trip was attributed to a design deficiency in the main feedwater pump circuit. One reactor trip was due to an unknown cause. The remaining four trips were due to personnel errors, two attributable to instrumentation technician errors and two attributable to operator errors. This was not considered excessive for initial startup and power ascension testing.

Another significant operating event occurred in March 1985. A xenon transient occurred due to extended operation with a control rod being at the bottom of the core for a test, and subsequent withdrawal of that rod at an undesired time. This caused flux

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tilting to occur with diverging nuclear instrumentation readings. The utility considered readjustment of the instrumentation which would have caused erroneous readings. Discussions with NRC personnel and Westinghouse convinced the utility that readjustment was not advisable. In addition to the events above, 23 of 24 of the ice condenser doors were found in early January to be blocked in a closed condition and in early February both trains of safety injection were found to be inoperable for a short period of time.

Licensee inplant investigations were performed to assess and provide recommended corrective actions for both reportable and non-reportable events. During this reporting period, a total of 89 licensee event reports (LER) were reported. Of these LERs, 19 were attributed to operating personnel errors. This is not abnormally high for a new plant. The LERs provided adequate descriptions of an occurrence enabling other readers to understand the activity. Corrective actions were generally thorough. Events were generally reported in a timely manner. Licensee's responses to NRC initiatives in this area were well received and acted upon where required. An NRC evaluation of the quality of Catawba LERs determined them to be above average.

Watchstanders in the control room were generally knowledgeable of plant and system conditions. They were attentive to the requirements of their positions, assured complete turnover of information prior to assuming the watch and, in general, performed in a professional manner.

Unit 2 is currently preparing for operation. Significant discrepancies have not been identified. System turnovers have progressed satisfactorily with few exceptions existing at the turnover. Staffing activities have already established sufficient qualified personnel to support dual unit operation.

The violations identified below were not indicative of a programmatic breakdown but do indicate a need for constant management awareness and review of activities that require detailed coordination.

- a. Severity Level IV violation for failing to assure that the lower ice condenser inlet doors were operable prior to entering the mode for which they were required. (413/84-106)
- b. Severity Level IV violation for failing to follow the procedure which required verification that the ice condenser inlet door blocks had been removed. (413/84-106)
- c. Severity Level IV violation of Technical Specification (TS) 3.0.4 in which the plant was placed in mode 5 without meeting the requirement to have both trains of the residual heat removal system operable. (413/85-14)

- d. Severity Level IV violation for failure to follow procedures associated with the inoperability of diesel generator 1B. (413/85-26)
- e. Severity Level IV violation for failure to follow procedures associated with control of keys. (413/84-87)

2. Conclusion

Category: 2

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was not evaluated during the previous SALP assessment. No change in the NRC inspection activity is recommended.

B. Radiological Controls

1. Analysis

During the evaluation period, inspections were conducted by the resident and regional inspection staffs. NRC inspection effort in this area was primarily directed towards startup procedures, startup shield surveys, and personnel qualifications and training. However, routine inspections were conducted in all phases of the radiation protection program. The licensee was responsive to the inspection findings. No major weaknesses were identified in the radiation protection program.

The reduced operations including initial fuel load and startup testing resulted in relatively low radiation levels in the plant. Dose control as indicated by thermoluminescent dosimetry measurement was adequate with a facility collective dose for the evaluation period of 32.49 man-rem. This low value was expected for a plant with little operating history.

The licensee had instituted a program to maintain radiation exposure as low as reasonably achievable (ALARA) and was implementing the program for work performed during normal operations. There have been no major outages since the plant began initial operation. Therefore, the ability to minimize exposures during extensive radiological work had not been demonstrated.

The qualifications of the plant health physics staff were acceptable and met regulatory requirements. The licensee's health

physics staffing level was adequate and compared favorably to other utilities having a facility of similar size. An adequate number of ANSI qualified licensee and contract health physics technicians were available to support routine plant operations.

Early problems with reactor coolant leaks led to the contamination of a number of plant areas. However, the licensee had implemented an effective program to reduce the number of contaminated areas in the facility. Contaminated areas previously identified were reduced by approximately 30 percent.

Audits performed by the corporate health physics staff were generally of sufficient scope and depth to identify problems and adverse trends. Appropriate corrective actions were taken and documented. The plant internal audit organization performs reviews of the plant's health physics program. Although, these audits are beyond regulatory requirements, the licensee is taking action to improve the health physics expertise of the audit staff to insure technically adequate evaluations of the health physics area.

During this evaluation period, the licensee had not disposed of any solid radioactive waste. This can be attributed in part to the implementation of an effective waste volume reduction program, which included special training and waste segregation and sorting areas. In addition, the licensee had only generated approximately 14,000 cubic feet of dry radioactive waste since plant startup and had not solidified any spent resin to date.

In the area of radiological environmental monitoring, inspection of the preoperational program disclosed that the program as defined by the Final Safety Analysis Report (FSAR), the Environmental Report-Operating License Stage, and the NRC Final Environmental Statement had been adequately implemented. In conjunction with an inspection of Duke Power Company's Oconee facility in September 1984, Duke Power's Environmental Radiological Laboratory (ERL), which also analyzes environmental samples from Catawba, was inspected. During this inspection, inadequacies in the operation of the ERL were identified. These included large sample backlog, problems with personnel qualification and staffing, large quantities of solids in the water samples, and instrument abnormalities caused by environmental conditions within the ERL. Corporate management was usually involved with ERL activities and the licensee was improving this area by involving corporate specialists knowledgeable in radioanalytical techniques during audits or "program assessments" of ERL activities. Records were generally complete, maintained, and available. Internal procedures rarely were violated. Although key positions were identified with authorities and responsibilities defined, overall ERL staffing was minimal as indicated by sample backlog problems and substantial overtime. The laboratory staff was minimally

acceptable in that only three out of six technicians had sufficient experience to work independently in the radioanalytical lab. Although, the licensee had developed a training and qualification program to train the inexperienced technicians, prompt action had not taken place until highlighted in an NRC inspection. In May 1985, the ERL was again inspected. Actions taken by the licensee to correct the inadequacies in the ERL were adequate; however, licensee efforts were still ongoing to upgrade staff qualifications.

During the evaluation period, confirmatory measurement inspections were conducted to evaluate the licensee's capability to conduct analytical measurements of radionuclides in reactor coolant and effluent process streams. The quality control program for these radiological measurements met the guidance of Regulatory Guide 4.15. The overall structure and procedures for quality control were adequate; however, a need for closer management review and timely resolution of technical problems was identified.

Inconsistencies of licensee results for gamma spectroscopy measurements of samples provided by the NRC reflected a need for improvement in the areas of counting room instrumentation and analytical techniques. Licensee results for strontium-89 and strontium-90 were satisfactory; whereas, results for tritium and iron-55 were inaccurate. A low systematic bias for tritium results demonstrated the need for a more thorough review of quality control data, subsequent identification of deficiencies, and implementation of adequate corrective actions by cognizant individuals. The iron-55 analyses were performed by a vendor laboratory, and the inaccurate results demonstrated the need for improved review of the vendor laboratory's quality control program to ensure the validity of measurements.

Two inspections of the plant chemistry program occurred before Unit 1 achieved criticality and were assessments of the measures that had been taken to minimize steam generator corrosion. A third inspection was an assessment of the effectiveness of these measures during plant startup and during initial operation at 100 percent power.

Although some potential problem areas were identified in plant design (especially the condensate polishers) and material compatibility (copper moisture separator reheater tubes), the secondary water system had been constructed in accordance with the FSAR and appeared to be capable of minimizing ingress and transport of corrosive material in the secondary coolant. The licensee's program for surveillance and control of water chemistry had been developed to be consistent with the guidelines and recommendations of the Steam Generator Owners' Group and was acceptable. The licensee had not completed construction of all chemistry laboratories and had not become fully qualified in the

operation of some state-of-the-art analytical instrumentation when the plant went commercial; however, both endeavors were underway and did not prevent the chemistry program from being implemented in an acceptable manner.

Abnormal chemistry conditions were encountered during the first month of commercial operation. These events tested the design of the plant, the licensee's monitoring system, and the licensee's reactive procedures. Although deficiencies were identified, serious corrosion of the steam generator was prevented and several valuable lessons were learned. Positive measures were being taken to upgrade the condensate cleanup system and to train both chemistry and operations personnel in meeting the protective criteria recommended by the Steam Generators Owners Group.

Inspections were conducted for Unit 1 in the areas of preoperational testing of the radioactive waste systems, the ALARA program, preoperational testing, process and effluent monitors, and solid radioactive waste. The inspection program for liquid and gaseous radioactive waste management involved both units. The licensee's radioactive waste management program was adequate.

No violations or deviations were identified.

2. Conclusion

Category: 2

Trend During This Period: Improving

3. Board Recommendations

Performance in this area was not evaluated during the previous SALP assessment. No change in the NRC inspection activity is recommended.

C. Maintenance

1. Analysis

During the evaluation period, routine inspections were performed by the resident and regional inspection staffs. The maintenance program appeared to be well organized with a well trained and qualified staff. Maintenance training is addressed in Section J.

Maintenance related decisions made at management levels were usually adequate to assure appropriate supervisory involvement. Licensee resolutions to maintenance related technical issues

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generally showed clear and thorough understanding of the issues and were usually conservative and viable. Maintenance activities generally exhibited evidence of adequate preplanning and assignment of priorities.

An inspection of maintenance activities in March 1985, revealed a somewhat high backlog of approximately 3,000 work requests, the majority of which were low priority (type 3 and 4) work requests, however, management appeared to have control of this backlog.

Procedures were generally adequate with a continuing effort to locate and eliminate weaknesses. The licensee had a detailed process for completed maintenance record review, which generally was very thorough and identified and corrected deficiencies contained in their records. The process was adversely affected by resource limitations which caused delays in performing record reviews. It was noted that additional guidance and signature requirements were required for instrument and electrical troubleshooting procedures and that the licensee had previously initiated action to revise the procedures accordingly. Independent verification was implemented in maintenance procedures in accordance with Catawba Nuclear Station administrative requirements. The use of procedures in accomplishing maintenance activities was adequate and procedures were detailed enough to allow proper performance of the specified tasks.

The licensee's program for removal and restoration of equipment was adequate. Maintenance and operational personnel were sufficiently knowledgeable of program requirements to allow for proper implementation. Implementation of an equipment failure analysis program was in developmental stages.

The violations listed below were identified and were not considered indicative of a programmatic breakdown but this area should be monitored closely to assure procedure adherence.

- a. Severity Level IV violation for a failure to follow procedures associated with maintenance on a diesel generator control panel component. (413/84-35)
- b. Severity Level IV violation for failure to follow procedures associated with torque switch settings on specific Rotork Electric Motor operated valves. (413/84-91)
- c. Severity Level IV violation for a failure to assure adequate testing was identified and performed following system modification or maintenance. (413/84-95)
- d. Severity Level IV violation for failure to follow procedure to maintain cleanliness in a diesel generator room. (413/85-20)

2. Conclusion

Category: 2

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was not evaluated in the previous SALP assessment. No change in the NRC inspection activity is recommended. Continued licensee management attention to reduce the maintenance backlog is recommended.

D. Surveillance

1. Analysis

During the evaluation period, routine inspections were performed by the resident and regional inspection staffs. The licensee appeared to have an excellent program for scheduling surveillance testing which identified surveillance requirements by due dates and issued a weekly schedule. This program is computerized and controlled by the integrated scheduling personnel. Tests were normally completed on time in lieu of using extension periods, although there were several instances where the component was declared inoperable and appropriate corrective action taken until the surveillance was completed.

Surveillance activities reflected adequate preplanning and assignment of priorities. Facility surveillance procedures were usually adequate with few examples of deficiencies identified. Surveillance activities were, in general, thorough and proper with exceptions identified below. As with the maintenance records, the surveillance records were given thorough reviews which sometimes created a time lag in the document control effort.

In addition to the regularly performed surveillance activities inspected, specific surveillance activities inspected were the plant snubber program, core performance, and safety related cranes and rigging. Procedures to implement the plant snubber testing and operability checks were reviewed and found well stated in establishing the testing requirements and acceptance criteria. The review of scheduling and planning of snubber surveillance indicate adequate management involvement and control. The surveillance procedures for monitoring core performance were reviewed and found acceptable. The surveillance procedures of safety related cranes and rigging were acceptable to adequately implement the ANSI requirements.

Licensee resolution of surveillance related technical issues generally showed a clear and thorough understanding of the issue and was usually conservative and viable.

The violations and deviation listed below were identified and were not considered indicative of a programmatic breakdown:

- a. Severity Level IV violation for failure to follow the procedure while performing a surveillance on a residual heat removal pump. (413/84-87)
- b. Severity Level V violation for failure to adequately review the results of a safety related battery surveillance test. (413/85-14)
- c. Severity Level V violation for failure to establish all required measures to control measuring and test equipment. (413/85-05)
- d. A deviation for failure to test the diesel generators at a peak load of 4100 kW. (413/84-87)

2. Conclusion

Category: 2

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was not evaluated in the previous SALP assessment. No change in the NRC inspection activity is recommended.

E. Fire Protection

1. Analysis

During the evaluation period, inspections were performed by the resident and regional inspection staffs. The fire protection inspection history for Unit 1 consists of a regional pre-license Appendix R fire protection team appraisal conducted in April 1984, six routine followup inspections, and a second regional post-license fire protection team inspection conducted in April 1985. These inspections were conducted in the areas of fire prevention and protection and the licensee's implementation of their commitments regarding the safe plant shutdown requirements and guidelines of 10 CFR 50 Appendix R and Standard Review Plan 9.5.1.

The April 1984 Appendix R fire protection inspection identified one deviation involving seismic supports for hydrogen gas piping in the auxiliary building, a number of discrepancies associated with the Standby Shutdown System, and inadequacies of fire detection and suppression systems within a specific fire area. The discrepancies were not identified as fire protection violations since, at the time of the inspections, Unit 1 was not an operating plant. To correct these discrepancies, the licensee initiated prompt corrective actions and performed reevaluations of several fire areas, revised and implemented numerous operational procedures, completed required operator training, made several plant modifications, and provided supplemental fire protection submittals in support of the plant licensing effort. All of these discrepant items have been corrected.

These actions indicate an aggressive licensee program toward achieving completion of work required to close out open fire protection issues. Based on the results of followup inspections, the licensee's present fire protection program for Unit 1 appeared to be thorough and had adequately addressed those Appendix R concerns identified in the initial inspections.

Considering the completeness of the licensee's fire protection program and the prompt implementation of the corrective actions, it was evident that the licensee assigned the appropriate personnel at the site to assure the features met design requirements and commitments made to the NRC. In addition, the licensee's corporate design staff conducted frequent site visits to verify proper implementation of required features.

The operational fire protection and prevention program for Unit 1 generally adhered to NRC guidelines. The administrative procedures for control of the program met NRC requirements. Adherence to these procedures was satisfactory. The fire brigade was adequately organized and trained. Adequate fire brigade equipment was available and appeared to be properly maintained. The fixed fire detection and protection systems were being properly maintained, inspected, and tested in accordance with technical specifications.

In general, the licensee's performance in this area had improved considerably over the assessment period. Upper management provided the necessary support for implementation of the permanent plant fire protection program and appeared to be aware of its importance. The licensee's response to NRC initiatives had been timely. Fire protection events were promptly reported and properly analyzed. Staffing of the fire protection organization was adequate.

The violation and deviation listed below were identified:

- a. Severity Level V violation for failure to maintain a watch and log of an impaired fire barrier. (413/85-04)
- b. Deviation for failure to provide a seismically supported hydrogen gas piping system to the reactor coolant pump drain tank in the auxiliary and reactor buildings. (413/84-36)

2. Conclusion

Category: 1

Trend During This Period: Improving

3. Board Recommendations

Performance in this area was evaluated as Category 2 during the previous SALP assessment. Decreased NRC inspection activity in this area is recommended.

F. Emergency Preparedness

1. Analysis

During the evaluation period, special and routine inspections were conducted by the resident and regional inspection staff. An evaluation of a small-scale exercise was conducted. Two Emergency Plan revisions were reviewed by the regional staff.

Two post-appraisal inspections evaluated the licensee's responses and corrective actions related to deficiencies, improvement items, and incomplete areas identified during the emergency preparedness appraisal conducted in November 1983. The licensee was responsive to the appraisal findings. Their approach to the resolution of the technical issues relating to the appraisal findings was generally sound and thorough. The post-appraisal inspections also disclosed improvements made in communications and coordination among the various groups comprising the onsite emergency response organization.

The routine inspections and small scale exercise disclosed no major deficiencies in emergency preparedness organization or staffing. The corporate emergency planning organization was adequately staffed and provided support to the station. Key positions in the station emergency planning organization were filled and personnel assigned to the emergency response organization were, for the most part, adequately trained for their roles. However, a review of training records for five newly assigned key members of the emergency organization revealed that three had not

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received appropriate training as required by the Emergency Plan. This failure to follow the requirements of the Emergency Plan was identified as a violation, as listed below. Training records of shift supervisors indicated that required emergency training was given in accordance with the Emergency Plan and its implementing procedures, although the documentation of this training was of marginal quality in terms of auditability. Individuals were cognizant of their responsibilities and authorities and demonstrated understanding of their assigned duties and functions during simulated radiological emergency conditions.

The following elements of the emergency preparedness program were inspected and determined to be adequate except as cited below: Emergency Classification, Communications, Emergency Response Training, Shift Staffing and Augmentation, Dose Projection and Assessment, Changes to the Emergency Preparedness Program, Coordination with Offsite Support Agencies, Annual Quality Assurance Audits of Corporate and Plant Emergency Planning Programs, and Emergency Preparedness Exercises and Drills. The exercise demonstrated that the plan and required procedures could be effectively implemented by the licensee's staff, although several areas for improvement were noted by the NRC and the licensee.

The violations listed below were not indicative of a programmatic breakdown.

- a. Severity Level IV violation for failure to consistently provide specialized training to individuals prior to assignment to the onsite emergency organization (413/85-29).
- b. Severity Level V violation for failure to implement a procedure requirement to properly document emergency drill findings (413/85-29).

2. Conclusion

Category: 2

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was evaluated as Category 2 during the previous SALP assessment. No change in the NRC inspection activity is recommended.

G. Security

1. Analysis

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

The licensee exhibited evidence of prior planning and assignment of priorities both at the site and the corporate level. Management of the security program at both of these levels appeared sound and well structured. This has resulted in a security organization which appeared to be a professional, well supervised, and appropriately staffed security force. In addition, because of the site and corporate involvement, the licensee could quickly take effective corrective actions on its own or NRC initiatives. The licensee's Security Plan revisions reflected coordination among various departments and a clear understanding of NRC criteria and implementing guidance.

A strong and independent corporate audit program was demonstrated during this rating period. The most recent security audit was thorough in that it covered a wide range of security responsibilities including screening programs, contractor access authorizations, and offsite support from local law enforcement agencies, in addition to duties associated with the routine onsite security program.

The onsite security force had been trained and appeared experienced and confident in the conduct of its duties. The onsite security force was supported by an extensive set of implementing procedures. During this rating period, considerable inspection effort was directed towards the performance of the security personnel on backshift. They were found to be well managed and effective. It was noted that compensatory measures (security posts), in effect due to degraded barriers or alarms, needed to be reduced. The licensee instituted a viable solution to this problem which included allowing more nuclear station modifications to be submitted by the security organization and setting a higher priority on those modifications which would alleviate the need for a security officer as a compensatory measure.

The violation listed below was identified by the licensee's security force and was reported to the Region in a timely and informative manner. It was not considered a major breakdown of the licensee's overall security program. In correcting this violation the licensee discovered an additional example of unprotected vital equipment at this site and at another of its facilities. The violation was considered indicative of a need for

a thorough and exhaustive review of all vital area barriers. Another example of the same violation was disclosed in a later report (413/85-33) during the assessment period. We note that the licensee applied comprehensive corrective action to all three of its licensed facilities instead of only to the site where the problem was found demonstrating good corporate and site coordination.

Severity Level IV violation concerning the failure to maintain a vital area barrier (413/85-27).

2. Conclusion

Category: 1

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was not evaluated during the previous SALP assessment. Decreased NRC inspection activity is recommended.

H. Quality Programs and Administrative Controls Affecting Quality (Operations)

1. Analysis

During this evaluation period, inspections were performed by the resident and regional inspection staffs. Areas inspected during this evaluation period included the offsite support staff; procurement; receipt, storage, and handling; surveillance testing and calibration control; measuring and test equipment; audits; Quality Assurance/Quality Control (QA/QC) administration; records; document control; design control; and tests and experiments. The primary emphasis of the above inspections was to verify implementation of the individual QA programs which were inspected programmatically during the previous evaluation period.

Management involvement and control in assuring quality was evident by the use of adequately stated and understood policies. Reviews were thorough and technically sound, but the process did not appear to be timely due to the backlog of material that was being reviewed. Procedures and policies were occasionally violated as demonstrated by the violations identified. Procurement was generally well controlled; however, there had been weaknesses identified by the inspectors.

Responsiveness to NRC initiatives in this area was generally timely, but one specific longstanding issue involved implementation of a modified corrective action program. The NRC had

identified that the licensee's program for evaluation of problems, documentation of problems, and reportability reviews was marginally acceptable. The licensee has conducted an extensive task force review of this area and has developed a Problem Investigation Report System to address the weaknesses identified. This program appeared to be an excellent proposal; however, it had yet to be implemented approximately one year after the weaknesses described above had been identified.

Strong management support for the Operations Quality Assurance Department was exemplified by a significant increase in personnel in the QA Surveillance group, including a plan for extensive training for these personnel, and special initiatives such as QA Forum and QA Circles meetings.

The offsite support staff appeared adequately trained and staffed. Training was primarily on-the-job. An effort was being made to increase the amount of formal training.

In the area of procurement, there was a positive feedback system between those who specify technical ordering data on purchase requisitions and the Corporate Procurement Department. Likewise, the licensee's receipt, storage, and handling of safety-related materials was viewed as above average. Procedures were well written, detailed, and strictly followed.

The licensee's records and document control programs appeared adequate. Management had dedicated appropriate resources in the records area. For the most part, controlled copies of drawings and procedures were kept up-to-date. However, in one area inspected, clerks were allowing one month of drawing revisions to accumulate before entering them in their controlled files.

The areas of design control and tests and experiments were being managed in a technically sound manner. The design change program had apparent improvement in all areas. Test data associated with the licensee's test and experiments program were thorough and technically sound.

Although only one violation and deviation was assigned to this area, other violations in the areas of maintenance, components, and piping systems were also indicative of QA problems in the broad sense of the term.

The violation and deviation listed below were identified:

Severity Level IV violation for failure to prevent use of teflon tape in radiation areas (413/84-104, 414/84-46).

A deviation from a commitment to remove all teflon tape from the auxiliary building (413/85-20).

2. Conclusion:

Category: 2

Trend During This Period: Improving

3. Board Recommendations

Performance in this area was evaluated as Category 3 during the previous SALP assessment. No change in the NRC inspection activity is recommended.

I. Licensing Activities

1. Analysis

a. Management Involvement in Assuring Quality

There was evidence of prior planning and assignment of priorities and decision making was at a level that ensured management review. Well stated, controlled, and explicit procedures were in place for control of activities. The licensee's resources were generally ample and used in such a manner that a high level of attention was brought to bear on design and engineering issues needing expedited resolution. Reviews were timely, thorough, and technically sound. Management involvement was evident in the environmental and seismic equipment qualification, diesel generator, fire protection, hydrogen, and main steam line break reviews.

Management participation and involvement were evident in various meetings with the staff and during several site visits by NRC management.

One area where management attention appeared inadequate was in the "Justification for No Significant Hazards Determination" submitted with proposed technical specification amendments. Additional technical basis would be appropriate.

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

The licensee demonstrated understanding of the technical issues and their responses were generally sound and thorough. The licensee carefully studied each NRC question or position for impact on the plant prior to taking action. Conservatism was generally exhibited, and approaches were generally sound and thorough. This was demonstrated clearly in the resolution of issues related to fire protection, diesel generator, equipment qualification, hydrogen and main steam line break submittals.

DPC seemed to follow closely the regulatory environment and took an active role from safety standpoints. DPC has consistently taken the lead for the nuclear industry to help resolve matters of generic concern. For example, DPC has participated in the Westinghouse Owners Group for the steam generator tube rupture and small-break LOCA methods.

One area needing improvement was the amount of detail in the discussion of safety consequences in submittals related to technical specification changes.

During a Unit 1 blackout event caused by operator error, the licensee personnel uncovered design interface problems between the electrical systems of both units. In addition, the event showed interface inadequacies between the operators of both units. DPC moved aggressively to resolve these problems.

c. Responsiveness to NRC Initiatives

In a majority of cases, the licensee provided timely responses to NRC positions and requests for information. Responses to technical issues were generally complete and timely. The licensee had been efficient in responding to follow-on questions. Acceptable resolutions were initially proposed in most cases. This was evident in the control room design review site audit, equipment qualification, diesel generator, hydrogen, and main steam line break submittals.

The licensee was always ready to meet with the staff when such a meeting would assist in resolving issues and explaining designs or positions. On a number of occasions the licensee, on its own initiative, met with the staff to discuss their proposed submittals to assure that the submittals would be completely responsive to staff's positions prior to transmitting them to the NRC. In addition, the licensee was responsive to staff surveys and investigations, such as the surveys on operator training.

DPC attempts to meet deadlines and notifies NRC when they cannot be met. However, it appeared that the licensee was more responsive to those issues that DPC considered as having higher priority (those issues affecting plant operation). Issues to which DPC assigned lower priority frequently required schedule extensions.

2. Conclusion

Category: 2

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was evaluated as Category 2 during the previous SALP assessment. No change in the NRC inspection activity is recommended.

J. Training (Unit 1 and 2)

1. Analysis

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

Management continued to be responsive to NRC initiatives and concerns and had aggressively sought improvements to plant training programs. A review of licensee actions on previous enforcement matters related to training reflected that actions taken were complete and adequate.

During this SALP period, it was noted that past Nuclear Equipment Operator Qualification Checklist had a large number of sign-offs on a single day. The licensee has taken action to revise the task list completion to preclude this type of record keeping process through management control and review of task training documentation.

Seven site visits were made to Catawba for licensing examinations of operators and senior operators on Unit 1. A total of 52 Senior Reactor Operator (SRO) examinations and 36 Reactor Operator (RO) examinations were administered. The pass rates were 77 percent and 80.5 percent respectively for RO and SRO examinations. These pass rates compare favorably with the industry average.

During this reporting period, one of two scheduled site visits was made to administer examinations of Unit 1 operators for eligibility to operate Unit 2. Examinations were administered consistent with 10 CFR 55.24 which allowed for waiver of all portions of the examination except for orals limited to plant differences. Subsequent results of the two examinations demonstrated satisfactory training program administration and thus amendment of licenses for dual unit operation.

The licensee's general employee training, Shift Technical Advisor training, engineer/professional development training, management training, and management technical training were considered

adequate. Maintenance training was effective, with the exception of a lack of a defined requalification or retraining program and the establishment of a formal program for feedback of operating experience. The licensee's development of the Employee Training Qualification System was satisfactory as a means of formalizing a technician's qualifications.

The licensee continued to maintain a training program for the plant health physics technicians and had established a qualification testing and acceptance program for contract health physics technicians. These programs were instrumental in upgrading the technical competence of the health physics staff.

Recognizing that training is applicable to all SALP functional areas, comments are also provided in Functional Areas for Operating Phase, Section F, Emergency Preparedness; Section H, Quality Programs and Administrative Controls Affecting Quality; and Section K, Preoperational and Startup Testing. Additional comments are also to be found under Functional Areas for Construction Phase, Section D, Safety Related Components - Mechanical; Section E, Electrical Equipment and Cables; and Section F, Instrumentation.

The violations and deviation listed below were identified and were not considered indicative of a programmatic breakdown.

- a. Severity Level IV violation for not establishing specific plant procedures or instructions governing Cold License Certification Observation training. (413/84-45)
- b. Severity Level V violation for failing to provide training to fuel handling personnel as described in the license. (413/84-33)
- c. Deviation, in two instances where the Cold Certification Observation Check List was incorrectly documented as complete. (413/84-45)

2. Conclusion

Category: 2

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was not evaluated during the previous SALP assessment. Performance for Operator Licensing was evaluated as Category 3 during the previous SALP assessment and was included in Training for the current SALP assessment. No change in the NRC inspection activity is recommended.

K. Preoperational and Startup Testing (Units 1 and 2)

1. Analysis

During the review period, routine inspections were performed by the resident and regional inspection staffs. Routine inspections of test procedures, test witnessing, and evaluation of the licensee's administrative controls which govern the conduct of the preoperational test program were performed. A general improvement from the last evaluation period was noted in the areas of documenting test results and providing more precise quantitative and qualitative acceptance criteria in preoperational test procedures.

Major Unit 1 testing accomplished included Engineered Safeguards Tests and Reactor Protection System Tests. The conduct of this integrated testing was well coordinated between operating, engineering, and test personnel indicating prior planning and management control. The Engineered Safeguards Test revealed problems with several system valves not obtaining their emergency position, valve response times were not met in all cases, and diesel generator 1A tripped after emergency equipment was sequenced onto the diesel generator. Maintenance was performed on the above equipment and retesting was satisfactorily completed. The licensee was responsive to NRC concerns in this area and took prompt corrective actions.

Unit 1 thermal expansion and vibration tests were also performed during the evaluation period. One violation was identified in that licensee engineers did not follow the procedure to establish test prerequisites which required final piping system hangers to be installed and temporary hangers to be removed. In addition, the test records were incorrect as the test data sheets did not reflect actual test conditions. The above problems were a repeat of a similar occurrence that had been brought to the licensee's attention during an inspection in November 1983. The licensee's corrective action program was not effective since this problem should have been identified by the licensee and corrected prior to the inspection in September 1984. The licensee repeated the vibration test to correct this problem. This action to resolve the violation was technically sound and thorough.

The licensee continued with the performance of the preoperational test program for Unit 2 with a scheduled completion date of early January 1986. Major Unit 2 preoperational tests completed during the evaluation period included the reactor coolant system cold hydrostatic test and containment integrated leak rate test. There were problems with systems preparation for the cold hydrostatic test and a lack of coordination and management control among the groups in charge of the test. These problems, as indicated by two violations described below, were contributing factors when portions of the residual heat removal system were overpressurized and again

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when the volume control tank and portions of the chemical and volume control system were also overpressurized. A lack of conservatism was also demonstrated when, after the first overpressure incident, the decision was made to continue with the hydrostatic test without thoroughly reviewing all systems and components within the test boundary to ensure that adequate overpressure protection had been provided. After the second overpressure incident, the licensee reviewed the problems which led to the two incidents and took appropriate corrective actions. The test was then successfully completed without further problems.

With the exception of problems identified during the reactor coolant system cold hydrostatic test, the training and qualification of test personnel appeared to be effective. This was indicated by the absence of personnel errors during test performances and demonstrated understanding of the administrative controls and requirements as they relate to the preoperational test program.

During this period, the Unit 2 integrated hot functional testing was started and currently is in its final stages. Integrated hot functional testing had experienced minor instrument calibration and equipment problems. These problems were resolved in a timely manner and only minor delays in the hot functional test schedule were encountered. Management involvement and control in assuring quality was evident by well stated and defined procedures. Records were complete, legible, and well maintained. Staffing and training of the licensee's inspection, operations, test, and maintenance personnel were adequate. The effectiveness of the corrective actions taken to resolve the management control and coordination problems present during the cold hydrostatic test were evident during hot functional testing. The interface, coordination, and communication among the various groups involved in the hot functional testing were very good. This has resulted in test and maintenance activities being completed with minimal schedule delays. The effectiveness of the licensee's corrective action program was also demonstrated in the thermal expansion and vibration testing program in that considerable effort was expended to avoid problems encountered during Unit 1 hot functional testing. The corrective actions were technically sound, thorough, and conservative.

Management involvement and control in assuring quality was generally adequate in the Unit 2 integrated leak rate test. Prior planning and assignment of priorities were observed in review of test preparations and test procedures. Resolution of technical issues and responsiveness to NRC issues were adequate in that certain criteria and statements in the test procedure which were unacceptable to the NRC were readily resolved. Further, the licensee committed to upgrading the data acquisition system to eliminate continuing computer and instrumentation problems which make the analysis of the test more difficult. Although Duke has

continued its practice of assigning a new engineer as test director for each integrated leak rate test, continuity and experience were provided through the involvement of corporate engineers who have participated in multiple leak rate tests.

The fuel handling and startup testing procedures were generally acceptable at the time of first review. In the few cases where procedural improvement was required, the corrective action was prompt and effective. Initial fuel loading was accomplished in a safe efficient manner with strict adherence to procedures. The fueling crews included the proper number of licensed individuals. All equipment generally functioned properly. There were few problems due primarily to management controls and adequate pre-planning. Startup tests were performed in strict adherence to procedures. Coordination of test activities between different groups, for example, reactor engineering and operations, was adequate and effective. The analyses of test results were performed promptly and generally adequately. In the few cases where additional analysis was requested, the additional work was performed thoroughly and with dispatch.

The violations and deviations listed below were identified and were not indicative of a programmatic breakdown.

- a. Severity Level IV violation for failure to follow test procedure prerequisites requiring final piping system hangers be installed and temporary hangers removed prior to conducting pipe vibration tests. (413/84-92)
- b. Severity Level IV violation for inadequate procedure and failure to follow the procedure which resulted in over-pressurization of portions of the residual heat removal system during cold hydrostatic testing. (414/85-12)
- c. Severity Level IV violation for inadequate procedure which resulted in overpressurization of the volume control tank and portions of the chemical and volume control system during cold hydrostatic testing. (414/85-12)
- d. Deviation for failure to provide a component cooling water system vent path as committed to in LER 413/84-14. (413/84-102)
- e. Deviation in that the reactor vessel level indicating system was not fully operational by initial criticality as committed to in the FSAR. (413/85-05)

2. Conclusion

Category: 2

Trend During This Period: Improving

3. Board Recommendations

Performance in this area (Preoperational Testing) was evaluated as Category 2 during the previous SALP assessment. No change in the NRC inspection activity is recommended.

Functional Areas For Construction Phase

A. Soils and Foundations

1. Analysis

Construction activity in this area was complete. No NRC inspections were performed during this evaluation period.

2. Conclusion

The lack of inspection activity in this area precludes an assessment of licensee performance.

B. Containment, Safety-Related Structures, and Major Steel Supports

1. Analysis

During the evaluation period, inspections were performed in this area by the regional inspection staff. The inspections involved the review of weld fabrication records of selected supports for the pressurizer, steam generators A and D, the reactor vessel, feedwater piping, polar bridge crane, main steam lines, and containment spray heat exchanger. Also covered was examination of the concrete laboratory, a walkdown inspection of concrete repairs made on all structures in the Unit 1 power block and the annulus of the Unit 2 Containment building, preparation for a concrete placement around the Unit 2 pressurizer, followup of a concrete honeycomb matter, and review of a licensee identified item concerning repair material in abandoned drill holes in concrete having an adverse affect on the capacity of anchors in or near the abandoned drill hole. Review of the latter determined that the licensee performed a thorough investigation of the problem and that proper measures were taken to correct and prevent recurrence of the problem. Observations showed that the concrete laboratory was being controlled in accordance with procedure requirements and that concrete placements and repairs were being made in accordance with procedure and specification requirements.

The inspectors found that audits were complete and thorough, audit findings were reviewed and their resolution technically sound, quality records were complete and retrievable, procedures were technically sound, and procurement appeared to be well controlled and documented. The licensee's approach to the resolution of technical issue was generally conservative and timely. Events were reported in a timely manner and the corrective action was generally satisfactory. Key positions were generally staffed with well trained and qualified personnel.

Followup of the unresolved item concerning identification of concrete honeycomb disclosed a violation of procedure requirements listed below:

Severity Level IV violation for failure to identify concrete honeycomb in a timely manner. (413/84-49 and 414/84-23)

2. Conclusion

Category: 1

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was evaluated as Category 2 during the previous SALP assessment. No change in the NRC inspection activity is recommended.

C. Piping Systems and Supports

1. Analysis

During this evaluation period, inspections were performed by the resident and regional inspection staffs. The majority of the piping and pipe support installation work had been completed prior to the start of this evaluation period, thus the inspection activities were directed toward the as-built verification program required by IE Bulletin 79-14.

Understanding of technical issues was generally apparent. Resolutions were timely, viable, usually technically sound, and demonstrated a conservative approach. This is evidenced by licensee reviews of several Construction Deficiency Reports (CDRs) in this area and generic evaluations of hanger discrepancies which had been identified by the licensee and NRC.

The completion of hanger installation and system turnovers has progressed exceptionally well for Unit 2. Systems have been turned over with relatively few exceptions. The milestone management concept developed by the licensee to better coordinate plant completion has apparently come to full fruition for Unit 2.

The violation listed below was identified and involved minor hanger discrepancies.

Severity Level IV violation for failure to install hangers in accordance with applicable drawings and procedures.
(413/84-100)

2. Conclusion

Category: 1

Trend During This Period: Improving

3. Board Recommendations

Performance in this area was evaluated as Category 2 during the previous SALP assessment. No change in the NRC inspection activity is recommended.

D. Safety-Related Components - Mechanical

1. Analysis

During this evaluation period, routine inspections were performed by the resident and regional inspection staffs. Since little installation activity occurred during this SALP period, primary inspection effort was directed at storage, protection, and maintenance of components. Regular observations of components were conducted during routine plant tours with no problems being identified.

Licensee management involvement in safety-related component activities appeared satisfactory and decision making was at the level that assured adequate management review. Corporate management was involved in site activities; for example, replacement of the volume control tank and repair of safety injection system accumulator tank 2.D. Reviews were timely and technically sound. Records were complete, well maintained, and easily retrievable. Field work procedures and QA program policies were generally adhered to.

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Corrective action systems recognized and addressed concerns. Understanding of technical issues was apparent as evidenced by actions taken on the above-mentioned components. Their resolutions were generally timely, viable, and technically sound. Key positions were identified with lines of authority and related responsibilities well defined.

The licensee's training and qualification program in this area was responsive to regulatory and code requirements. It was implemented by personnel who were properly trained and certified to specific disciplines. This helped to assure adherence to procedures and minimize personnel errors.

The violation listed below identified failure to implement storage inspection requirements for component cooling pumps. It was determined that the lack of inspections were not detrimental to the pumps.

Severity Level IV violation for failure to implement adequate storage inspections for component cooling pumps. (413/84-44, 414/84-21)

2. Conclusion

Category: 2

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was not evaluated during the previous SALP assessment. No change in the NRC inspection activity is recommended.

E. Electrical Equipment and Cables

1. Analysis

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

The resolution of technical issues from licensee's nonconformance reports and 10 CFR 50.55(e) reports were reviewed. The licensee's performance in this area generally demonstrated that events were properly identified, analyzed, evaluated, and that corrective actions were considered appropriate for the circumstances. During this evaluation period, the licensee's corrective action for two previous violations, (1) cable installation instructions not being followed and (2) procedural adequacy for protective relay adjustment activities, that remained open from the previous evaluation

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period were inspected and closed satisfactorily. The licensee's site management was actively involved with resolution of these technical issues.

The licensee's quality assurance and quality control personnel in this functional area were well qualified for their jobs and knowledgeable in procedural requirements. Staffing in this area was adequate for the level of construction activity.

The deviation listed below involved diesel generator drive hubs which had not been corrected as committed to by the licensee. This oversight was brought to the licensee's attention by the resident inspector. The deviation was not indicative of a programmatic breakdown in this area. It was considered to be the result of personnel not paying sufficient attention to detail, failure to prepare adequate procedures, or a lapse in training which should have kept personnel aware of requirements.

Deviation for failure to perform corrective action committed to in CDR 414/84-03. (414/84-47)

2. Conclusion

Category: 2

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was evaluated as Category 2 during the previous SALP assessment. No change in the NRC inspection activity attention is recommended.

F. Instrumentation

1. Analysis

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

The licensee issued procedures which control the instrumentation program. These procedures had been reviewed and were adequate.

The licensee's resolution of technical issues identified by the NRC and construction deficiency reports were handled in a timely manner, with full consideration given to the issues and satisfactory corrective actions. The licensee's staff, both QA and craft, were trained for their specific work area. Craft training was conducted by the craft foremen. The craft were trained to the site procedures and specifications including the latest revisions.

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The QA staff was qualified and training was conducted to maintain the qualification current. The licensee staffing appeared more than adequate for the status of work in progress.

The violations listed below were identified. A violation involving isolation valves in the instrument air lines indicated a continuing problem relative to the adequacy of instrument installation instructions provided by design engineering. Similar problems were observed in the past, but a general improvement was noted. The violations are not indicative of a programmatic failure.

- a. Severity Level IV violation for installing non-safety related isolation valves in instrument air lines for safety related valves. (413/84-33 and 414/84-19)
- b. Severity Level V violation for failure to maintain records of protection and maintenance of instruments after installation. (414/85-28)

2. Conclusion

Category: 2

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was evaluated as Category 2 during the previous SALP assessment. No change in the NRC inspection activity is recommended.

G. Quality Programs and Administrative Controls Affecting Quality (Construction)

1. Analysis

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

Management involvement in assuring quality appeared evident. Quality assurance reviews relative to system turnovers appeared to be extensive and well coordinated. The QA Improvement Programs, QA Forum Programs and QA Circles Program, previously implemented continued during this period. Transition from construction QA to operations QA relative to program and personnel was well coordinated.

The licensee submitted two quality assurance program updates as required by 10 CFR 50.55(f) describing changes to the Duke Power Company Topical Report, Quality Assurance Program, DUKE-1-A. Region II's letter dated July 30, 1985, accepted Amendment 9 of DUKE-1-A.

The former Senior QA Supervisor, Audit Division, had his title changed to "QA Manager" to coincide with the other four managers in the QA Department. The former QA Manager of Technical Services was appointed to supervise a new Management and Technical Services (MATS) group. The QA Manager, Vendors, assumed responsibility for review, approval, and control of vendor and procurement quality assurance records. The control of vendor documents was formerly the responsibility of Technical Services. This should strengthen the control of vendor documents.

In general, management resolution of issues identified by NRC and licensee CDRs was thorough and timely. One deviation was issued for failure to submit an updated CDR. Although violations were issued in this area, programmatic breakdowns were not evident and most issues involved were relatively minor. One violation resulted in reclassification of an unresolved item from a previous SALP period. One violation involving adequacy of interface between welder supervision and craft personnel involved extensive evaluation by the licensee and was associated with a supplemental hearing issue called "Foreman Override." An inspection at the corporate office identified a violation involving failure to audit vendors triennially. This did not appear to be a programmatic breakdown.

The violations and deviation listed below were identified:

- a. Severity Level IV violation for failure to assure purchased equipment met procurement documents. (413/84-28 and 414/84-16)
- b. Severity Level IV violation for failure to adequately control interface between supervision and craft resulting in an environment in which some welding crews perceived that QA requirements could be suspended to meet schedule requirements. (413/84-88 and 414/84-39)
- c. Severity Level IV violation for failure to perform triennial audits of vendors. (414/85-08)
- d. Severity Level V Violation for failure to establish measures to ensure purchased structures meet specifications and drawing requirements. (413/84-56 and 414/84-26)

e. Severity Level V violation for failure to maintain records for fuel pool cleanliness as required. (413/84-33)

f. Deviation for failure to submit an updated CDR. (414/84-38)

2. Conclusion

Category: 2

Trend During This Period: Constant

3. Board Recommendations

Performance in this area was evaluated as Category 1 during the previous SALP assessment. No change in the NRC inspection activity is recommended.

V. SUPPORTING DATA AND SUMMARIES

A. Licensee Activities

Major activities for Catawba 1 included the satisfactory completion of construction, preoperational testing, initial fuel load and criticality, startup test program, and commencement of commercial operation. Each of these activities are milestones that involved the coordination of the plant and corporate staffs.

Construction activities at Catawba 2 continued toward 99% completion throughout the review period along with preoperational testing which included hot functional testing. Primary construction activities involved piping systems and supports, support systems, electrical power supply and distribution, and instrumentation and control systems. In addition, most of the new fuel for Unit 2 was received during this period with licensing scheduled for early 1986.

During preparation for primary system cold hydrostatic testing of Unit 2, the volume control tank catastrophically failed and the residual heat removal, boron recycle, nuclear sampling, and chemical volume control systems were overpressurized. The volume control tank was replaced and an engineering analysis was performed to determine acceptability for service for the other systems.

B. Inspection Activities

During the assessment period, routine inspections were performed at the facility by the resident and regional inspection staffs. In addition, a number of special team assessments and inspections were conducted during this period:

- ° 50 percent power operational readiness
- ° technical specification review
- ° training assessment
- ° procedure review
- ° fire protection team inspection
- ° emergency preparedness
- ° quality assurance

C. Licensing Activities

The NRC licensing activities during the evaluation period included the following actions:

- ° Unit 1 Fuel Loading and Precriticality Testing License, July 18, 1984
- ° Amendment 1 to the above License, Technical Specification Change, September 24, 1984
- ° Unit 1 Low Power License, December 6, 1984
- ° Unit 1 Full Power License, January 17, 1985

In support of these actions, the staff issued three supplements to the Catawba SER. They are:

- SSER 2 - June 1984
- SSER 3 - July 1984
- SSER 4 - December 1984

The assessment on licensing activities was based on the following licensing actions:

- ° Instrumentation and Controls
- ° ICCI
- ° Technical Specifications
- ° Equipment Qualification
- ° SALEM ATWS
- ° Control Room Design Review
- ° Fire Protection
- ° Containment Systems
- ° Shift Staffing
- ° Inservice Inspection and Testing
- ° Startup Test Program
- ° Emergency Preparedness
- ° TDI Diesel Generators
- ° Hydrogen

- ° Main Steam Line Break
- ° SPDS
- ° Leak-Before-Break Exemption
- ° Emergency Operating Procedures
- ° Standby Shutdown System
- ° License Amendments for Technical Specifications Changes
- ° Preoperational Testing

D. Investigation and Allegation Review

Fourteen allegations were reviewed during the assessment period. Five of the allegations were concerned with personnel problems, four dealt with welding matters, three were brought forward at the Atomic Safety and Licensing Board hearings during in-camera sessions. The remaining two allegations were not within the purview of the NRC. At the end of the evaluation period, no allegations were outstanding.

E. Escalated Enforcement Actions

1. Civil Penalties

A Severity Level II violation civil penalty in the amount of \$64,000 was issued on August 13, 1985, for employee discrimination. The violation was denied. IE/ELD is presently evaluating DPC response.

2. Orders

None.

F. Management Conferences Held During Appraisal Period

A management meeting was held in the Region II office on March 13, 1984, to discuss Duke Power Company's evaluation of the foreman override issue.

A management meeting was held in the Region II office on August 15, 1984, to discuss the design and operation of the Standby Shutdown Facility for the Catawba, McGuire, and Oconee plants.

A management meeting was held at the site on October 26, 1984, to brief the NRC Chairman and Region II Administrator on the current and planned activities for the Catawba facility.

A management meeting was held at the site on June 4, 1984, to permit NRC management a first-hand review of the operational readiness of Unit 1.

A management meeting was held at the site on June 20, 1984, to provide the NRC Region II Administrator the opportunity to visit Catawba and meet with corporate and plant management.

An enforcement conference was held in the Region II office on February 8, 1985, to discuss the physical blocking of the ice condenser inlet doors.

An enforcement conference was held in the Region II office on July 3, 1985, to discuss the breach of a vital area barrier.

G. Review of Licensee Event Reports

1. Construction Deficiency Reports

There were 17 Construction Deficiency Reports (CDRs) reported for Unit 1 and 30 CDRs reported for Unit 2 during this evaluation period. These items involved piping systems and components, structures, electrical equipment, instrumentation, support systems and several vendor problems associated with the diesel generators. Generally, reports were submitted in a timely manner and were generally complete, accurate, and specified effective corrective actions. Three exceptions from the conditions described involved: one case of incomplete information, one case of not submitting a supplemental report as committed, and one case of not completing a committed corrective action.

2. Licensee Event Reports

During the assessment period, there were 89 Licensee Event Reports (LERs) reported for Unit 1. Of these 89 LERs, 67 were analyzed for event cause by the NRC staff. The results of this analysis are as follows:

<u>Cause</u>	<u>Unit 1</u>
Component Failure	13
Design	6
Construction, Fabrication, or Installation	5
Personnel	
- Operating Activity	12
- Maintenance Activity	11
- Test/Calibration	13
- Other	3
Out of Calibration	1
Other	3
TOTAL	67

3. 10 CFR Part 21 Reports

None.

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H. Enforcement Activity

Catawba 1

Functional Area	Number of Violations in Each Severity Level					Deviations
	V	IV	III	II	I	
Plant Operations		5				
Radiological Controls						
Maintenance		4				
Surveillance	2	1				1
Fire Protection	1					1
Emergency Preparedness	1	1				
Security		1				
Quality Programs and Administrative Controls Affecting Quality	2	3				1
Licensing Activities						
Training	1	1				1
Preoperational and Startup Testing		1				2
Soils and Foundations						
Containment, S/R Structures and Major Steel Supports		1				
Piping Systems and Supports		1				
Safety Related Components - Mechanical		1				
Electrical Equipment and Cables						
Instrumentation		1				
TOTAL	7	21	0	0	0	6

Catawba 2

Functional Area	Number of Violations in Each Severity Level					Deviations
	V	IV	III	II	I	
Soils and Foundations						
Containment, S/R Structures, and Major Steel Supports		1				
Piping Systems and Supports						
Safety-Related Components - Mechanical		1				
Electrical Equipment and Cables						1
Instrumentation	1	1				
Quality Programs and Administrative Controls Affecting Quality - Construction	1	4				1
Preoperational and Startup Testing		2				
TOTAL	2	9	0	0	0	2