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U.S. NUCLEAR REGULATORY COMMISSION  
REGION II

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SYSTEMATIC ASSESSMENT OF  
LICENSEE PERFORMANCE  
BOARD ASSESSMENT

DUKE POWER COMPANY  
CATAWBA NUCLEAR STATION UNITS 1 AND 2  
DOCKET NUMBERS 50-413 AND 50-414

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## I. INTRODUCTION

A formal licensee performance assessment program has been implemented in accordance with the procedures discussed in the Federal Register Notice of March 22, 1982. This program, the Systematic Assessment of Licensee Performance (SALP), is applicable to each operator of a power reactor or holder of a construction permit (hereinafter referred to as licensee). The SALP program is an integrated NRC staff effort to collect available observations of licensee performance on a periodic basis and evaluate performance based on these observations. Positive and negative attributes of licensee performance are considered with emphasis placed on understanding the reasons for a licensee's performance in important functional areas, and sharing this understanding with the licensee. The SALP process is oriented toward furthering NRC's understanding of the manner in which: (1) the licensee directs, guides, and provides resources for assuring plant safety; and (2) such resources are used and applied. The integrated SALP assessment is intended to be sufficiently diagnostic to provide meaningful guidance to the licensee. The SALP program supplements the normal regulatory processes used to ensure compliance with NRC rules and regulations.

## II. CRITERIA

Licensee performance is assessed in certain functional areas depending on whether the facility has been in the construction, preoperational, or operating phase during the SALP period. These functional areas encompass a wide spectrum of regulatory programs and represent significant nuclear safety and environmental activities. Functional areas may not be assessed because of little or no licensee activities in these areas, or lack of meaningful NRC observations.

One or more of the following evaluation criteria were used to assess each functional area:

- . Management involvement in assuring quality
- . Approach to the resolution of technical issues from a safety standpoint
- . Responsiveness to NRC initiatives
- . Enforcement history
- . Reporting and analysis of reportable events
- . Staffing (including management)
- . Training effectiveness and qualification

The SALP Board has categorized functional area performance at one of three performance levels. These levels are defined as follows:

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 such that a high level of performance with respect to operational safety or construction is being achieved.

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

Category 3: Both NRC and licensee attention should be increased. Licensee management attention or involvement is acceptable and considers nuclear safety, but weaknesses are evident; licensee resources appear to be strained or not effectively used such 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 categorization describes the general or prevailing tendency (the performance gradient) during the SALP period. The performance trends are defined as follows:

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

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

Declined: Licensees performance has generally declined over the course of the SALP assessment period.

### III. SUMMARY OF RESULTS

#### A. Overall Facility Evaluation

Management attention and involvement relative to construction activities were evident as reflected by satisfactory performance during this review period. The Vice President of Construction has had permanent residency at the site for approximately two years. Since the retirement of the site Project Manager, the Vice President of Construction has assumed day-to-day project management functions. A major strength was identified in the construction quality assurance program. A reduction in the performance level, however, was noted in the piping systems and supports area. A continuing major strength in the construction area appears to be the considerable dedication, at all levels, toward producing quality work. The licensee has continued to exhibit technical competence in understanding complex issues and developing sound and thorough resolutions. This was demonstrated in the areas of environmental qualification of equipment, fire protection, and diesel generator issues where, as a member of the Transamerica Delaval, Incorporated (TDI) diesel generator Owners Group, the licensee has taken the lead role by establishing a comprehensive program for the resolution of TDI diesel generator issues at the Catawba site. As another example, the licensee has displayed technical knowledge in the

development of ice condenser sublimation shielding material for the ice inventory inside the containment.

Major weaknesses were identified in the operational quality assurance (QA) program, and the the operator licensing area. The licensee is committed to having the operational QA program fully implemented 90 days prior to issuance of the operating license. At the conclusion of this review period, which was less than 90 days prior to the scheduled fuel load date, many aspects of the operational QA program were still under development. For those portions of the QA program being implemented, several violations were identified. Management must bring sufficient pressure to bear to correct these items and assure full compliance with QA program requirements. In the area of operator licensing several meetings have been held with the licensee's staff relative to discrepancies between information submitted on the applications and the approved cold license training program, and the failure to complete cold license observation task tests. Management must bring sufficient pressure to bear to preclude future submittal inaccuracies and to assure that training is performed in accordance with the approved training program.

#### B. Facility Performance

Tabulation of ratings for each functional area:

<u>Functional Area</u>	<u>Category Rating</u>	<u>Trend During This Period</u>
Construction (Units 1 and 2)		
1. Soils and Foundation	Not Rated	Not Determined
2. Containment and Other Safety-Related Structures	2	Same
3. Piping Systems and Supports	2	Same
4. Safety-Related Components	Not Rated	Not Determined
5. Support Systems (Fire Protection)	2	Same
6. Electrical Power Supply and Distribution	2	Same
7. Instrumentation and Control Systems	2	Same
8. Licensing Activities	2	Same
9. Quality Assurance Program (Construction)	1	Same
Preoperational Testing (Unit 1)		
10. Preoperational Testing	2	Same
11. Quality Assurance Program (Operational)	3	Same
12. Emergency Preparedness	2	Same
13. Operator Licensing	3	Same
14. Radiological Controls	Not Rated	Not Determined
15. Security	Not Rated	Not Determined

## C. SALP Board Members

- J. P. Stohr, Director, Division of Radiation Safety and Safeguards (DRSS) (Acting Chairman), Region II (RII)
- D. M. Verrelli, Acting Director, Division of Reactor Projects (DRP), RII
- A. F. Gibson, Acting Director, Division of Reactor Safety (DRS), RII
- H. C. Dance, Chief, Reactor Projects Branch 2, DRP, RII

## D. SALP Board Attendees

- M. V. Sinkule, Chief, Technical Support Staff (TSS), DRP, RII
- V. L. Brownlee, Chief, Reactor Projects Section (RPS) 2A, DRP, RII
- T. E. Conlon, Chief, Plant Systems Section, DRS, RII
- C. M. Upright, Chief, Quality Assurance Program Section, DRS, RII
- J. J. Blake, Chief, Materials and Processes Section, DRS, RII
- B. A. Wilson, Chief, Operator Licensing Section, DRS, RII
- D. R. McGuire, Chief, Physical Security Section, DRSS, RII
- D. S. Price, Reactor Inspector, TSS, DRP, RII
- T. C. MacArthur, Radiation Specialist, TSS, DRP, RII
- A. J. Ignatonis, Project Inspector, RPS 2A, DRP, RII
- P. K. VanDoorn, Senior Resident Inspector, RPS 2A, DRP, RII
- P. H. Skinner, Resident Inspector, RPS 2A, DRP, RII
- K. N. Jabbour, Licensing Project Manager, Licensing, Branch 4, Division of Licensing, Office of Nuclear Reactor Regulation
- G. A. Belisle, Reactor Inspector, Quality Assurance Program Section, DRS, RII

IV. PERFORMANCE ANALYSIS FOR CATAWBA UNITS 1 AND 2

## A. Functional Area Evaluations

### Licensee Activities

Construction activities at Catawba 1 and 2 continued throughout the review period. Primary areas of activity were piping systems and supports, support systems, electrical power supply and distribution, and instrumentation and control systems. Preoperational testing activity occurred on Unit 1 throughout the period. The first shipment of fuel arrived on January 5, 1984; a total of 39 fuel bundles were received during this period. Hearings on safety issues related to the operating license applications for Catawba were held on four contentions related to quality assurance, storage of spent fuel, embrittlement of the reactor pressure vessel, and consideration of adverse meteorology in the staff's accident analyses. The hearings, which lasted more than 6 weeks, focused primarily on the quality assurance contention. Numerous exhibits were admitted and the testimony of numerous witnesses was presented by the licensee, staff and intervenor. The Atomic Safety and Licensing Board decision is expected in late May.

In addition, Duke Power Company (DPC) prepared a detailed response to issues raised by the Government Accountability Project (GAP), a counsel to the intervenor, in a September 14, 1983 petition to the Commission, for the stated purpose of assisting the NRC in evaluating the GAP petition. The GAP petition utilized the findings and recommendations of the DPC Self Initiated Evaluation (SIE) as the major basis to support the petition concerns. The SIE was an audit which used methodology developed by the Institute of Nuclear Power Operations (INPO) but differed from the direct INPO audit process in that the evaluation was performed and managed by the licensee. The Catawba SIE was performed from September 27 through October 14, 1982, by a team composed of DPC and Tennessee Valley Authority auditors. The NRC examination of the licensee's SIE audit activities and subsequent followup identified that DPC design and construction management, including corporate level management, were actively involved in evaluating the findings and implementing the SIE audit team findings and recommendations.

### Inspection Activities

The routine inspection program was performed during the review period.

#### 1. Soils and Foundations

##### a. Analysis

Construction activity in this area has been completed. No NRC inspections were performed during this evaluation period.

##### b. Conclusion

Category: Not Rated

Trend: Not Determined



c. Board Comments

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

2. Containment and Other Safety-Related Structures

a. Analysis

Inspections were performed by the regional inspection staff in the area of structural concrete activities. Concrete operations were essentially completed with the exception of repairs and modifications. The inspections involved review of quality assurance implementing procedures, observation of work activities, examination of quality records, and followup of concerns identified by the licensee's Self Initiated Evaluation.

With exception of the violation listed below, quality assurance (QA)/quality control (QC) procedures, and work activity controls were found to meet NRC requirements. The work activities were performed in accordance with QA/QC procedure requirements.

The licensee has performed a comprehensive evaluation of their previously completed work involving a review of approximately 1500 pours out of a total of 4200 concrete placements. As a result, only two additional errors were found. In one case, where a 3000 psi mix was placed instead of the specified 5000 psi mix, the compressive test cylinder breaks showed that the placed concrete strength exceeded 5000 psi. In another case, a 3000 psi mix was placed instead of the specified 4000 psi mix. Design reevaluation of the concrete equipment hatch covers made with this mix showed that the 3000 psi mix was adequate. In a case identified by NRC, where a 4000 psi mix was placed instead of the specified 5000 psi mix, compressive test cylinder breaks representative of the placed concrete had an average strength of 5600 psi.

Management involvement, resolution of technical issues, staffing, and training were adequate for the level of activity involved. Of the inspections performed during this appraisal period, one violation involving an improper concrete mix placement was identified. The licensee was responsive in correcting the violation concerning placement of an improper concrete mix.

The violation is as follows:

Severity Level IV violation for placement of an improper concrete mix.

b. Conclusion

Category: 2

Trend: Same

c. Board Comments

Performance in this area was evaluated as Category 2 during the previous SALP assessment. No decrease in licensee or NRC attention in this area is recommended.

3. Piping Systems and Supports

a. Analysis

During this evaluation period, inspections were performed by the regional and resident inspection staffs involving reviews of design activities in the licensee's offsite design offices and inspection of installation activities at the site. Inspection of welding, non-destructive examination, and preservice inspection were also performed involving reviews of steam generator modifications, spent fuel storage racks, containment penetrations, reactor vessel installation procedures and records, preservice inspections, safety-related piping, and structures. The Construction Department's high level management involvement with Inspection and Enforcement (IE) Bulletin 79-02 and 79-14 issues demonstrated a responsiveness to NRC issues.

During the design inspections, a weakness was observed in the "Alternate Analysis" of piping systems (Violation 1). Sample problems inspected failed to follow the licensee's procedures, and lacked clarity, consistency and accuracy. The licensee initially denied the violation; however, during a subsequent NRC/Licensee Meeting/Inspection, the licensee stated that procedural clarifications would be made.

Another area of concern identified during the design inspections was the licensee's procedure for independent design verifier control. No pre-assigned staff of design verifiers existed. Generally, design verifiers are assigned by supervisors from the pool of designers working in the group. No programmatic attempt to isolate a design from a potential verifier's input was observed. The licensee's independent design verifiers program allowed two designers to sit next to each other, and alternately verify each other's design. The licensee's independent design verification program, although in compliance with minimum regulatory requirements, was perceived to be weak in this functional area. (Subsequent to the SALP review period the licensee agreed to formalize the program for assignment of design verifiers).

One perceived weakness in the area of piping design involved the performance of the licensee's design group. The actions of the design group implied that their internal decisions were final and could not be revised. This attitude may have resulted from the physical separation of this group from both the site and the corporate headquarters. The separation limited the design group's contact with QA programs and personnel to periodic audits and training sessions.

During observation of piping and piping support installation work, it was noted that the licensee's tendency to meet only minimum requirements was perceived to be a weakness in this functional area. For example, numerous pipe support and concrete expansion anchor attributes were encompassed by single check-offs or sign-offs on the licensee's inspection form. Additionally, non-safety-related piping segments that were included in safety-related seismically analyzed piping stress analysis problems were not included in the QA/QC inspection program.

Key field and administrative positions were staffed by well qualified personnel who had a good understanding of the QA program and regulatory requirements.

Six violations were identified during the evaluation period. These violations were indicative of a minor programmatic breakdown in the piping and pipe support design, installation, and inspection area. The violations identified were:

- (1) Severity Level IV violation for failure to identify sources of data for "alternate" piping stress analysis and failure to properly verify thermal load and anchor seismic load calculations.
- (2) Severity Level IV violation for failure to follow installation and inspection requirements for pipe supports/restraints.
- (3) Severity Level IV violation for the failure to follow installation and inspection requirements for pipe supports/restraint baseplates.
- (4) Severity Level IV violation for the failure to follow installation and inspection requirements for pipe supports/restraints.
- (5) Severity Level V violation for the failure to follow installation and inspection requirements for pipe supports/restraints.
- (6) Severity Level V violation for inadequate in-plant storage requirements for pipe support/restraint mechanical snubbers.

b. Conclusion

Category: 2

Trend: Same

c. Board Comments

Performance in this area was evaluated as Category 1 during the previous SALP assessment. No decrease in licensee or NRC attention is recommended.

4. Safety-Related Components

a. Analysis

Safety-related equipment was essentially installed prior to this review period. The inspections performed in this area by the resident and regional inspection staffs were primarily directed toward reviews of purchase, installation, and maintenance documentation.

b. Conclusion

Category: Not Rated

Trend: Not Determined

c. Board Comments

Insufficient inspection activity was performed in this area, during the review period, to justify either a rating or trend determination.

5. Support Systems (Fire Protection)

a. Analysis

During this assessment period, an inspection was performed in the area of fire protection by the regional inspection staff. This inspection reviewed the licensee implementation of the fire protection program for the fuel storage area and the installation of portions of the permanent plant fire protection features. The fire protection program implemented for the fuel storage area was found to be in conformance with the special nuclear materials license.

A review was made of the following permanent plant fire protection features: fire detection system, water fire protection piping system, carbon dioxide system, electrical fire barrier penetrations, and fire doors.

Management was actively engaged in the implementation of the Catawba fire protection program. The licensee had a well qualified fire protection staff at the corporate level; personnel from this organization were frequently at the site working and consulting with construction organization personnel to assure that the fire protection features to be provided were in accordance with the design requirements and met commitments to the NRC. The licensee apparently understood the NRC fire protection requirements and policies, and the approach towards meeting them was technically sound. Responsiveness to NRC initiatives was generally thorough and timely.

There were no violations or deviations identified in this area during this assessment period.

b. Conclusion

Category: 2

Trend: Same

c. Board Comments

This area was not rated during the previous SALP assessment. No decrease in licensee or NRC attention is recommended.

6. Electrical Power Supply and Distribution

a. Analysis

During this evaluation period inspections were performed by the regional inspection staff and limited inspections were performed by the resident inspection staff.

The resolution of technical issues from the licensee's nonconformance reports, 10 CFR 50.55(e) reports, and audits was reviewed. With the exception of a weakness identified below, the licensee's performance in this area generally demonstrated that events were properly identified, analyzed and evaluated, and that corrective actions were taken in a timely and satisfactory manner. Management personnel were involved in the resolution and corrective actions for many of these reports.

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

Three violations were identified in this area. One item was related to electrical cables having excessive lengths of unsupported cables as they travelled from one tray run to another tray run, and incorrect separation and cable bend radius. Subsequently, another example was identified by NRC involving a failure to follow cable installation specifications indicating continuing problems in this area. The second item resulting in a violation involved the licensee's failure to perform an adequate evaluation of a nonconformance item report on electrical cable bend radius problems. The third item concerned activities relative to the testing and settings of protective relays by the licensee's Transmission Department. There was no evidence to indicate that these activities were observed and signed off as acceptable (concurrent with the activity) by an independent party acting in a QC inspection capacity.

The violations discussed above were not indicative of a programmatic breakdown in this area. They were 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. The three violations identified are as follows:

- (1) Severity Level IV violation for failure to follow cable installation specifications.
- (2) Severity Level IV violation for inadequate documentation of cable radius problems and incomplete evaluation of a non-conformance condition.
- (3) Severity Level IV violation for failure to have adequate procedures for protective relay adjustment activities.

b. Conclusion

Category: 2

Trend: Same

c. Board Comments

Performance in this area was evaluated as Category 2 during the previous SALP assessment. No decrease in licensee or NRC attention is recommended.

7. Instrumentation and Controls

a. Analysis

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

The resolutions of technical issues from the licensee's non-conforming reports, 10 CFR 50.55(e) reports, and audits were reviewed. The licensee's performance in this area showed that events were properly identified, analyzed and evaluated, and that corrective actions were timely and satisfactory. Management personnel were involved in the resolution and corrective actions for many of these reports.

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.

A reinspection was performed regarding a violation identified during the previous evaluation period. This violation involved separation distances between instrument lines. The cause of the violation was a communications gap between the corporate design organization and on-site construction personnel, and a lack of definitive information on drawings. The separation problems were corrected and drawings were changed to minimize the need for design criteria interpretation by construction personnel. Although some problems still existed between the design specifications and the construction organization's interpretation of them, it appeared that there had been an improvement in the communicative channels between the two organizations.

No violations were identified during this appraisal period.

b. Conclusion

Category: 2

Trend: Same

c. Board Comments

Performance in this area was evaluated as Category 2 during the previous SALP assessment. No decrease in licensee or NRC attention is recommended.

8. Licensing Activities

a. Analysis

During the present rating period, the licensee's licensing activities were primarily directed at responding to outstanding items identified in the Safety Evaluation Report (SER) and its supplements. Outstanding items receiving significant attention were hydrologic engineering, pipe break analysis, control room design review, secondary water chemistry, steam generator modifications, environmental and seismic qualification of

equipment, Technical Specification preparation, fire protection program, safe shutdown facility, heavy loads, emergency planning, and safeguards programs.

Because some of these issues were difficult to resolve, management involvement was necessary and evident in the approaches to the resolutions of these issues. In most cases, submittals were made in a timely manner, thereby ensuring that the staff had sufficient time to review and evaluate the information submitted. Generally, activities were well planned and there was evidence of prior planning and assignment of responsibilities. For the activities evaluated, the licensee demonstrated that its resources were adequate and effective in all licensing areas and that management involvement and attention were concerned with nuclear safety.

b. Conclusion

Category: 2

Trend: Same

c. Board Comments

Performance in this area was evaluated as Category 2 during the previous SALP assessment. No decrease in licensee or NRC attention is recommended.

Continued attention to timely submittals by the licensee will enable the NRC staff to efficiently allocate its resources so that the review of the license application can be completed on a schedule that is consistent with the projected June 1984 fuel load date.

9. Quality Assurance Program - Construction

a. Analysis

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

Inspection of management involvement and control in assuring quality was confined to Catawba site management. However, corporate management involvement was evident by their frequent onsite visits, by corporate audits, by the effective implementation of site procedures and policies, and by the licensee's application of a strong, effective, and timely corrective action program. The Vice President of Construction has been stationed at the site for approximately two years and has assumed the day-to-day functions of site Project Manager subsequent to the retirement of the previous Project Manager. The licensee's



conservative approach in handling violations was indicated by prompt corrective action on NRC identified violations.

The licensee conducted a special in-depth review of the ventilation system vendor's QA program which resulted in identification of weak areas that were immediately corrected. The licensee also audited other contractors providing site erection and inspection to assure that similar discrepancies did not exist in their programs.

Licensee audits and surveillances were properly conducted and comprehensive; corrective actions were timely and complete. Quality assurance records were generally complete, well maintained, properly handled, and retrievable except for an isolated case involving the heating, ventilation, and air conditioning (HVAC) contractor identified in violation (3) below. The licensee's program for control and verification of as-built drawings was acceptable.

The QA manuals, organizational structure, and functional relationships of the Construction Department and the QA Department were in accordance with the accepted QA topical report.

Staffing of QA/QC positions was more than adequate for the status of construction, and independence between QA and line organizations has been maintained. The QC inspector training, qualification, and certification program was well defined and provided a good understanding of the work involved, thereby promoting adherence to procedures. Violation (1), below, concerning certification of a Level I concrete inspector was identified in this area. In general, QC personnel were knowledgeable of their inspection functions and acceptance criteria and were proficient in the performance of their assigned inspection tasks.

A weakness was identified regarding licensee responses to items such as Construction Deficiency Reports (CDRs) and violations. This involved final responses having to be supplemented with additional information or other problems associated with the same issue not being recognized initially. Examples include CDRs involving cracked diesel generator batteries, control schemes for air operated valves and inadequate installation of vent valves, and a violation involving failure to properly install electrical cable. The latter violation is discussed in the functional area of electrical power supply and distribution. Continuing management attention is needed to assure that correspondence with the NRC contains the full scope and depth of information needed to evaluate the issue.

Management commitment to a strong QA organization was reflected by the relatively small number of violations identified during this appraisal period. There was no evidence of a significant programmatic breakdown.

Violations (2) and (3), below, involved an inadequate procedure for the intended activity and QA records discrepancies.

Three violations were identified as follows:

- (1) Severity Level IV violation for a Level I concrete inspector administering portions of a practical certification examination for another concrete Level I candidate.
- (2) Severity Level IV violation for a contractor's QA program not containing provisions for an annual eye examination for QC inspectors performing visual examination of safety-related welds.
- (3) Severity Level V violation for a contractor's quality records containing certain misleading statements and certain records being altered improperly.

b. Conclusion

Category: 1

Trend: Same

c. Board Comments

Management involvement in this area has been aggressive. Performance in this area was evaluated as Category 1 during the previous SALP assessment. No decrease in licensee or NRC attention is recommended.

10. Preoperational Testing (Unit 1)

a. Analysis

During the review period, routine inspections were performed by the resident and regional inspection staffs. Routine inspections of test procedures and test witnessing, and evaluation of completed preoperational tests and the licensee's administrative controls which govern the conduct of the preoperational test program, were performed. The licensee continued with the performance of the preoperational test program with a scheduled completion date of late May 1984.

The training and qualification of test personnel appeared to be effective as indicated by the lack of personnel errors during test performances, and the demonstrated understanding of the administrative controls and requirements as they related to the preoperational test program.

Major preoperational tests completed during the evaluation period included the reactor coolant system cold hydrostatic test, integrated hot functional test, and containment integrated leak rate test. Management involvement and control during the preparation and successful completion of the cold hydrostatic test of the reactor coolant system was evidenced by the well coordinated effort displayed between various staff components. Integrated hot functional testing experienced minor equipment calibration and planning problems which added two weeks to the hot functional test schedule. The conduct of ASME code piping thermal expansion tests during initial plant heat up was performed without all supports and restraints being complete. Additionally, turnover of supports and restraints had not been accomplished and test prerequisites had not been satisfied. A deviation from FSAR Chapter 14 test commitments was issued documenting the above conditions. The lack of attention in the preparation of systems for testing was realized from the test data obtained. Management and design engineering have indicated that extensive review will be required and complete retest and inspection of the ASME code piping thermal expansion will need to be performed during precritical heat up of plant systems.

Similar planning and system preparation problems during containment integrated leak rate testing were observed. The review of approved test procedures indicated that specific quantitative and qualitative acceptance criteria were not provided in all tests such that important testing activities could be determined to have been satisfactorily accomplished. The licensee was actively reviewing, at the completion of the SALP review period, all completed tests, tests in progress, and future tests to assure that properly stated acceptance criteria were provided. The evaluation as to the acceptability of completed tests was also being reviewed. Management's initial review and approval of test procedures as well as review and approval of completed test results did not appear to be thorough as evidenced by the number of comments. In addition, as stated previously, records of missing test data, approval of unsatisfactory test data, and failure to complete a test which was specified in the license for performance prior to the receipt and handling of fuel, demonstrated a weakness in management's attention to important activities. The licensee was responsive to NRC concerns in these areas and has taken prompt corrective action.

The following violations and deviation were identified:

- (1) Severity Level IV violation for failure to provide adequate quantitative or qualitative acceptance criteria for preoperational tests.
- (2) Severity Level IV violation for failure to maintain sufficient test records to provide evidence that all testing required to be performed on the upper head injection system was accomplished.
- (3) Severity Level IV violation for failure to adequately evaluate test results of the main steam safety valve setpoint test in that the data sheets contained errors and one valve failed to lift within acceptable tolerances.
- (4) Severity Level IV violation for failure to implement all test requirements contained in the license for handling and storing new fuel in that the fuel pool ventilation system functional test had not been completed.
- (5) Deviation for failure to comply with FSAR commitments for conduct of thermal expansion during preoperational testing.

b. Conclusion

Category: 2

Trend: Same

c. Board Comments

No decrease in licensee or NRC attention in this area is recommended.

11. Quality Assurance Program - Operations (Unit 1)

a. Analysis

During this evaluation period, routine inspections were performed by the resident and regional inspection staffs. Operational QA program aspects of the preoperational testing phase, the operational preparedness phase, and the startup phase were inspected.

The operational QA program is required to be fully implemented 90 days prior to issuance of the operating license as defined by the licensee's accepted QA Program (Duke 1-A, Amendment 6). Many licensee programs were still under development for operational activities at the close of the SALP review period. A large number of inspector followup items have been identified involving various programs such as document control, surveillance testing, and

calibration control not being fully developed and implemented. For those programs being implemented, seven violations were identified. These violations reflected program deficiencies that needed correction to assure full compliance with QA program requirements. The violations involved licensee operational readiness in the areas of procurement, auditing, and design control.

As referenced in Section 13 below, NRC inspections revealed numerous examples of inaccurate information submitted by the licensee on reactor operator and senior operator applications. The inspections also revealed that certain Final Safety Analysis Report commitments for the training of Catawba operators had not been met. QA audits performed by the licensee in this area failed to identify these problems. In addition, it is felt that more QA review of pre-operational test implementation could have prevented the types of problems identified in that area.

The following violations were identified:

- (1) Severity Level IV violation for failure to establish written qualifications for lead auditors.
- (2) Severity Level IV violation for failure to implement all qualification requirements for QC personnel.
- (3) Severity Level IV violation for failure to control nonconforming items removed from service.
- (4) Severity Level IV violation for failure to perform preventive maintenance.
- (5) Severity Level IV violation for failure to control design activities affecting quality.
- (6) Severity Level IV violation for failure to establish procedures for packing and storing warehouse items.
- (7) Severity Level V violation for failure to recall obsolete drawings.

b. Conclusion

Category: 3

Trend: Same

c. Board Comments

Licensee resources did not appear to be effectively used in this area. Increased licensee management attention should be directed to the area of operational quality assurance to ensure the effective implementation of the program.

## 12. Emergency Preparedness (Unit 1)

## a. Analysis

During the evaluation period, a pre-appraisal inspection, an emergency plan implementation appraisal, and an inspection of a full scale exercise were conducted by the regional and resident inspection staffs.

The purpose of the pre-appraisal inspection was to determine if the licensee was prepared for an appraisal and to clarify for the licensee those areas that needed additional work. It was determined that most of the licensee's program was in place.

Based on the findings of the pre-appraisal inspection, the appraisal was conducted in November 1983. During the appraisal 10 deficiencies and 31 items were identified that the licensee should consider for improvement. Program areas in which deficiencies were identified included: emergency organization, training, radiological monitoring, protective response, and station security. The deficiencies were not of a broad programmatic nature, but were specifically related to oversights or errors in the procedures for implementing the emergency plan. The NRC found the root cause to be inadequate communications and coordination between the various organizational groups at the site.

The full scale exercise in February 1984 was successful and demonstrated licensee management commitment to correcting the identified appraisal deficiencies and completing the training of plant personnel. No deficiencies or other substantive findings were identified during the exercise.

Based on the above, the station staffing and the corporate support for emergency preparedness activities at the site appeared to be adequate. The training program was found to be adequate during the appraisal, and the performance of personnel at all levels during the exercise appeared to support a conclusion that the training program was effective.

No violations or deviations were identified.

## b. Conclusion

Category: 2

Trend: Same

## c. Board Comments

No decrease in licensee or NRC attention in this area is recommended.

## 13. Operator Licensing (Unit 1)

## a. Analysis

Operator Licensing activities at Catawba commenced in January 1984 with the licensee's submittal of applications for the first set of "cold" license examinations scheduled for March 1984. Following a review of these applications, the staff met with representatives of Catawba three times in January and February to discuss apparent discrepancies between information submitted on the applications and the approved cold license training program contained in the Final Safety Analysis Report. In February, an inspection was conducted at Catawba for which a Notice of Violation was issued for submitting inaccurate information on the License Applications, and a Deviation for failure to complete cold license observation task lists (see additional discussion of this issue in section 11). As a result of these meetings and inspection findings, oral examinations for the first set of cold license applicants were postponed two months to allow the licensee to conduct additional procedural training. Written examinations were conducted as scheduled in March 1984.

The following violation and deviation were identified:

- (1) Severity Level IV violation for providing the NRC with inaccurate information on operator license applications.
- (2) Deviation for failure to complete cold license observation task lists in the manner stated to the NRC and consistent with the Final Safety Analysis Report.

## b. Conclusion

Category: 3

Trend: Same

## c. Board Comments

Increased management attention should be devoted to this area to assure proper implementation of the established plan for operator qualification.

## 14. Radiological Controls (Unit 1)

## a. Analysis

Inspections were performed during the evaluation period by the regional inspection staff. This included a confirmatory measurements inspection and three preoperational environmental protection inspections. The plant was not sufficiently completed to warrant

an appreciable amount of inspection effort in the area of radiation protection and radioactive waste management systems.

Existing management controls and organizational responsibility for program implementation including routine preoperational environmental sampling and sample analysis, retention of monitoring records and data, and development and administration of an adequate quality assurance program should assure required completion of the preoperational radiological environmental program prior to initial criticality of Unit 1. Review of the operational radiological environmental monitoring program defined in the Unit 1 draft Technical Specifications indicated that the subject program was directed toward development of effective offsite environmental protection.

One weakness was identified during the final preoperational inspection regarding the development and retention of records of qualification experience, and training of management and technical personnel assigned the responsibility for radiochemical analysis of environmental samples collected pursuant to the Radiological Environmental Monitoring Program defined in the Unit 1 draft Technical Specifications.

Results of the confirmatory measurement inspection disclosed that procedures for reactor chemistry and radiological effluent monitoring had not been finalized. Installation and final calibration of counting equipment was incomplete and capability testing of the licensee's counting equipment could not be conducted. The installation, calibration, and testing of radiological measurement equipment and associated computer software for effluent measurements appeared to be behind schedule compared to the projected fuel loading date. This failure to provide adequate lead time for training of personnel and procedure development could have an adverse effect on the quality of the radiological effluent monitoring program.

No violations or deviations were identified.

b. Conclusion

Category: Not Rated

Trend: Not Determined

c. Board Comments

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



## 15. Security (Unit 1)

## a. Analysis

Because of the incomplete status of construction activities and equipment installation, evaluation of licensee performance in the functional area of security was limited during the assessment period. A complete review will be conducted upon full implementation of the physical security program at the Catawba facility. During the assessment period, plant visits were conducted by the NRC staff to resolve security plan issues relative to planned implementation of the interim physical barrier which will be used to separate construction activities on Unit 2 when Unit 1 becomes operational. Additionally, inspections have been scheduled for review of the security and safeguards program subsequent to the end of this review period.

## b. Conclusion

Category: Not Rated

Trend: Not Determined

## c. Board Comments

There was insufficient inspection activity in this area to justify either a rating or a trend determination. It appears to the SALP Board, though, that the status of the security systems is progressing satisfactorily.

## B. Supporting Data

## 1. Report Data

## a. Construction Deficiency Reports (CDRs)

There were ten Unit 1 and eleven Unit 2 CDRs reported during the assessment period. These reports concerned welding problems, faulty printed circuits, steam impingement problems, and a file found in a generator. The reports were submitted in a timely manner, and were generally complete, accurate, and specified effective corrective actions.

## b. Part 21 Reports

Unit 1- one

Unit 2- one

## 2. Investigation and Allegation Review

One allegation involving seven concerns pertaining to alleged inadequate stress analyses, was closed during the review period. One of the concerns was substantiated and resulted in a Severity Level IV violation.

Additionally, at the close of the SALP review period, there were nine allegations which were open. Three involved concerns which were submitted to NRC by a GAP petition dated September 14, 1983. These matters were being addressed under the provision of 10 CFR 2.206. The response to the petition was under review by the NRC staff at the end of the SALP review period. Four of the allegations were brought forward at the Atomic Safety and Licensing Board hearings during in-camera sessions. The NRC staff completed all major inspection activity related to these concerns which generally involved construction issues. During review of these in-camera issues, the NRC staff developed information which resulted in another allegation file being opened. This allegation involved improper welding procedures and was being examined by the NRC staff at the conclusion of the SALP review period. The remaining open allegation involved a GAP concern that the design description of the auxiliary feedwater system had not been updated since October 1980.

## 3. Enforcement Actions

### a. Violations

Severity Level I - None  
Severity Level II - None  
Severity Level III - None  
Severity Level IV - 21  
Severity Level V - 4

### b. Civil Penalties

No civil penalties were issued during this review period.

### c. Orders

No orders were issued during this review period.

## 4. Administrative Action - Confirmation of Action Letters

No Confirmation of Action Letters were issued during this review period.

## 5. Management Conferences

No management conferences were held during this review period.