UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report No.: 50-414/85-43

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 28242

Docket No.: 50-414 License No.: CPPR-117

Facility Name: Catawba 2

Inspection Conducted: September 30 - October 4, 1985

Inspector: G A Belisle for 10/25/85
R. W. Wright Date Signed

Approved by: G A Belisle 10/25/85
G. A. Belisle, Acting Section Chief Date Signed
Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection entailed 37 inspector-hours on site in the areas of quality assurance (QA) inspection of civil (concrete repair and structural steel) work activities.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*T. Bright, Construction Engineering Manager
S. Caulder, Mechanical Engineering Technician
M. Couch, Project Manager
B. Harris, Civil Quality Control (QC) Supervisor
J. Kinard, Technician, Welding Technical Support
*H. Mason, QA Engineer, Civil
*W. McCollum, Acting Plant Manager
G. McDowell, QC Inspector
*D. O'Brien, Administrative Methods Supervisor
*F. Schiffley, Licensing Engineer
*K. Schmidt, QA Engineer
T. Summey, QC Inspector
*E. Williams, QA Technician

Other licensee employees contacted included construction craftsmen, engineers, technicians, QA/QC personnel and office personnel.

NRC Resident Inspectors

*P. Skinner, Senior Resident Inspector
*R. Schepens, Resident Inspector

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on October 4, 1985, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below. No dissenting comments were received from the licensee.

Unresolved Item: Fillet Weld Leg Size Joint Geometry Configuration (1/16" to 3/16" gap) Not Considered at Final Visual Inspection, paragraph 5.a.

Unresolved Item: Missing M-18G Trending Documents, paragraph 5.d.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items*

Two unresolved items were identified during this inspection and are discussed in paragraphs 5.a. and 5.d.

5. QA Inspection of Civil (Concrete and Structural Steel) Work Performance (35061B)

The inspector observed concrete repair activities utilizing SiKa Proprietary Products and the completed work concerning M-18A, Serial No. 2AB974 R1, involving the addition of support steel to an existing cable tray support per variation notice (VN) 49935.

This inspection was performed to determine whether site work was being performed in accordance with NRC requirements and SAR (Topical Report) commitments, that the QA/QC program was functioning in a manner to assure requirements and commitments were met, and that prompt and effective action was taken to achieve permanent corrective action on significant discrepancies.

a. The following acceptance criteria were examined to verify these inspection objectives:

Procedure CP-22, R32	Fabrication of Welded Structrual Steel, Miscellaneous Steel, and Other Steel Construction for Nuclear Structures
Procedure CP-68, R11	Concrete Repair
Procedure CP-374, R14	Structural Steel Administrative Control, Fabrication/Erection Guidelines and Inspection Guidelines
Procedure CP-830, R3	Use of SiKa Proprietary Materials for Various Concrete Repair Applications
Procedure E-3, R21	Field Procurement of Items and Construction Services
Procedure M-2, R27	Inspection of Design Concrete

*An Unresolved Item is a matter about which more information is required to determine whether it is acceptable or may involve a violation or deviation.

Procedure M-18, R13	Inspection of Structural Steel Fabrication and Erection
Procedure M-21, R18	Inspection of Field Welding of Structural Steel, Miscellaneous Steel and Other Steel Construction for QA Condition Structures
Procedure O-1, R27	Control of Measuring and Test Equipment
Procedure P-1, R28	Receiving Inspection
Procedure Q-1, R24	Control of Nonconforming Items
Procedure R-2, R12	Identification and Resolution of Discrepancies
Procedure R-5, R8	NRC Reporting Requirements
Procedure QA-121, R8	NRC Reporting Requirements
Procedure QA-150, R5	Trend Analysis
Procedure QA-300, R15	Construction Surveillance
Procedure CDA-9, R5	Trend Analysis

Construction Drawings

CN-1212-01, R4	CN-1212-15, R19
CN-1212-06, R6	CN-1212-16, R11
CN-1212-07, R6	

Specification CN-1109.00-1, R10	Concrete for QA Condition Structures
Specification CNS-1121.00-1, R17	Field Fabrication and Erection of Structural Steel, Miscellaneous Steel, and Other Steel Construction for Nuclear Safety-Related Structures

The inspector reviewed the listed criteria utilized for concrete repairs and structural steel fabrication/erection activities to determine, if the latest revisions were employed, if they were in agreement with the SAR, if these documents adequately described critical points and methods of installation, and if inspection and test hold points properly reflected design intent.

The inspector raised some questions concerning the adequacy of control measures being applied to the inspection of structural steel fillet welds. Section 3.3 of the AWS Code requires (for production material less than 3-inch thickness) that the leg of the fillet weld be increased by the amount of separation for gap separations 1/16 of an inch or greater.

Procedure CP-22, Section 15D, permits the fitter to have undocumented open gaps up to 3/16 of an inch for similar thickness material, and requires the fillet weld leg to be increased by the amount of gap exceeding 1/16 of an inch. However, by procedure M-21, Section 4.1.1.A, inspection of fitup is only performed periodically for welds requiring visual inspection. Additionally, Section 4.1.1.C requires the QC inspector at final visual inspection to assure that the weld is the correct size and completed in accordance with applicable construction procedures. Consequently, since gap separations between 1/16 to 3/16 of an inch are not documented, the QC inspector at final visual inspection cannot assure the fillet weld size is correct.

Discussions with site welding personnel identified that the Stickman Interpretation dated May 29, 1985 (attached to Construction Surveillance C85-44) generally describes the QA program applied to structural steel fillet welds. This interpretation states:

> The inspector should verify that the size as specified on the design drawing has been met. It is the craft's responsibility to assure weld size is increased when a gap exists. The inspector is not required to check for this. However, it would be advisable for the inspector to check enough of those cases to develop adequate confidence that construction is meeting this requirement.

It appears that the fillet weld program described above may be a deviation from AWS Code requirements. However, due to time limitations, the inspector was unable to discuss this matter with offsite Design or QA Technical Services personnel to determine if any additional conservatism had been designed into the sizing of the subject fillet welds. This matter will be pursued during future inspections and is identified as Unresolved Item 414/85-43-01, Fillet Weld Leg Size Joint Geometry Configuration for (1/16" to 3/16" Gap) Not Considered at Final Visual Inspection.

b. Field Inspection

The inspector observed abandoned drill hole repairs for auxiliary building floor slabs located at elevations 577 and 591. The craftsmen used SiKaTop 123 which is approved for use in all buildings for either horizontal, vertical, or overhead applications. The surface preparation; priming with the "A" component; proportioning and mixing of components A and B, and the placement, rodding, finishing, and curing of the subject repairs were witnessed and found to be accomplished in accordance with approved procedures. The subject concrete repair

activities were continuously monitored by QC personnel since 100% inspection of this activity was required. The inspector observed the craftsmen associated with the subject SiKaTop 123 concrete repairs and determined that their level of knowledge was adequate to provide the required workmanship quality. Records examination verified that the crafts making repairs were qualified mixers of SiKaTop 123 proprietary products.

The inspector accompanied a structural steel QC inspector during his inspection of a cable tray support which had been modified by VN 49935. This structural inspection verified that the steel members added to the subject cable tray support were of proper dimension, type, material, and configuration per approved drawings.

Within this area, no violation or deviation were identified.

c. Quality Control

The inspector reviewed the following inspection records generated for concrete drill hole repairs and structural steel additions to determine their adequacy, whether deficiencies submitted by QC received proper corrective action where applicable, and if work and work controls were adequate:

CP-830-A	SiKa Product Placement Record
CP-830-C	Abandoned Drill Hole Repair
O-1	Calibration of Equipment
MM150	SiKa Products Release Log
M-2H	Compression Test Results, SiKaTop 123
CP-374-B, R1	Supplement Signoff Sheet for M-18A, Serial No. 2AB974R1
CP-374-D, R1	Package Document Log Sheet

The inspector reviewed applicable QA/QC procedures (paragraph 5.a) to determine if the frequency, timing, and acceptance criteria for the civil inspections of drill hole repairs and structural steel fabrication/erection were adequate. The number of QC inspectors provided for coverage of these activities appeared satisfactory. Discussions were conducted with QC inspectors to determine if their knowledge of inspection activities was adequate and to determine whether they felt their findings and concerns received proper management attention. The inspector concluded that licensee management was attentive and

responsive to QC inspector identified problems. The structural steel and concrete repair inspectors examined were very knowledgeable of their inspection functions, acceptance criteria, and they were also proficient in the performance of their assigned functions.

Within this area, no violation or deviations were identified.

d. Nonconforming Item Reports (NCIs)

The inspector reviewed selected reports on concrete repair and structural steel for fabrication/erection discrepancies that have occurred during various phases of these work activities to verify that:

The action taken corrected the items;

The items were considered for reportability to NRC;

The instituted effective action prevented recurrence; and

The licensee has an adequate program to detect trends in discrepancies.

NCIs reviewed included the following: 12215, 13251, 13573, 18200, 18318, 18379, 18384, 18429, 18486, 18790, 18840, 18850, 19109, 19384, 19562, and 19831.

The inspector examined monthly trend analysis program records for NCIs, R-2As, and M-18G type discrepancies for the period January 1985 to June 1985. The trend program established by procedure CDA-9, R5, had provided excellent results for stopping adverse trends and getting to the root cause of persistent problems. It was evident that construction management thoroughly supported this program, was aware of the benefits derived from it, and was involved in providing prompt corrective action to adverse trends.

Trend summary reports, pertinent responses from supervisors of the trended areas, and project manager final site analyses were examined for each of the above mentioned type discrepancies trended. The NCI and R-2A trending records examined were easily retrievable, complete, and found to be indicative of a worthwhile program. Some responses from supervisors of the trended areas and the project managers final site analyses could not be located for the M-18G program for the interim period evaluated. Discussions with the administrative methods supervisor responsible for trend analysis identified that his group had experienced several relocations and personnel changes, lately, due to

construction activities winding down. He felt that these missing documents existed but could not produce them prior to the completion of this inspection. This item was identified as Unresolved Item 414/85-43-02, Missing M-18G Trending Documentation.

e. Materials and Equipment

The inspector examined purchase requisition 833706798S for SiKaTop 123 proprietary materials used during abandoned drill hole repairs. A satisfactory SiKa Corporation Certificate of Conformance accompanied the shipment of these materials which was receipt inspected (File No. MM150) on March 13, 1985. The SiKa 123 products were assigned Level B storage requirements and the inspector verified that the subject materials were stored under such conditions. SiKa 123 cylinder compression test records examined indicated this proprietary product obtained desired compressive strengths. The thermometer (M1-6) used during the witnessed concrete repair operations was found to be in current calibration status.

Within this area, no violations or deviations were identified.

f. Audits and Construction Surveillance

The inspector reviewed the following site QA surveillance and Civil Department audit reports performed on concrete repair and structural steel work activities:

Departmental Audits:	CD-83-11 (CN), CD-84-1 (CN), and CD-84-4 (SP)
Construction Surveillances:	C-85-67, C-85-45, and C-85-44

Within this area, no violations or deviations were identified.

g. 10 CFR Part 21 Requirements

The inspector reviewed procedures R-5 and QA-121 to determine if they satisfied 10 CFR 21 reporting requirements. Purchase Requisition 833706798S for SiKaTop 123 products was examined and it indicated that 10 CFR 21 was applicable. The posting of requisite 10 CFR 21 was examined in the Main Office Building and outside Warehouse No. 7.

Within this area, no violations or deviations were identified.