



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION II  
 101 MARIETTA ST., N.W., SUITE 3100  
 ATLANTA, GEORGIA 30303

Report No. 50-259/79-23, 50-260/79-23 and 50-296/79-23

Licensee: Tennessee Valley Authority  
 500A Chestnut Street  
 Chattanooga, Tennessee 37401

Facility Name: Browns Ferry Nuclear Plant

Docket No. 50-259, 50-260 and 50-296

License No. DPR-33, DPR-52 and DPR-68

Inspection at Browns Ferry site near Decatur, Alabama

Inspector: L. Modenos 9/19/79  
 L. Modenos Date Signed

Approved by: A. R. Herdt 9/25/79  
 A. R. Herdt, Section Chief, RCES Branch Date Signed

SUMMARY

Inspection on September 4-6, 1979

Areas Inspected

This special, announced inspection involved 17 inspector-hours onsite in the areas of concrete expansion anchors (IE Bulletin 79-02) and seismic analysis for asbuilt safety-related piping systems (IE Bulletin 79-14).

Results

Of the two areas inspected, no items of noncompliance or deviations were identified.

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## DETAILS

### 1. Persons Contacted

#### Licensee Employees

\*J. L. Harness, Assistant Plant Superintendent  
\*R. T. Smith, QA Staff Supervisor  
\*G. T. Jones, Outage Director  
\*D. Jent, Assistant Outage Engineer  
R. Summers, Outage Engineer  
J. Ellis, Civil Engineer  
H. Owens, Mechanical Engineer

Other licensee employees contacted included construction craftsmen and engineers

#### NRC Resident Inspector

\*R. Sullivan

\*Attended exit interview.

### 2. Exit Interview

The inspection scope and findings were summarized on September 6, 1979 with those persons indicated in Paragraph 1 above.

### 3. Licensee Action on Previous Inspection Findings

Not inspected.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

### 5. Concrete Expansion Anchors

In response to IE Bulletin No. 79-02, Tennessee Valley Authority (TVA) initiated an inspection program as reported in IE Report No. 79-19. The totals of the inspection program as of September 6, 1979 are as follows:

|  |       |
|--|-------|
| Anchors tested                                     | 1782  |
| Defects, Minimum Embedment                         | 46    |
| Defects, Greater than Maximum Allowable Plug Depth | 65    |
| Rejected anchors                                   | 33    |
| Rejection rate                                     | 8.08% |

The rejection rate is based on the rejected and defected anchors versus the total anchors tested.

During the inspection, there were 505 bolts that did not meet minimum thread engagement. These bolts were all replaced. The licensee is performing 100% inspection of all accessible anchors and is repairing/replacing any defective anchors found. In addition, the licensee is performing based on deficiencies noted an engineering evaluation of inaccessible anchors that were not inspected.

The following supports were reviewed for adequate inspection data and field engineering evaluations were recorded on supports requiring further analysis or accepting the support as is due to their high factors of safety:

|      |      |
|------|------|
| EECW | H-10 |
| EECW | H-12 |
| EECW | H-16 |
| EECW | H-34 |
| FPC  | H-1  |
| FPC  | R-19 |
| FPC  | R-43 |
| RHR  | R-13 |

Support RHR R-13 was identified to require repairs. Work Plan No. 6388 which is an open order for repair of concrete anchors found defective during concrete inspection program, verified that repair for this support had been accomplished. This work order will keep a running total of all repairs required by the plant and when they are completed.

The inspector witnessed the inspection of EECW R-43 support with 8 anchor bolts. One sleeve was found cut, 4 bolts were replaced that had not met minimum thread engagement. The one cut sleeve was pull tested to the proof load of 7600 lbs and the sleeve did not indicate any shippage.

In the agreement made by NRC and TVA during the meeting of August 3, 1979 held at IE:Region II offices, that a pull testing of at least ten anchors of each type of failure to substantiate their contention that a visual inspection is sufficient had not been done. The site management of TVA agreed that these tests will be completed before inspections of Unit 3 are begun. This IE Bulletin 79-02 remains open until all inspectors and evaluations are completed and evaluated by the NRC.

No items of noncompliance or deviations were identified.

#### 6. Seismic Analysis for As-Built Safety-Related Piping Systems

In response to IE Bulletin 79-14, TVA submitted their 30 day response on August 15, 1979. Their response was to inspect Unit 1 and not to inspect Units 2 and 3. This was immediately pointed out to TVA that it was not acceptable. In the 60 day response on August 31, 1979 TVA revised their



schedule to include Units 2 and 3 in their inspection program but the length of their schedule appeared to be excessive. It stretched the completion of this inspection program into November 25, 1980. TVA is re-evaluating the schedule to improve this date.

The inspector interviewed and accompanied a mechanical engineer and an engineering aide in the inspection of support RHR R-34. Discrepancies were recorded with size of plate, loose bolts and bolt patterns. Mechanical Drawing No. 47W452-H-7 Rev. 2 and Hanger Drawing Mark-34 were used to check the support. The engineer conducting the inspection had sufficient background in this area to qualify him as an inspector.

Discussions with engineers on their method to be used when a discrepancy are identified, revealed that an EDS Nuclear Inc. Program was used for the seismic analysis of safety-related piping systems. This program did not include dead load in their seismic analysis. This program varies from the present day method of seismic analysis, in that dead load supports were located by using the ANSI B31.1 power piping code and then added vertical restraints were seismic analysis required them. It was pointed out that immediate action was required to find out if any major discrepancies between the two programs result in support modifications of the safety related systems.

This IE Bulletin 79-14 remains open until all inspections and evaluations are completed and evaluated by the NRC. No items of noncompliance or deviations were identified.

