



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

AUG 22 1980

Report No. 50-281/80-30

Licensee: Virginia Electric and Power Company  
 Richmond, VA 23261

Facility Name: Surry Plant

Docket No. 50-281

License No. DPR-37

Inspection at Ebasco Services Incorporated, New York

Inspectors:	<u>B.R. Crowley for</u>	<u>8/22/80</u>
	R. M. Compton	Date Signed
	<u>B.R. Crowley for</u>	<u>8/22/80</u>
	L. Modenos	Date Signed

Accompanying Personnel: J. R. Costello, IE RIV Vendor Inspection Branch

Approved by:	<u>B.R. Crowley for</u>	<u>8/22/80</u>
	A. R. Herdt, Section Chief, RCES Branch	Date Signed

SUMMARY

Inspection on July 24-25, 1980

Areas Inspected

This routine announced inspection involved 24 inspector-hours at Ebasco Services Incorporated, New York in the areas of IE Bulletin 79-14, "Seismic Analysis for As-Built Safety-Related Piping Systems", IE Bulletin 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts", and licensee actions on previous inspection findings.

Results

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

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## DETAILS

### 1. Persons Contacted

#### Licensee Employees

J. L. Wilson, Station Manager  
\*R. K. MacManus, Associate Engineer  
\*R. H. Woodall, Associate Engineer

#### Other Organizations

\*H. W. Nelson, Project Manager, Ebasco Services Incorporated  
\*T. H. Blodgett, Assistant Project Manager, Ebasco  
R. O'Neill, Supervising Engineer, Ebasco  
\*M. Labib, Senior Engineer, Ebasco  
\*N. J. Shah, Lead Stress Engineer, Ebasco  
\*T. A. Cotter, Project QA Engineer, Ebasco  
\*S. W. Korde, Supervisor for Stress, Ebasco  
V. Shevchenko, Lead Civil Engineer, Ebasco

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on July 25, 1980 with those persons indicated in Paragraph 1 above, and by telephone with J. L. Wilson on August 12, 1980.

### 3. Licensee Action on Previous Inspection Findings

(Open) Unresolved Item 281/80-13-04: IE Bulletin 79-14 as-built discrepancies. In IE Report 281/80-18 the inspector questioned the verification of snubber adequacy because installed snubber sizes were not always indicated on the as-built drawings. The snubber verification for the following five supports were examined.

MKS - 118A1, Supports H 142 and H 143  
MKS - 117A1, Supports H 1 and H4  
MKS - 125A1-1, Support H 19

For the snubbers selected, either the design loads were low and the smallest possible snubber size had been assumed installed or the snubber size had been determined from field inspection. The approach used was discussed with the design engineers and vendor catalogues were examined. The inspectors had no further questions on this matter.

This item remains open pending review of the site snubber and spring support reinspection program and the valve weight verification program.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. (Open) IE Bulletin 79-14, "Seismic Analysis for As-Built Safety-Related Piping Systems

Ebasco procedures governing various aspects of the IE Bulletin 79-14 effort were reviewed for content and complete coverage of bulletin items.

The following stress problems were selected for examination of the evaluation and analysis work efforts:

Stress analysis calculation 14N070A, as-built isometrics MKS - SI - 1, 4, 5 & 6, Lines 10" SI-363, 12" SI-201, 12" SI-202, 12" SI-205, 12" SI-363

Stress analysis calculation 14N103, as-built isometric MKS - RC - 1, line 3" RC - 447.

Documentation examined included stress and as-built isometrics, response spectra curves, input information to stress analysis, valve weight data supplied by Stone & Webster, LHSI pump nozzle load calculations and stress analysis results. On 12" lines SI-201 and 202 it was noted that the valve weights input at node points 99 and 12 was 150 pounds but the actual valve weight was 570 pounds. However, Ebasco had also conservatively input the weight of an equivalent length of pipe at these points so that the net effects were negligible. However, the licensee agreed to reanalyze this problem with the correct valve weights and to do a sample check of other isometrics to verify that this was an isolated case. Other valve weight inputs examined were correct.

The inspectors examined the treatment of U-bolt type pipe restraints. Ebasco considers U-bolts as 2 way restraints unless pipe lugs are used, in which case they are considered 3 way restraints. Design memo 31, Ebasco installation guidance for new U-bolt supports, specifies that for large bore piping a nut is placed on each side of the plate with a 1/16 inch clearance between U-bolt and pipe. Small bore U-bolt supports are double nutted on the back side with the first nut only finger tight. The inspectors examined the stress analysis inputs and the as-built sketches for the following three U-bolt supports:

Calculation 14N076, MKS WAPD-4, Support 5  
Calculation 14N106, MKS CH-1, Support H4B  
Calculation 14N107, MKS CH-8, Support 17

All of these supports were input to the analysis as 2 way restraints. The sketch for the third support showed a 1/16 inch clearance between pipe and U-bolt. The first two showed no clearance and nuts on only one side. A check of the axial pipe movement at these points indicated a very small movement. However, as this may not always be the case the licensee agreed

to review all U-bolt installations for which the as-built sketches show with one sided nutting and zero clearance. If there is significant axial pipe movement at these points, U-bolts will be adjusted to provide clearance or the piping and support analyses will be rerun to show acceptability. This is identified as Inspector Followup Item 281-80-30-01, to be addressed during a future inspection.

The program and licensee commitments for completion of IE Bulletin 79-14 after restart of Surry 2 were discussed. Problem 14N012B for hanger 10 on MKS CH-11, including the support calculation, load tables and the initial factor of safety screening sheet was examined.

No items of noncompliance or deviations were identified.

6. (Open) IE Bulletin 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts"

Inspector Followup Item 281/80-29-01 identified concerns the inspector had with the technical evaluation of expansion anchor test failures. The licensee had completed a review of Ebasco's actions and all questions had been satisfactorily resolved. The final documentation packages for transmittals N 161 and N 176 were examined. The inspectors had no further questions on this matter and Inspector Followup Item 280/80-29-01 will be closed.

VEPCO was a member of the utility group subscribing to Teledyne Engineering Services Report TR-3501-1, the generic response to IE Bulletin 79-02. The ANSYS program of baseplate flexibility analysis was discussed with the design engineers. The Support Plate and Anchor Bolt Verification Analysis for supports 1 and 16 on MKS 117B1 and 122D1, Sketch S-82 was examined.

No items of noncompliance or deviations were identified.