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

MAY 16 1980

Report Nos. 50-280/80-12 and 50-281/80-13

Licensee: Virginia Electric & Power Company
Richmond, VA 23261

Facility Name: Surry

Docket Nos. 50-280 and 50-281

License Nos. DPR-32 and DPR-37

Inspection at Surry site near Williamsburg, Virginia

Inspector: A R Herdt 5/14/80
for R. M. Compton Date Signed

Approved by: A R Herdt 5/14/80
A. R. Herdt, Section Chief, RCES Branch Date Signed

SUMMARY

Inspection on April 16-18, 1980

Areas Inspected

This routine, announced inspection involved 24 inspector-hours on site in the areas of IE Bulletin 79-14, "Seismic Analysis for As-Built Safety-Related Piping systems", and IE Bulletin 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts".

Results

Of the two areas inspected, no items of noncompliance or deviations were identified in one area; one deviation was found in one area (Failure to meet committment for timely performance of IEB 79-02 inspections-paragraph 6).

## DETAILS

1. Persons Contacted

   Licensee Employees

   *J. L. Wilson, Station Manager
   C. M. Robinson, Jr., Civil Engineering Services Supervisor
   *T. A. Peebles, Technical Services Superintendent
   *R. M. Woodall, Associate Engineer
   *R. K. MacManus, Associate Engineer
   *F. L. Rentz, Resident QC Engineer

   Other Organizations

   M. H. Ismail, Site Project Engineer, Ebasco Services Incorporated
   R. O'Neill, Supervising Engineer, Ebasco
   C. E. Carino, Site Lead Civil Engineer, Ebasco
   D. P. Brown, Packaging Group Leader, Ebasco
   J. L. Barberis, As-Modified Group Leader, Ebasco

   NRC Resident Inspector

   *D. J. Burke

   *Attended exit interview

2. Exit Interview

   The inspection scope and findings were summarized on April 18, 1980 with those persons indicated in Paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

   Not inspected.

4. Unresolved Items

   Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve noncompliance or deviations. New unresolved items identified during this inspection are discussed in paragraphs 5 and 6.

5. (Open) IE Bulletin 79-14, "Seismic Analysis for As-Built Safety-Related Piping Systems", Units 1 and 2

   The status of the IEB 79-14 work effort was reviewed for both units. Essentially all as-built inspection work is complete for Unit 1.

Ebasco procedure EEPC-S-001, "Development of As-Built Piping Systems", Revised September 21, 1979, for Unit 2 work was reviewed. Six Unit 2 Auxiliary Building MKS's, isometric piping drawings, were selected for a walkdown comparison of the as-built piping configuration and pipe support location and detail drawings to the installed piping. The following portions of systems were walked down:

| | |
|---|---|
| MKS CH-26, 3" Chemical and Volume Control System | Supports H 197, H 198, H 199, H 200, H 201, H 202, H 217<br>Valves V1-V6 |
| MKS CH-25, 3" and 4" Chemical and Volume Control System | Supports H 205, H 216, H 217, H 218, H 219, H 220<br>Valves MOV 2867A, FCV 2186, MOV 2370 |
| MKS SI-10, 3" Safety Injection System | Supports H1, H2, H4, H5, H6, H9<br>Valve MOV 2867C |
| MKS SI-9, 3" Safety Injection System | Supports H1, H2<br>Valve MOV 2867D |
| MKS SI-7, 3" Safety Injection System | Supports H 240, H 241, H 242, H 243, H 247, H 245, H 248, H 249, H1 and H2<br>Valves MOV 2867A, MOV 2867B |
| MKS SI-18, 3" Safety Injection System | Supports H21, H22, H23, H25 |

The following discrepancies were noted during this inspection:

a. Supports H 216, H 217 and H 220 on MKS CH-25 and H 197 on MKS CH-26 were indicated as vertical supports on the markup when in fact they were vertical and lateral restraints (U-bolts).

b. A rod hanger installed between supports H 216 and H 217 on MKS CH-25 was not shown on the markup.

c. Two mounting bolts on each of supports H 21, H 22, H 23 were apparently installed into unistrut, but this was not indicated on the markup.

d. A U-bolt had been broken or removed from support H1 on the branch line on MKS SI-7. The support detail sketch did indicate a U-bolt support.

e. Four mounting bolts on each of supports H21 and H22 on MKS SI-18 were specified as 1 1/8 inch diameter. These bolts appeared to be 3/4 inch bolts (1 1/8 inch head flat to flat dimension).

Ebasco Home Office Verification Requests (HOVR's) are used by field personnel to notify the home office engineering staff of discrepancies between installed piping/supports and issued drawings. A review of the approximately 300 issued HOVR's indicated that a significant number were indicating that bolt

diameters, plate thicknesses and/or bolt spacing were incorrectly shown on the recently completed as-built drawings. The licensee was asked to evaluate the large number of this type HOVR as an indication of an inadequate as-built inspection program.

Because support modification work was in progress on the inspected systems and to allow the licensee time to evaluate the HOVR's and the apparent discrepancies, this is being identified as Unresolved Item 281/80-13-04; IEB 79-14 As-Built Discrepancies.

During the inspection several instances were noted where adjacent piping and structures were in concact or very close to the inspected piping. The Ebasco procedure does not require notation of interferences and the applicable MKS markup did not indicate the interferences. The need for inspection for interferences is identified as Unresolved Item 281/80-13-03; Inspection for Interferences during IEB 79-14 Piping Walkdowns.

The role of the Vepco QA/QC organization in the IE Bulletin 79-14 work effort was discussed with the Resident QC Engineer. Although QC personnel reporting directly to Vepco verified the as-built drawings, the questions raised by the NRC inspector and by Vepco's own QA audits of the IEB 79-14 program indicate the need for greater QA/QC involvement. This point was emphasized to the licensee.

IE Bulletin 79-14 remains open pending completion of all inspections and evaluations and subsequent by the NRC.

No deviations or items of noncompliance were identified.

6. (Open) IE Bulletin 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts", Units 1 and 2

The status of the IE Bulletin 79-02 work effort was reviewed for both Units. In letter serial 725, dated September 5, 1979 Vepco committed to upgrading accessible Unit 1 supports expeditiously as deficiencies were identified during plant operation and to fully comply with the intent and schedule of IE Bulletin 79-02. These committments were included as part of a response to Region II concerns about the results of the initial IEB 79-02 work effort on Surry 1. In a letter dated September 7, 1979 confirming actions to be taken by Vepco prior to and after returning Unit 1 to service Region II stated that it was understood by the NRC that Vepco would continue the inspections required by IE Bulletin 79-02 after Unit 1 startup. In inspection report 50-280/79-53 Region II reiterated this understanding and documented the discussion of this position with site and corporate personnel. Vepco letter serial number 943A/10879, dated December 7, 1979, responding to Revision 2 to IE Bulletin 79-02, indicated that the verification of factors of safety and anchor bolt inspection and testing would begin when calculated anchor bolt loads are available for an entire system (from IE Bulletin 79-14 related analyses). However, after more than four months from the date of that letter, anchor bolt loads are apparently still not

available. As of April 18, 1980 no procedures had been issued to perform the inspection and testing required by IE Bulletin 79-02 and no site work had been performed. Region II does not consider that Vepco has taken expeditious action to comply with the intent and schedule of IE Bulletin 79-02. The failure to meet committments for timely performance of IE Bulletin 79-02 inspections is identified as a deviation, 280/80-12-01. The licensee was advised of the need for immediate aggressive action and establishment of a firm realistic schedule for completion of IEB 79-02 work on Unit 1. It is noted that the licensee did perform an inspection of accessible baseplates in November, 1979 to identify gross nonconformances such as missing or broken bolts or nuts, cracked grout, excessive skewing, etc.

On Unit 2, as of April 12, 1980, of 734 total baseplates, 124 are considered inaccessible, 460 have been tested, 222 have been final accepted and 150 remain to be inspected.

The inspector observed two tension tests in the Unit 2 valve pit. Visual inspection and tension test documentation for the following five baseplates were examined:

- MKS-W7-7, plate 7C (service water system)
- MKS-123C1-1, supports 5, 6, 7 and 9 (containment spray system)

The visual inspection sheet for plate 7C on MKS-W7-7 indicated a 1/2 inch diameter bolt installed, but the tension test sheet showed a 3/4 inch diameter bolt tested. As the bolt must be removed and a threaded rod of the correct diameter installed to tension test the sleeve, it appears the most critical factor, the tension test load, is being properly applied. However, the visual acceptance or rejection criteria of a bolt, which in turn determines the required test loading, is entirely dependent on bolt diameter. The licensee agreed to evaluate the extent and significance of this discrepancy. Pending review of the licensee's study this is identified as Unresolved Item 281/80-13-02; Significance of Differences in Anchor Inspection Data.

Ebasco procedure EEPC-005, paragraphs 4.01 and 4.02 and Table 5 specify that if an anchor is rejected due to a visual inspection non conformance it must be tension tested to at least five times the calculated design load (for self drilling anchors). However, on letter of transmittal N-43 for Containment Spray MKS-123C1-1, support 5, the Options Review Committee in the Ebasco New York Office had determined that no retest was required on this anchor even though five times the design load was 6435 pounds and the anchor had only been tested to 4140 pounds. Pending licensee evaluation of this action by the New York Ebasco office this is being identified as Unresolved Item 281/80-13-01; Disposition of Tension Retest Requirements.

The role of the Vepco QA/QC organization in the Bulletin 79-02 work effort was discussed with the Resident QC Engineer. Although QC personnel reporting directly to Vepco were present during the inspection and testing operations,

the questions raised by the NRC inspector and by Vepco's own QA audits of the IEB 79-02 program indicate the need for greater QA/QC involvement. This point was emphasized to the licensee.

No items of noncompliance were identified.

IE Bulletin 79-02 remains open pending completion of all inspections and analyses and subsequent review by the NRC.