MARCH 29 1979

Docket Nos. 50-280
and 50-281

LICENSEE: Virginia Electric and Power Company (VEPCO)

FACILITY: Surry, Units 1 and 2

SUMMARY OF MEETING HELD ON MARCH 26, 1979 AT SURRY POWER STATION TO DISCUSS PIPE STRESS PROBLEMS IN SAFETY RELATED SYSTEMS

The subject meeting was held on March 26, 1979, ath the Training Center at the Surry Power Station. The purpose of the meeting was to discuss the Surry pipe stress problems.

The public, including press and TV media, and Congressman Herb Harris' assistant, C. Nance, were in attendance in addition to VEPCO and NRC personnel. A list of VEPCO and NRC personnel present is attached.

The status of the VEPCO and Stone and Webster effort was discussed and is included as an attachment. It is VEPCO's plans to verify the as-built plant conditions and then rerun all previous SHOCK I anddII calculations (75-100 runs on 15 systems) using the NUPIPE computer code.

For any pipe runs that NUPIPE evaluates to be overstressed, VEPCO currently plans to redetermine new floor response spectra based on the soil-structure interaction work submitted and reviewed by the staff in early 1974 in connection with the Surry 3 and 4 construction permits. They expect the first sets of results from the piping recalculations to be available for NRC review in several weeks at Stone and Webster facilities in Boston. It will take about one month before all piping calculations are ready. NRC stressed the need to verify that all interfaces are evaluated. VEPCO indicated that its intent is to satisfactorily develop enough information such that interim plant operation would be allowed. No commitments were made by NRC other than prompt review of docketed submittals and availability to meet with VEPCO whenever necessary.

VEPCO provided a copy of shutdown procedures and drawings of the affected systems.

TIRMOG
CCP

After the meeting, a tour of the Unit 1 containment was conducted

7904190229

OFFICE						
SURNAME						
DATE						

Meeting Summary for
Virginia Electric and Power Company - 2 -

for the NRC staff to view a sampling of lines and hangers.

Original Signed By

Don Neighbors, Project Manager
Operating Reactors Branch #1
Division of Operating Reactors

cc: See next page

Attachments:
1. Attendance List
2. VEPCO/S&W Status

OFFICE	DOR:ORB1					
SURNAME	JDNeighbors:jb					
DATE	03/19/79					

Program Support Branch P-428
Principal Staff Participants

Docket Files
NRC PDR
Local PDR
ORB Rdg
NRR Rdg
C. Kammerer
J. Fouchard
H. Denton
E. Case
V. Stello
R. Mattson
R. Boyd
R. DeYoung
D. Eisenhut
R. Vollmer
R. Denise
J. P. Knight
A. Schwencer
D. Ziemann
T. Ippolito
R. Reid
P. Check
G. Lainas
D. Davis
B. Grimes
V. Noonan
F. Shauer
R. Bosnak
L. Heller
K. Eichman
D. Brinkman
C. Nelson
D. Neighbors
P. Polk
D. Wigginton
OELD
J. Scinto
J. Souder (LPDR - advance copy)
I&E (3)
M. W. Peranick, I&E
OSD (3)
S. Showe, I&E
E. Jordon, I&E
C. Parrish
R. Ingram
S. Sheppard
P. Kreutzer
R. Fraley, ACRS (16)
Receptionist - for meetings held in Bethesda

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 29, 1979

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VEPCO provided a copy of shutdown procedures and drawings of the affected systems.

After the meeting, a tour of the Unit 1 containment was conducted

for the NRC staff to view a sampling of lines and hangers.

Don Neighbors

Don Neighbors, Project Manager
Operating Reactors Branch #1
Division of Operating Reactors

cc: See next page

Attachments:
1. Attendance List
2. VEPCO/S&W Status

Attachment 1

NRC

D. Neighbors
K. DeSai
P. Riehm
D. Burke
A. Lee
K. Wichman
W. Russell
W. Ang, Region II
D. Rathbun

VEPCO

A. Baum
C. Stallings
B. Sylvia
W. Stewart
W. Spencer

EG&G (NRC Consultant)
R. Macek

Stone and Webster
T. O'Connor

Attachment 2

STATUS REPORT AS OF MARCH 25, 1979

DYNAMIC PIPE STRESS ANALYSIS

SURRY POWER STATION - UNIT NO. 1

VIRGINIA ELECTRIC AND POWER COMPANY

INTRODUCTION

This status report covers the period from March 13 (date of the NRC Order-to-Show-Cause letter) to March 25, 1979. During this period, Stone & Webster Engineering Corporation has been analyzing the nuclear safety-related piping systems referenced in the NRC Order-to-Show-Cause. Priority for analysis has been given to those particular piping systems which constitute the reactor coolant pressure boundary (Quality Group A) and those systems required to bring the Unit to a safe shutdown and cooldown condition (Quality Group B). The remaining piping systems affected by the Order will then be analyzed following the analysis of the Unit No. 1 systems; the Unit No. 2 piping systems will be analyzed in a similar manner.

APPROACH

All nuclear safety-related systems identified by the Vepco Nuclear Power Station Quality Assurance Manual as Quality Groups A, B, and C piping systems have been identified. The Quality Group B safe shutdown systems were then identified, as well as the reactor coolant pressure boundary (Quality Group A) piping systems. From these drawings, those particular piping systems which were originally dynamically analyzed, as defined by the Order-to-Show-Cause, were identified. There were about fourteen different station systems affected which comprise about 75-100 separate analytical computer runs. Following the identification of the affected piping systems, Vepco determined the priority for analysis to permit interim station operation while the analysis continued through to completion for the balance of the affected systems.

All mechanical components (valves, pumps, heat exchangers) are then identified in each affected piping system. The component drawings, specification, and calculations are retrieved from files and assembled in data packages. A similar effort is done for the individual pipe support components in each affected piping system. This information will be utilized to review the revised stress loading each mechanical component will see following the dynamic stress analysis of the associated piping system.

The affected piping systems will be dynamically stress analyzed using the "NUPIPE" program. To perform this analysis, the affected piping system geometry and piping support type and location must be coded into the program. The piping geometry and support location and type have been field verified and revisions made to the original piping isometric drawings.

All affected piping system drawings, along with the associated supports and connecting mechanical - component drawings, will be reviewed to utilize "as-built" conditions as part of this analysis effort. The "as-built" information is necessary for accurate analytical results, particularly in those cases requiring more detailed analysis should significantly increased stresses be determined. The "as-built" design effort will commence on or about March 29, 1979.

The stress analysis will continue during the "as-built" field effort; and as information becomes available, it will be incorporated into the analysis effort, if necessary. The priorities established for the analysis effort will apply to the "as-built" design effort. The "as-built" information will be utilized to reconfirm the piping geometry but more importantly will provide information regarding the piping hanger and support details. This detailed information will be required to determine the acceptance criteria of each hanger and support in the event that the piping stress loads significantly increase as a result of the analysis.

Upon completion of all analyses, a final report will be issued documenting, as required, the results of the analysis.

SYSTEMS AFFECTED BY ORDER-TO-SHOW-CAUSE

1. Low Head Safety Injection
2. High Head Safety Injections
3. Containment and Recirculation Spray
4. Main Steam
5. Auxiliary Steam Generator Feedwater
6. Pressurizer Relief and Spray Piping
7. Residual Heat Removal
8. Service Water
9. Component Cooling Water
10. Containment Vacuum Piping
11. 3 In. High Pressurizer Steam
12. Feedwater
13. Fire Protection
14. Spent Fuel Cooling

LICENSING REQUIREMENTS

1. "Final Safety Analysis Report -- Vol. 1-5 (Part B), plus Supplement Vol. 1 and 2, and Amendments 14, 15, 17, 19, 20, 21, 22, 23, 24, and 25", Surry Power Station Units 1 and 2, Virginia Electric and Power Company, AEC Docket Nos. 50-280 and 50-281, 1969.

2. Supplemental material:

   (a) "Surry Nuclear Power Station Preoperational Environmental Radiation Surveillance Program", Report, May 1, 1968 through June 30, 1970, Virginia Electric and Power Company.

   (b) "Lateral Load Pile Tests -- Surry Power Station -- Virginia Electric and Power Company", prepared by Stone & Webster Engineering Corporation, Boston, Massachusetts, July 1968.

   (c) "Seismic Design Review, Equipment and Piping, Surry Power Station", Virginia Electric and Power Company, Revised September 15, 1971.

   (d) "Qualification Test of Prototype -- Vertical Induction Motor -- Containment Recirculation Spray Pump", by J.P. Waggener et al, Franklin Institute Research Laboratories, Final Report F-C2909, 1971.

   "Adequacy of the Structural Criteria for the Surry Power Station Units 1 and 2, Virginia Electric and Power Company", AEC Docket Nos. 50-280 and 50-281, by N.M. Newmark, W.J. Hall, and A.J. Hendron, Jr., March 1968.

ANALYSIS

The dynamic analysis of the affected piping systems is divided into two phases:

1. The piping systems will be analyzed with the original amplified response spectra to provide a comparison basis against the original code allowables.

2. Then the same piping systems will be analyzed utilizing a new amplified response spectra which incorporates soil structure interaction.

In the first case where the original amplified response spectra is used, the "NUPIPE" program will perform modal combination using techniques compatible with the original analysis and in accordance with the provisions of the Order to Show Cause.

In the second case where the soil structure interaction amplified response spectra is used, the "NUPIPE" program will use modal combinations which are compatible with present-day practices.