Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

February 27, 2003

EA-03-009

10 CFR 2.202

Secretary
Office of the Secretary of the Commission
U.S. Nuclear Regulatory Commission
ATTN: Rulemakings and Adjudications Staff
Washington, D.C. 20555-0001

Gentlemen:

| | | |
|---|---|---|
| In the Matter of | ) | Docket Nos. 50-327 |
| Tennessee Valley Authority | ) | 50-328 |
| | | 50-390 |

RESPONSE TO ISSUANCE OF ORDER ESTABLISHING INTERIM INSPECTION REQUIREMENTS FOR REACTOR PRESSURE VESSEL (RPV) HEADS AT PRESSURIZED WATER REACTORS (PWRs) FOR SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2; AND WATTS BAR NUCLEAR PLANT (WBN) UNIT 1

The Tennessee Valley Authority (TVA) hereby submits its response to the Order for Establishing Interim Inspection Requirements for RPV for PWRs (hereinafter "Order") issued by the Nuclear Regulatory Commission (NRC) on February 11, 2003.

Pursuant to the requirements of 10 CFR § 2.202, Enclosure 1 to this letter provides TVA's Answer to the Order. Enclosure 2 to this response provides additional information pertaining to SQN and WBN's susceptibility ranking calculated utilizing the methodology prescribed in the Order.

In addition, because TVA will incorporate NRC's inspection requirements prescribed in the subject Order, the inspection-related commitments contained in TVA's April 2, 2002, 15-Day responses for SQN and WBN (two letters) to NRC Bulletin (BL) 2002-01, "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity," and TVA's September 11, 2002, 30-Day response to NRC BL 2002-02, "Reactor Pressure Vessel Head and Vessel Head Penetration Nozzle Inspection Program," are superceded by this response.

Further, in those cases when it is determined either before or during an inspection of a specific nozzle in which the required coverage can not be obtained (e.g., visual inspection of 100% of the head surface, 360 degrees around a nozzle and NDE coverage up two inches above the weld), TVA will submit a relief request in accordance with 10 CFR 50.55a(a)(3), as prescribed in the Order. This letter does not contain any regulatory commitments.

If you have any questions concerning this matter, please contact Terry Knuettel at (423) 751-6673.

Sincerely,

Mark J. Burzynski

Mark J. Burzynski
Manager
Nuclear Licensing

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 27th day of February 2003.

Enclosure
cc (Enclosures):
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Mr. Samuel J. Collins, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

cc: Continued on page 3

cc: Mr. Kahtan N. Jabbour, Senior Project Manager
U.S. Nuclear Regulatory Commission
MS 08 G9
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852-2739

Mr. Raj K. Anand, Project Manager
U.S. Nuclear Regulatory Commission
MS 08 G9
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852-2739

Mr. Luis Reyes, Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, Georgia 30303-8931

Assistant General Counsel for Materials Litigation
and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

NRC Senior Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
Soddy Daisy, Tennessee 37379-3624

NRC Senior Resident Inspector
Watts Bar Nuclear Plant
1260 Nuclear Plant Road
Spring City, Tennessee 37381

ENCLOSURE 1

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

| | |
|---|---|
| In the Matter of | Docket Nos. 50-327 |
| Tennessee Valley Authority | 50-328 |
| | 50-390 |

Sequoyah Nuclear Plant, Unit 1 and Unit 2
Watts Bar Nuclear Plant, Unit 1

ANSWER TO FEBRUARY 11, 2003
COMMISSION ORDER ESTABLISHING INTERIM INSPECTION
REQUIREMENTS FOR REACTOR PRESSURE VESSEL (RPV) HEAD AT
PRESSURIZED WATER REACTORS (PWRs)

On February 11, 2003, the Nuclear Regulatory Commission ("NRC" or "Commission") issued an immediately effective order in the captioned matter entitled, "Order Modifying Licenses (Effective Immediately)" ("Order") to, *inter alia*, TVA. The Order stated that based on recent experience (i.e., circumferential cracking in vessel head penetration (VHP) nozzles at Oconee-2 and -3, severe corrosion of the head at Davis-Besse, and leakage that recently occurred at some plants from connections above the RPV head), current inspection requirements in the American Society of Mechanical Engineers Code (ASME) Code and related NRC regulations do not provide adequate assurance that reactor coolant pressure boundary integrity will be maintained for all combinations of construction materials, operating conditions, and operating histories at PWRs. NRC also stated that revising the ASME Code and, subsequently, the NRC regulations will take several years and additional

periodic inspections of RPV heads and associated penetration nozzles at PWRs (based on a function of susceptibility to primary water stress corrosion cracking) are necessary to provide reasonable assurance that plant operations do not pose an undue risk to public health and safety. Consequently, it was deemed necessary to establish a minimum set of RPV head inspection requirements as a supplement to existing inspection and other requirements in the ASME Code and NRC regulations, through the issuance of an Order to PWR Licensees.

Therefore, the NRC stated that in order to provide reasonable assurance of adequate protection of public health and safety for the interim period, all PWR Licenses identified in the Attachment to the Order shall be modified to include the inspection requirements for RPV heads and associated penetration nozzles identified in Section IV of the Order. In addition, pursuant to 10 CFR 2.202 and due to the circumstances described above, the NRC stated that the public health, safety, and interest required the Order to be immediately effective.

TVA's response to the substantive requirements of the Order is contained in a letter dated March 3, 2003, along with its enclosures, as directed by the Order. In accordance with Section V of the Order and 10 CFR 2.202, TVA hereby consents to the Order and specifically does not request a hearing.

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT (SQN), UNITS 1 AND 2
WATTS BAR NUCLEAR PLANT (WBN), UNIT 1

ADDITIONAL INFORMATION TO FEBRUARY 11, 2003
COMMISSION ORDER ESTABLISHING INTERIM INSPECTION
REQUIREMENTS FOR REACTOR PRESSURE VESSEL (RPV) HEAD AT
PRESSURIZED WATER REACTORS (PWRs)

The following provides additional information pertaining to SQN's and WBN's susceptibility ranking calculated utilizing the methodology prescribed in the Order:

Utilizing the methodology prescribed in the Order, TVA has calculated the susceptibility category for SQN Units 1 and 2, and WBN Unit 1 as represented by the value of "Effective Degradation Years" (EDYs). As stated in the Order, "The calculated value of EDY shall determine the susceptibility category and the appropriate inspection for the RPV head during each refueling outage." The following summarizes the results of these calculations and demonstrates that SQN Units 1 and 2 and WBN Unit 1 are in the low susceptibility category (i.e., EDY less than 8):

| Unit | Estimated EFPYs (Effective Full Power Years) at next refueling outage/Date | Head Temperature | Estimated EDYs at next refueling outage | Estimated EDYs at end-of-life (32 EFPY) |
|---|---|---|---|---|
| SQN U1 | 13.9 - spring 2003 | 547 | 1.46 | 3.4 |
| SQN U2 | 14.6 - fall 2003 | 547 | 1.54 | 3.4 |
| WBN U1 | 6.7 - fall 2003 | 557.3 | 1.11 | 5.3 |

As shown in the Table, both SQN and WBN are low susceptibility plants as defined by NRC's Order. Neither SQN nor WBN will exceed the NRC established threshold (< 8.0 EDYs) of low susceptibility for the current licensed life of the plants primarily due to the low operating head temperatures.

Summary

Based on the EDYs shown above, TVA's SQN and WBN Units fall in the low susceptibility category and will comply with the required RPV head inspections (i.e., techniques and frequencies) prescribed in the Order (Section IV.C.(3)).