

**J. Bernie Beasley, Jr., P.E.**  
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*Energy to Serve Your World<sup>SM</sup>*

NL-03-0390

March 3, 2003

Docket Nos.: 50-348 50-424  
50-364 50-425

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

Joseph M. Farley Nuclear Plant  
Vogtle Electric Generating Plant  
Answer to the Order Establishing Interim Inspection Requirements for  
Reactor Pressure Vessel Heads at Pressurized Water Reactors

Dear Ms. Vietti-Cook:

In accordance with the requirements of 10 CFR 2.202(a)(2), Southern Nuclear Operating Company (SNC) provides herein its Answer to the February 11, 2003 Commission Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors to modify the licenses of the Joseph M. Farley Nuclear Plant and the Vogtle Electric Generating Plant. This Answer constitutes SNC's Response in accordance with Sections IV and V of the Order, includes a request for relaxation of certain requirements of the Order in accordance with Section IV.F., and is being transmitted to the Secretary of the Commission for filing pursuant to 10 CFR 50.4.

If you have any questions or require additional information, please contact me.

This letter includes no new commitments.

Sincerely,

A handwritten signature in black ink, appearing to read "J. B. Beasley, Jr.", is written over a printed name.

J. B. Beasley, Jr.

JBB/DRG/sdl

Enclosure: Answer to the Order Establishing Interim Inspection Requirements for  
Reactor Pressure Vessel Heads at Pressurized Water Reactors

U. S. Nuclear Regulatory Commission

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cc: Southern Nuclear Operating Company  
Mr. J. D. Woodard, Executive Vice President  
Mr. J. T. Gasser, Vice President, Plant Vogtle  
Mr. D. E. Grissette, General Manager – Plant Farley  
Mr. G. R. Frederick, General Manager – Plant Vogtle  
Document Services RTYPE: CFA04.054; CVC7000

U. S. Nuclear Regulatory Commission  
Mr. L. A. Reyes, Regional Administrator (2 copies)  
Mr. F. Rinaldi, NRR Project Manager – Farley & Vogtle  
Mr. T. P. Johnson, Senior Resident Inspector – Farley  
Mr. J. Zeiler, Senior Resident Inspector – Vogtle  
Mr. S. J. Collins, Director, Office of Nuclear Reactor Regulation  
Assistant General Counsel for Materials Litigation and Enforcement  
Document Control Desk (3 copies)

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
Southern Nuclear Operating Company	)	Docket No. EA-03-009
	)	
Joseph M. Farley Nuclear Plant	)	50-348 50-364
Vogtle Electric Generating Plant	)	50-424 50-425
	)	

LICENSEE'S ANSWER TO FEBRUARY 11, 2003 COMMISSION ORDER  
ESTABLISHING INTERIM INSPECTION REQUIREMENTS  
FOR REACTOR PRESSURE VESSEL HEADS AT PRESSURIZED WATER REACTORS  
AT JOSEPH M. FARLEY NUCLEAR PLANT AND  
VOGTLE ELECTRIC GENERATING PLANT

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 Southern Nuclear Operating Company (SNC), in connection with the Joseph M. Farley Nuclear Plant and the Vogtle Electric Generating Plant. As a result of the discovery of leaks and nozzle cracking at the Davis-Besse Nuclear Power Station and other pressurized water reactor (PWR) plants, the commission determined that the performance of more effective inspections of the reactor pressure vessel (RPV) heads and associated penetrations are necessary. Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) , which is incorporated into NRC regulations by 10 CFR 50.55a, “Codes and Standards,” currently specifies that inspections of the RPV head need only include a visual examination of the insulated surface or surrounding area for signs of leakage. Based on recent experience, the commission determined that such inspections are not sufficient to reliably detect circumferential cracking of RPV head nozzles and corrosion of the RPV head. Circumferential cracking of the RPV head nozzles and corrosion of the RPV head pose a safety concern because of the possibility of a nozzle ejection or loss-of-coolant accident if the conditions are not detected and repaired. Therefore, the NRC Order establishes interim requirements in Section IV to ensure that

licensees implement and maintain appropriate measures to inspect and, as necessary, repair RPV heads and associated penetrations.

Accordingly, pursuant to 10 CFR 2.202(d), SNC consents to the Order, subject to SNC's request for relaxation of the conditions described below, as provided for by section IV, paragraph F.

Request For Relaxation From Requirements IV.C(a) and IV.C.(b)(i)

Pursuant to Section IV.F of the Order, SNC is required to seek relaxation of any conditions of the Order with respect to any proposed deviations or alternatives to the inspection requirements with which SNC is unable to comply or as to which compliance is unnecessary. A request for relaxation regarding inspection of specific nozzles is required to address the following criteria:

- (1) The proposed alternative(s) for inspection of specific nozzles will provide an acceptable level of quality and safety, or
- (2) Compliance with this Order for specific nozzles would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The Order requires performance of RPV head and head penetration nozzle inspections by means of the techniques specified in section IV, paragraph C. Relaxation is sought for both the Joseph M. Farley Nuclear Plant and the Vogtle Electric Generating Plant with regard to two of these requirements.

- 1) Item (a) under each step of paragraph C requires bare metal visual examination of 100% of the RPV head surface. SNC is unable to completely comply with this requirement due to inaccessibility of a small (< 1%) portion of the RPV head surface for inspection where the control rod drive mechanism (CRDM) shroud support structure and reflective metal insulation (RMI) meet the RPV head.

Proposed Alternative:

SNC proposes to achieve substantial compliance with this requirement by conducting a bare metal visual examination of the RPV head surface to the extent accessible.

Discussion of Proposed Alternative and Consideration of Criteria:

SNC believes compliance with the requirement for 100% visual examination coverage is unnecessary in that inaccessibility of a small percentage of the head surface due to the RMI and shroud does not preclude performance of an effective bare metal visual examination of the RPV head. Improving access to this area for visual examination would require major disassembly of the RMI and shroud causing a substantial increase in radiation dose. This increase in radiation dose would not be offset by an increase in quality or safety because:

- the RPV head penetration nozzles are not located in or adjacent to the inaccessible area so 360° visual examination around each RPV head penetration nozzle is unaffected by this limitation, and
- the head surface immediately upslope and downslope of the inaccessible area will be examined for evidence of boric acid leakage under the RMI or shroud support structure.

Accordingly, the proposed alternative will provide an acceptable level of quality and safety.

2) Item (b) option (i) under each step of paragraph C requires ultrasonic testing (UT) of the RPV head penetration nozzles from two (2) inches above the J-groove weld to the bottom of the nozzle. SNC is unable to completely comply with the requirement for UT to the bottom of the four (4) inch diameter penetration nozzles (used for CRDMs, thermocouples, spares, etc.) due to the physical configuration of the nozzles and the limitations of the test equipment. The bottom ends of these nozzles are externally threaded, internally tapered, or both. Loss of UT probe coupling due to the internal taper and/or disruption of the UT signal due to the external thread will prevent UT data acquisition in a zone extending to approximately one and one-half (1-1/2) inches above the bottom of each nozzle.

Proposed Alternative:

SNC proposes to utilize inspection option (b)(i) and anticipates achieving UT coverage reaching from two (2) inches above the J-groove weld down as far as UT data can be acquired.

Discussion of Proposed Alternative and Consideration of Criteria:

SNC believes compliance with the requirement for UT coverage to the bottom of the nozzle is unnecessary in that the cited inspection limitation for the four (4) inch diameter nozzles does not preclude UT examination of the portions of these nozzles that are of primary interest.

This is because.

- UT of the most highly stressed portion of the nozzle (the weld heat affected zone) is unaffected by this limitation,
- UT of the interference fit zone above the weld (for leakage assessment) is unaffected by this limitation, and
- cracks initiating in the unexamined bottom portion (non-pressure boundary) of the nozzle would be of minimal safety significance with respect to pressure boundary leakage or nozzle ejection, since this portion of the nozzle is several inches below the pressure boundary and any cracks would have to grow through a significant examined portion of the tube to reach the pressure boundary.

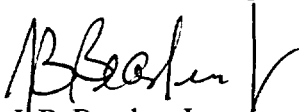
Accordingly, the proposed alternative will provide an acceptable level of quality and safety.

In accordance with 10 CFR 2.202(a)(2) for an Answer to an Order, the following affirmation is required:

Mr. J. B. Beasley, Jr. states he is a Vice President of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

Southern Nuclear Operating Company

  
J. B. Beasley, Jr.

Sworn to and subscribed before me this 3<sup>rd</sup> day of March, 2003.

  
Gloria H. Blevins  
Notary Public

My commission expires: 6-7-05