**Don E. Grissette**
Vice President

**Southern Nuclear Operating Company, Inc.**
40 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201

Tel 205.992.6474
Fax 205.992.0341

SOUTHERN COMPANY
*Energy to Serve Your World℠*

July 1, 2005

NL-05-0990

Docket Nos.: 50-424
50-425

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Vogtle Electric Generating Plant
Response to NRC Request for Additional Information Regarding
Relaxation From First Revised NRC Order EA-03-009

Ladies and Gentlemen:

On March 8, 2004, Southern Nuclear Operating Company (SNC) submitted an Answer to the February 20, 2004 Commission Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors. The Answer constituted SNC's Response in accordance with Sections IV and V of the Revised Order and included a request for relaxation of certain requirements of the Revised Order in accordance with Section IV.F.

On May 23, 2005, SNC received a facsimile containing 3 questions from the NRC regarding the VEGP March 8, 2004, submittal. The SNC response to the NRC questions is enclosed.

SNC requests approval of the proposed relaxation to the Revised Order by September 16, 2005, in order to support the fall 2005 VEGP Unit 2 maintenance/refueling outage.

(Affirmation and signature are on the following page.)

A101

Mr. D. E. Grissette 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.

This letter contains no NRC commitments. If you have any questions, please advise.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Don E. Grissette

*Sworn to and subscribed before me this* 1st *day of* July, *2005.*

*Notary Public*

*My commission expires:* 11/19/06

DEG/DRG/daj

Enclosure: SNC Response to NRC RAI Regarding Relaxation From First Revised NRC Order EA-03-009

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. T. E. Tynan, General Manager – Plant Vogtle
RType: CVC7000

U. S. Nuclear Regulatory Commission
Dr. W. D. Travers, Regional Administrator
Mr. C. Gratton, NRR Project Manager – Vogtle
Mr. G. J. McCoy, Senior Resident Inspector – Vogtle

State of Georgia
Mr. L. C. Barrett, Commissioner – Department of Natural Resources

Enclosure

SNC Response to NRC RAI Regarding
Vogtle Electric Generating Plant Units 1 and 2
Relaxation From First Revised NRC Order EA-03-009

SNC Response to NRC RAI Regarding
Vogtle Electric Generating Plant Units 1 and 2
Relaxation From First Revised NRC Order EA-03-009

1. NRC Question

**What is the total radiological dose estimate to remove all necessary insulation panels to perform a bare metal visual examination in full compliance with the requirements of the First Revised NRC Order EA-03-009?**

SNC Response

The configuration of the reactor pressure vessel (RPV) upper head and the RPV upper head insulation is the same for both Vogtle Electric Generating Plant (VEGP) Units 1 and 2. There are eight horizontal stainless steel insulation panels per RPV upper head insulation package that prevent the performance of a bare metal visual examination (BMV) in full compliance with the requirements of the First Revised NRC Order EA-03-009. These panels are 3" thick and are connected in an overlapping, sequential pattern that would require, as a minimum, complete removal to uncover these areas and could require further disassembly to achieve a 100% BMV examination.. This would also require the removal of the integrated head shroud (IHS) for access. These panels are connected by clips, screws, and rivets that would be time and dose intensive to remove. If only the eight panels in question and the IHS require removal, the total radiological dose estimate is a minimum of 5.0 Rem per RPV upper head. Therefore, the dose involved to remove these eight insulation panels to clear a 0.8% obstruction (see SNC response to question 2) would be prohibitive.

2. NRC Question

**What are the physical limitations imposed on the bare metal visual inspection by the reflective metal insulation? Provide details on where limitations to the inspection due to insulation obstructions and camera limitations.**

SNC Response

As stated in SNC's response to NRC question 1, the configuration of the RPV upper head and the RPV upper head insulation is the same for VEGP Units 1 and 2. The total surface in the area encompassed by D1 shown on figure 1 (enclosure page 3 of 5) for the RPV upper head was calculated using the first formula on figure 1 and determined to be 19,338 square inches. Figure 1 is found in ASME Section XI Code Case N-729, "Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds." The area shown as detail "A" on figure 2 (enclosure page 4 of 5) restricts the bare metal visual (BMV) examination within D1 except at the ends where the crawler could see and sometimes could get through for a short distance. With each of these eight panels typically 46.8125 inches in length, approximately 80% or 37.45 inches of the length of each panel is obstructed as shown on figure 3

SNC Response to NRC Question 2 (continued)

(enclosure page 5 of 5). Since only the lower edges are actually touching the head, the lower edge width in contact would conservatively be less than 0.5 inches, resulting in a total area obstructed by the eight sections of approximately 18.725 square inches x 8 sections =149.8 square inches. Therefore, using the second formula on figure 1 to calculate the area of obstruction within D1, approximately 99.2% of the RPV upper head area within D1 will receive a BMV. The surface area above and below this small band of obstructed area is accessible and does not involve penetration annulus coverage. This coverage is the same for both VEGP RPV upper head examinations.

3. NRC Question

**Will the previously performed inspections for Units 1 and 2 be used to satisfy the requirements of the First Revised NRC Order EA-03-009?**

**A. If yes, what actions were taken during each inspection to achieve improved inspection coverage area?**

**B. If no, what additional actions will be taken to achieve improved inspection coverage area?**

SNC Response

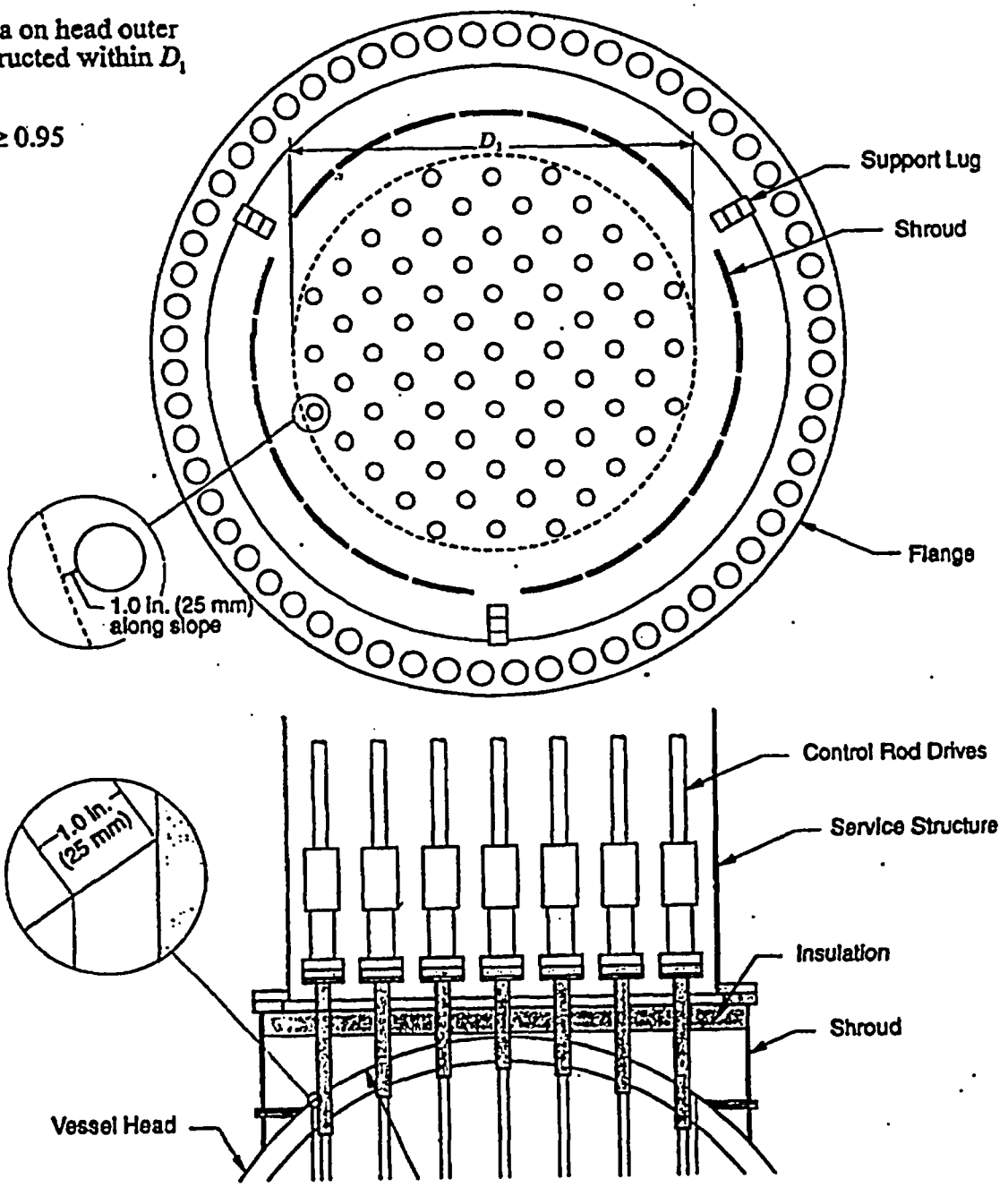
Yes. During the VEGP Unit 1 fall 2003 refueling outage (1R11) and the VEGP Unit 2 spring 2004 refueling outage (2R10), a remote BMV examination was performed on each RPV upper head achieving > 95% of the outer surface of the RPV top closure head including 360° around each RPV head penetration nozzle. The scope of these examinations was not 100% of the head surfaces because of the small area of the head made inaccessible by the RPV upper head insulation, as discussed in SNC response to question 2. These remote examinations included those areas of the RPV head upslope and downslope from the insulation interference to identify any evidence of boron or corrosion residue and were performed with a resolution capability at least equivalent to that obtained by direct visual observation. A modification to the insulation was performed prior to the examination in order to make accessible 360° around each RPV head penetration nozzle. The total radiological dose received during the modification to the insulation was 1.2 Rem on VEGP Unit 1 and 1.4 Rem on VEGP Unit 2. The results of these examinations were reported as required by Section IV.E of the Order in SNC letters NL-03-2394 and NL-04-1050 dated December 19, 2003, and June 28, 2004, respectively.

Figure 1

$$A = 2\pi R_o\left[R_o - \sqrt{R_o^2 - (D_1/2)^2}\right]$$

$A_{obstruct}$ = area on head outer surface obstructed within $D_1$

$$\frac{A - A_{obstruct}}{A} \geq 0.95$$



**SNC Response to NRC RAI Regarding**
**Vogtle Electric Generating Plant Units 1 and 2**
**Relaxation From First Revised NRC Order EA-03-009**

Figure 2

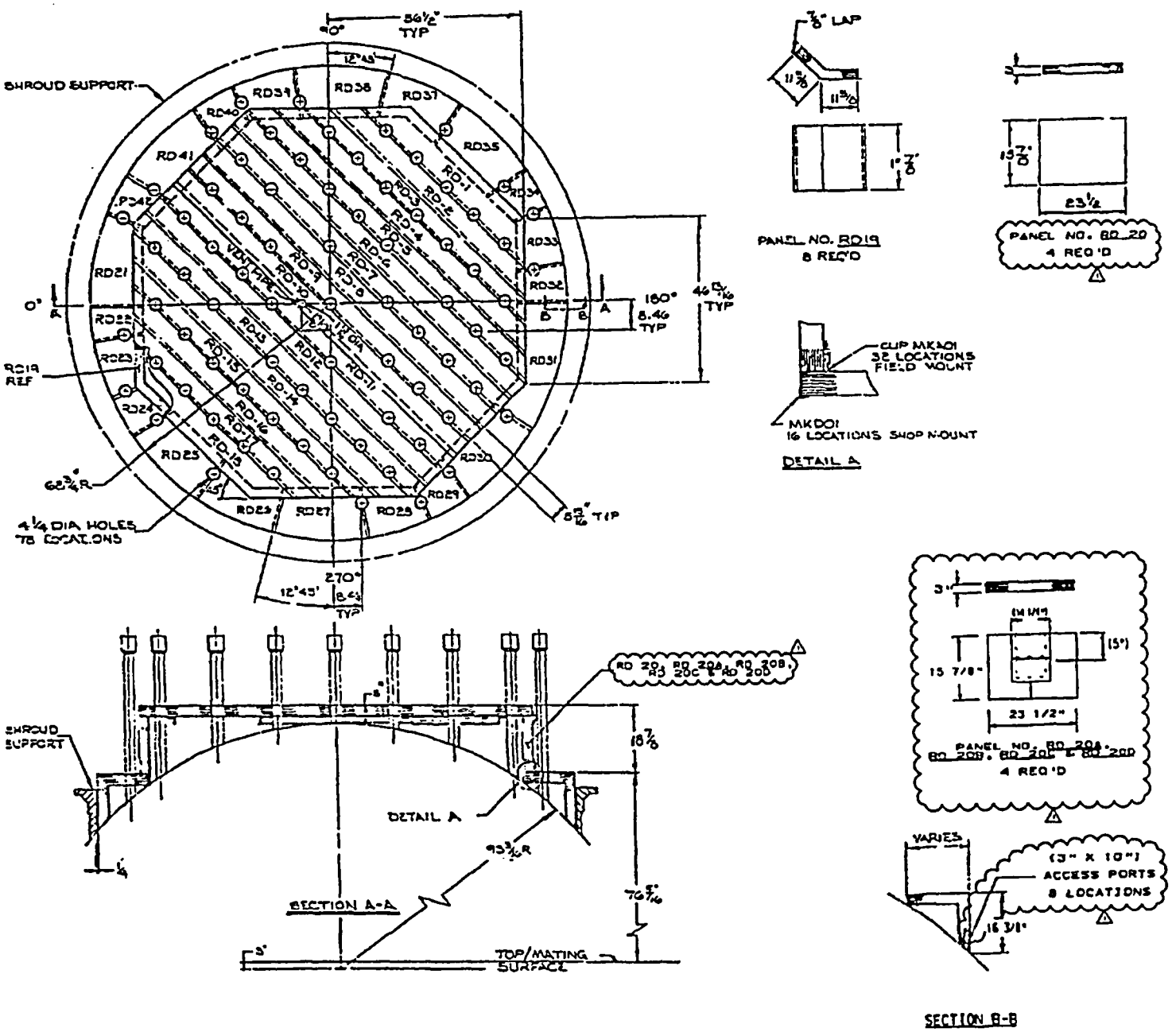
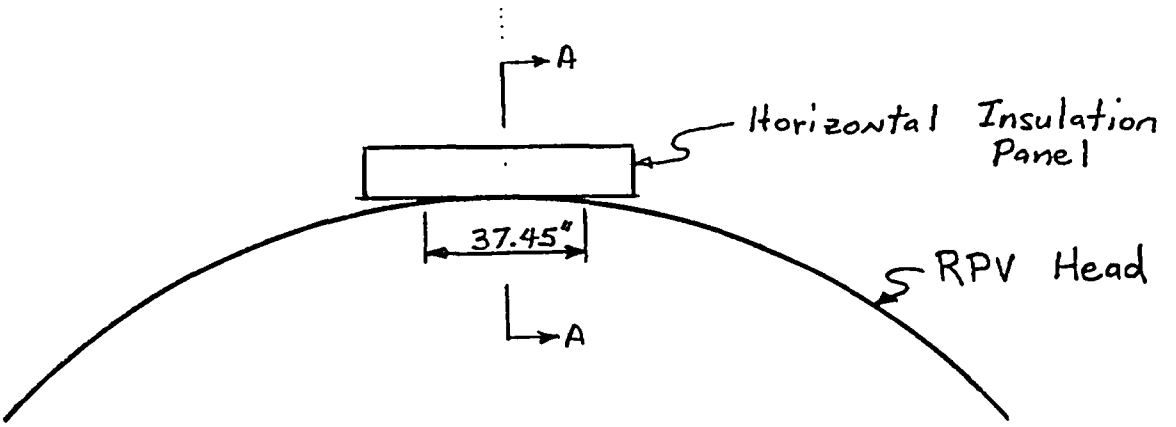
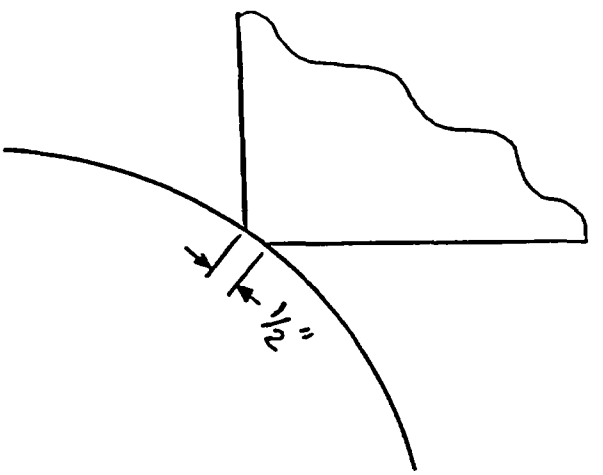


Figure 3




Section A-A