L. M. Stinson (Mike)
Vice President

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

Tel 205.992.5181
Fax 205.992.0341

SOUTHERN COMPANY
Energy to Serve Your World℠

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

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

Joseph M. Farley Nuclear Plant
Vogtle Electric Generating Plant
Response to NRC Generic Letter 2004-01,
"<u>Requirements for Steam Generator Tube Inspections</u>"

Ladies and Gentlemen:

Pursuant to the requirements of Nuclear Regulatory Commission (NRC) Generic Letter 2004-01, "Requirements for Steam Generator Tube Inspections" issued to the Southern Nuclear Operating Company (SNC) on August 30, 2004, SNC hereby submits Enclosures 1 and 2 which constitute the required 60-day responses for Joseph M. Farley Nuclear Plant (FNP) Units 1 and 2 and Vogtle Electric Generating Plant (VEGP) Units 1 and 2.

Mr. L. M. Stinson 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

L. M. Stinson

L. M. Stinson

Sworn to and subscribed before me this 25 *day of* October *, 2004.*

Gloria H. Bui
Notary Public

My commission expires: 6-7-05

A115

LMS/DRG

Enclosures: 1. Farley Nuclear Plant Response to NRC Generic Letter 2004-01, "Requirements for Steam Generator Tube Inspections"

2. Vogtle Electric Generating Plant Response to NRC Generic Letter 2004-01, "Requirements for Steam Generator Tube Inspections"

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. D. E. Grissette, Vice President – Plant Vogtle
Mr. J. R. Johnson, General Manager – Plant Farley
Mr. W. F. Kitchens, General Manager – Plant Vogtle
RType: CFA04.054; CVC7000; LC# 14159

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

Enclosure 1

Farley Nuclear Plant
Response to NRC Generic Letter 2004-01,
"Requirements for Steam Generator Tube Inspections"

Farley Nuclear Plant
Response to NRC Generic Letter 2004-01,
"Requirements for Steam Generator Tube Inspections"

Within 60 days of the date of this generic letter, addressees are requested to provide the following information to the NRC.

1. *Addressees should provide a description of the SG tube inspections performed at their plant during the last inspection. In addition, if they are not using SG tube inspection methods whose capabilities are consistent with the NRC's position, addressees should provide an assessment of how the tube inspections performed at their plant meet the inspection requirements of the TS in conjunction with Criteria IX and XI of 10CFR Part 50, Appendix B, and corrective action taken in accordance with Appendix B, Criterion XVI. This assessment should also address whether the tube inspection practices are capable of detecting flaws of any type that may potentially be present along the length of the tube required to be inspected and that may exceed the applicable tube repair criteria.*

   FNP Response to Item 1:

   Steam Generator tube inspections performed at Farley Nuclear Plant (FNP) are consistent with the NRC's position regarding tube inspections.

   FNP Units 1 and 2 each have 3 Westinghouse Model 54F steam generators (SG). The tubing material in each of the SGs is Inconel Alloy 690 thermally treated. In addition, the first 8 rows had the U-bend area stress relieved after bending. All tubes are fully hydraulically expanded into the tube sheet.

   In the last SG tubing eddy current inspection, for FNP Unit 2, October 2002, the following tube inspection scope was performed in SGs A, B, and C, as the first ISI eddy current inspection after SG replacement:

   - 100% full length inspection with the bobbin probe (except Row 1 and Row 2 U-bends),
   - 20% hot leg (HL) expansion transition, by inspecting $\pm$ 3 inches from the top of the tubesheet (TTS) with the +Point magnetic rotating pancake coil (MRPC) probe,
   - 100% small radius (Row 1 and Row 2) U-bends with +Point probe,
   - 100% of HL straight section dings and dents $\geq$ 5 volts (as measured with the bobbin probe) with the +Point probe,
   - Special interest +Point probe examination of all "I-codes" bobbin indications that were not cleared based on the pre-service inspection results.

   FNP practice is to use tube inspection methods that are capable of detecting flaw types that may be present. Prior to each inspection, a degradation assessment, which includes operating experience, is performed to identify degradation mechanisms that may be present, and a technique validation assessment is performed to verify that the eddy current techniques are capable of detecting those flaw types identified in the degradation assessment.

   The FNP Technical Specifications (TS) have recently been amended (NRC SER dated September 10, 2004, ML042570418) to incorporate the industry's Generic

Licensing Change Package (GLCP), which reflects an approach for SG tubing inspections based on NEI 97-06, "Steam Generator Program Guidelines." Because of the GLCP TS change, and good results in prior inspections of the FNP SGs, for the next inspection, FNP Unit 1, April 2006, an inspection scope is planned in SGs A, B, and C as follows:

- 50% full length inspection with the bobbin probe (except Row 1 and Row 2 U-bends),
- At least 20% hot leg (HL) expansion transition, by inspecting ± 3 inches from the top of the tubesheet (TTS) with the +Point probe,
- At least 20% small radius (Row 1 and Row 2) U-bends with the +Point probe,
- At least 20% of HL and U-bend dings and dents ≥ 5 volts (as measured with the bobbin probe) with the +Point probe,
- Special interest +Point probe examination of all "I-codes" bobbin indications that were not cleared based on the pre-service inspection results.

If axial or circumferential ID or OD indications are detected, the sample would be expanded per the EPRI guidelines.

2. *If addressees conclude that full compliance with the TS in conjunction with Criteria IX, XI and XVI of 10 CFR Part 50, Appendix B, requires corrective action, they should discuss their proposed corrective actions (e.g., changing inspection practices consistent with the NRC's position or submitting a TS amendment request with the associated safety basis for limiting the inspections) to achieve full compliance. If addressees choose to change their TS, the staff has included in the Attachment suggested changes to the TS definitions for a tube inspection and for plugging limits to show what may be acceptable to the staff in cases where the tubes are expanded for the full depth of the tube sheet and where the extent of the inspection in the tube sheet region is limited*

FNP Response to Item 2:

Steam Generator tube inspections performed at FNP are consistent with the NRC's position regarding tube inspections. Therefore this question does not apply.

3. *For plants where SG tube inspections have not been or are not being performed consistent with the NRC's position on the requirements in the TS in conjunction with Criteria IX, XI, and XVI of 10 CFR Part 50, Appendix B, the licensee should submit a safety assessment (i.e., a justification for continued operation based on maintaining tube structural and leakage integrity) that addresses any differences between the licensee's inspection practices and those called for by the NRC's position. Safety assessments should be submitted for all areas of the tube required to be inspected by the TS, where flaws are not being used, and should include the basis for not employing such inspection techniques. The assessment should include an evaluation of (1) whether the inspection practices rely on an acceptance standard (e.g., cracks located at least a minimum distance of x below the top of tube sheet, even if these*

cracks cause complete severance of the tube) which is different from the TS acceptance standards (i.e., the tube plugging limits or repair criteria), and (2) whether the safety assessment constitutes a change to the "method of evaluation" (as defined in 10CRF50.59) for establishing the structural and leakage integrity of the joint. If the safety assessment constitutes a change to the method of evaluation under 10 CFR 50.59, *the licensee should determine whether a license amendment is necessary pursuant to that regulation.*

FNP Response to Item 3:

Steam Generator tube inspections performed at FNP are consistent with the NRC's position regarding tube inspections. Therefore this question does not apply

Enclosure 2

Vogtle Electric Generating Plant
Response to NRC Generic Letter 2004-01,
"Requirements for Steam Generator Tube Inspections"

Vogtle Electric Generating Plant
Response to NRC Generic Letter 2004-01,
"Requirements for Steam Generator Tube Inspections"

Within 60 days of the date of this generic letter, addressees are requested to provide the following information to the NRC as described in items 1, 2, and 3.

1. *Addressees should provide a description of the SG tube inspections performed at their plant during the last inspection. In addition, if they are not using SG tube inspection methods whose capabilities are consistent with the NRC's position, addressees should provide an assessment of how the tube inspections performed at their plant meet the inspection requirements of the TS in conjunction with Criteria IX and XI of 10CFR Part 50, Appendix B, and corrective action taken in accordance with Appendix B, Criterion XVI. This assessment should also address whether the tube inspection practices are capable of detecting flaws of any type that may potentially be present along the length of the tube required to be inspected and that may exceed the applicable tube repair criteria.*

VEGP Response to Item 1:

Steam Generator tube inspections performed at Vogtle Electric Generating Plant (VEGP) are consistent with the NRC's position regarding tube inspections.

VEGP Units 1 and 2 each have 4 Westinghouse Model F steam generators (SG). The tubing material in each of the SGs is Inconel Alloy 600 thermally treated. In addition, the first 10 rows had the U-bend area stress relieved after bending. All tubes are fully hydraulically expanded into the tube sheet.

In the last refueling outage, for VEGP Unit 2, April 2004, the following tube inspection base scope was performed in SGs 2 and 3:

- 100% full length inspection with the bobbin probe (except Row 1 and Row 2 U-bends),
- 50% hot leg (HL) expansion transition, by inspecting $\pm$ 3 inches from the top of the tubesheet (TTS) with the +Point magnetic rotating pancake coil (MRPC) probe,
- 50% small radius (Row 1 and Row 2) U-bends with the +Point probe,
- 100% of HL straight length dings and dents $\geq$ 5 volts (as measured with the bobbin probe) with the +Point probe,
- Special interest +Point examination of all "I-codes" indications that were new or not resolved after history review.

Several scope expansions were performed, which involved SGs 1, 2, 3, and 4, per EPRI Report 1003138, Pressurized Water Reactor Steam Generator Examination Guidelines, due to discovery of outside diameter (OD) circumferential crack-like indications. Two tubes in SG2 were pulled for laboratory testing. Results reported by the laboratory are that metallographic examination showed no evidence of tube degradation, and that the flaw-like signals recorded during the April 2004 inspection do not represent circumferential ODSCC in the expansion transition.

Because the laboratory results demonstrate cracking degradation was not detected at VEGP in the last outage, for the next VEGP Unit 1, March 2005, inspection, an inspection scope similar to the base scope (excluding the expanded scope) described above is planned for the two SGs which were not inspected in the previous Unit 1 outage inspection. Also, for the next VEGP Unit 2, September 2005, inspection, an inspection scope similar to the base scope described above is planned for SGs 1 and 4.

VEGP practice is to use tube inspection methods that are capable of detecting flaw types that may be present. Prior to each inspection, a degradation assessment is performed, which includes operating experience, to identify degradation mechanisms that may be present, and a technique validation assessment is performed to verify that the eddy current techniques are capable of detecting those flaw types identified in the degradation assessment.

2. *If addressees conclude that full compliance with the TS in conjunction with Criteria IX, XI and XVI of 10 CFR Part 50, Appendix B, requires corrective action, they should discuss their proposed corrective actions (e.g., changing inspection practices consistent with the NRC's position or submitting a TS amendment request with the associated safety basis for limiting the inspections) to achieve full compliance. If addressees choose to change their TS, the staff has included in the Attachment suggested changes to the TS definitions for a tube inspection and for plugging limits to show what may be acceptable to the staff in cases where the tubes are expanded for the full depth of the tube sheet and where the extent of the inspection in the tube sheet region is limited*

   VEGP Response to Item 2:

   Steam Generator tube inspections performed at VEGP are consistent with the NRC's position regarding tube inspections. Therefore this question does not apply.

3. *For plants where SG tube inspections have not been or are not being performed consistent with the NRC's position on the requirements in the TS in conjunction with Criteria IX, XI, and XVI of 10 CFR Part 50, Appendix B, the licensee should submit a safety assessment (i.e., a justification for continued operation based on maintaining tube structural and leakage integrity) that addresses any differences between the licensee's inspection practices and those called for by the NRC's position. Safety assessments should be submitted for all areas of the tube required to be inspected by the TS, where flaws are not being used, and should include the basis for not employing such inspection techniques. The assessment should include an evaluation of (1) whether the inspection practices rely on an acceptance standard (e.g., cracks located at least a minimum distance of x below the top of tube sheet, even if these cracks cause complete severance of the tube) which is different from the TS acceptance standards (i.e., the tube plugging limits or repair criteria), and (2) whether the safety assessment constitutes a change to the "method of evaluation" (as defined in 10CRF50.59) for establishing the structural and leakage integrity of the joint. If the safety assessment constitutes a change to the method* of evaluation under 10 CFR 50.59, *the licensee should determine whether a license amendment is necessary pursuant to that regulation.*

VEGP Response to Item 3:

Steam Generator tube inspections performed at VEGP are consistent with the NRC's position regarding tube inspections. Therefore this question does not apply.