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SOUTHERN COMPANY

APR 23 2010

Docket Nos.: 52-025
52-026

ND-10-0801

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4 Combined License Application
Response to Bellefonte Units 3 and 4 Safety Evaluation Report Open Items for Chapter 3

Ladies and Gentlemen:

By letter dated March 28, 2008, Southern Nuclear Operating Company (SNC) submitted an application for combined licenses (COLs) for proposed Vogtle Electric Generating Plant (VEGP) Units 3 and 4 to the U.S. Nuclear Regulatory Commission (NRC) for two Westinghouse AP1000 reactor plants, in accordance with 10 CFR Part 52. As a result of the NRC's detailed review of the initial AP1000 Reference COL application (Bellefonte Units 3 and 4), the NRC has written a safety evaluation report (SER) with open items for the subject chapter. VEGP addressed some of the items in previous letters as indicated in the enclosure. VEGP is revising its previous response to one of the Chapter 3 open items identified in the SER in the enclosure to this letter as the new Reference COL applicant. These revisions address recent proposed revisions to the corresponding Westinghouse AP1000 Design Control Document (DCD) sections. For completeness, each open item is identified, but responses are provided only for the items impacting standard information or otherwise resulting in standard changes for the AP1000 COL applications. The open items identified as plant specific will be addressed on the Bellefonte Units 3 and 4 docket by the Tennessee Valley Authority.

If you have any questions regarding this letter, please contact Mr. Wes Sparkman at (205) 992-5061 or Ms. Amy Aughtman at (205) 992-5805.

DO92

NRO

Mr. B. L. (Pete) Ivey 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

B. L. (Pete) Ivey

Sworn to and subscribed before me this 23rd *day of* April, *2010*

Notary Public: Nancy Louise Henderson

NOTARY PUBLIC STATE OF ALABAMA AT LARGE
MY COMMISSION EXPIRES: Mar 23, 2014
BONDED THRU NOTARY PUBLIC UNDERWRITERS

My commission expires: _____

BLI/BJS/dmw

Enclosure: Response to R-COLA SER with Open Items, Chapter 3

cc: Southern Nuclear Operating Company
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Mr. J. T. Gasser, Executive Vice President, Nuclear Operations (w/o enclosure)
Mr. D. H. Jones, Site Vice President, Vogtle 3 & 4 (w/o enclosure)
Mr. T. E. Tynan, Vice President - Vogtle (w/o enclosure)
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Document Services RTYPE: AR01.1053
File AR.01.02.06

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Mr. R. H. Kitchen, PGN
Ms. A. M. Monroe, SCE&G
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Southern Nuclear Operating Company

ND-10-0801

Enclosure

Response to R-COLA SER with Open Items

Chapter 3

Open Item	Response
03.04-01	Plant-Specific – Bellefonte (not included)
03.06-01	Standard – See enclosed revised response
03.09-01	Standard – See 12-14-2009 response
03.09-02	Standard – See 03-01-2010 response
03.09-03	Standard – See 03-01-2010 response
03.09-04	Standard – See 03-01-2010 response
03.09-05	Standard – See 01-12-2010 response
03.09-06	Standard – See 12-14-2009 response
03.10-01	Standard – See 04-02-2010 response
03.11-01	Standard – See 12-14-2009 response

Attachments / Enclosures	Pages Included
None	

eRAI Tracking No. 0569

NuStart Qb Tracking No. 3948

NRC SER 0I Number 03.06-01:

Based on the review of the information included in the BLN COL FSAR, it is unclear to the staff when the as-designed pipe rupture hazard analysis report will be completed by the applicant. As identified in 10 CFR 52.79(d)(3), the applicant should supply the NRC with a schedule for completion of detailed engineering information, in this case, the as-designed pipe rupture hazard analysis report. The applicant is requested to revise the implementation milestone for the License Condition to address the as-designed pipe rupture hazard analysis report (as opposed to as-built reconciliation) to allow coordination of activities with the NRC construction inspection program following the issuance of the COL such that the analysis would be made available to verify the design was completed in accordance with the regulations and DCD prior to fabrication and installation of the piping and connected components. In RAI 3.6.2-1, the staff requested the applicant provide a description pertaining to the closure milestone of the as-designed pipe rupture hazard analysis activities.

The applicant responded to RAI 3.6.2-1, however, based on its review of the applicant's response, the staff determined that it is not acceptable. Specifically, RAI 3.6.2-1 requested that the applicant address the implementation milestone of the as-designed pipe rupture hazard analysis report. However, the applicant's RAI response addressed the as-built rather than the as-designed aspect. Therefore, RAI 3.6.2-1 remains unresolved and will be tracked as Open Item 3.6-1.

SNC Response:

This supplement to the response revises the previously provided COLA document revisions as identified in the COL Application Revisions below.

The COL items described in DCD Subsections 3.6.4.1 and 3.9.2 have recently been revised by Westinghouse in their response to the DCD open items (OI)-SRP3.6.2-EMB2-01 and OI-SRP3.12-EMB-04 to be more specific with regard to the as-designed pipe rupture hazards evaluation and design reports. According to the revised DCD OI response, the as-built reconciliation inspections are now addressed by ITAAC line items in DCD Tier 1 Section 2 for applicable piping design reports and item 8 of DCD Tier 1 Table 3.3-6 for the pipe rupture hazards analysis. Thus, these items are removed from the proposed License Conditions in Part 10 and replaced with appropriate proposed License Conditions and ITAAC for as-designed analysis and reports. The proposed License Conditions essentially provide a milestone ahead of the Part 52, Section 52.103(g) completion milestone for all ITAAC.

Appropriate revisions to the COL application to address the revised and new COL items are identified in the COL Application Revisions below. These revisions will be included in a future amendment to the COL application.

This response is expected to be STANDARD for the S-COLAs.

It should be noted, however, that the as-designed pipe rupture hazards evaluations and design reports are also expected to be STANDARD and once completed for the R-COLA, the S-COLAs may respond by providing the appropriate completion information.

Associated VEGP COL Application Revisions:

1. COLA Part 2, FSAR Chapter 1, Section 1.8, Table 1.8-201, will be revised to include the following new item:

3.9-7	As-Designed Piping Analysis	3.9.8.7	3.9.8.7	H

2. COLA Part 2, FSAR Chapter 3, Subsection 3.6.4.1, will be revised from:

   Replace the last paragraph in DCD Subsection 3.6.4.1 with the following text.

   A pipe rupture hazard analysis is part of the piping design. It is used to identify postulated break locations and layout changes, support design, whip restraint design, and jet shield design. The final design for these activities will be completed prior to fabrication and installation of the piping and connected components. The as-built reconciliation of the pipe break hazards analysis in accordance with the criteria outlined in DCD Subsections 3.6.1.3.2 and 3.6.2.5 will be completed prior to fuel load.

   To read:

   Replace the last paragraph in DCD Subsection 3.6.4.1 with the following text.

   The as-designed pipe rupture hazards evaluation is made available for NRC review. The completed as-designed pipe rupture hazards evaluation will be in accordance with the criteria outlined in DCD Subsections 3.6.1.3.2 and 3.6.2.5. Systems, structures, and components identified to be essential targets protected by associated mitigation features (Reference is DCD Table 3.6-3) will be confirmed as part of the evaluation, and updated information will be provided as appropriate.

   A pipe rupture hazards analysis is part of the piping design. The evaluation will be performed for high and moderate energy piping to confirm the protection of systems, structures, and components which are required to be functional during and following a design basis event. The locations of the postulated ruptures and essential targets will be established and required pipe whip restraints and jet shield designs will be included. The report will address environmental and flooding effects of cracks in high and moderate energy piping. The as-designed pipe rupture hazards evaluation is prepared on a generic basis to address COL applications referencing the AP1000 design.

   The pipe whip restraint and jet shield design includes the properties and characteristics of procured components connected to the piping, components, and walls at identified break and target locations. The design will be completed prior to installation of the piping and connected components.

   The as-built reconciliation of the pipe rupture hazards evaluation whip restraint and jet shield design in accordance with the criteria outlined in DCD Subsections 3.6.1.3.2 and 3.6.2.5 will be completed prior to fuel load (in accordance with DCD Tier 1 Table 3.3-6, item 8).

   This COL item is also addressed in Subsection 14.3.3.

3. COLA Part 2, FSAR Chapter 3, Subsection 3.9.8.2, will be revised from:

   Add the following text after the second paragraph in DCD Subsection 3.9.8.2.

   Reconciliation of the as-built piping (verification of the thermal cycling and stratification loading considered in the stress analysis discussed in DCD Subsection 3.9.3.1.2) is completed after the construction of the piping systems and prior to fuel load.

   To read:

   Add the following text after the second paragraph in DCD Subsection 3.9.8.2.

   Design specifications and design reports for ASME Section III piping are made available for NRC review. Reconciliation of the as-built piping (verification of the thermal cycling and stratification loading considered in the stress analysis discussed in DCD Subsection 3.9.3.1.2) is completed by the COL holder after the construction of the piping systems and prior to fuel load (in accordance with DCD Tier 1 Section 2 ITAAC line items for the applicable systems).

4. COLA Part 2, FSAR Chapter 3, Subsection 3.9.8.7, will be added to read:

   3.8.9.7 As-Designed Piping Analysis

   Add the following text at the end of DCD Subsection 3.9.8.7.

   The as-designed piping analysis is provided for the piping lines chosen to demonstrate all aspects of the piping design. A design report referencing the as-designed piping calculation packages, including ASME Section III piping analysis, support evaluations and piping component fatigue analysis for Class 1 piping using the methods and criteria outlined in DCD Table 3.9-19 is made available for NRC review.

   This COL item is also addressed in Subsection 14.3.3.

5. COLA Part 2, FSAR Chapter 14, Subsection 14.3.3, add the following Subsections 14.3.3.# (where # is the next sequential number) and text, (note that the first item added will have an LMA of STD COL 3.6-1, and the second item added will have an LMA of STD COL 3.9-1) as follows:

   14.3.3.# Pipe Rupture Hazard Analysis ITAAC

   A pipe rupture hazard analysis is part of the piping design. The analyses will document that structures, systems, and components (SSCs) which are required to be functional during and following a design basis event have adequate high-energy and moderate-energy pipe break mitigation features. The locations of postulated ruptures and essential targets will be established and required pipe whip restraint and jet shield designs will be included. The as-designed pipe rupture hazards analysis will be based on the as-designed piping analysis and will be in accordance with the criteria outlined in DCD Subsections 3.6.1.3.2 and 3.6.2.5. The evaluation will address environmental and flooding effects of cracks in high and moderate energy piping. The report of the pipe rupture hazard analysis shall conclude that, for each postulated piping failure, the systems, structures, and components that are required to be functional during and following a design basis event are protected.

   The as-built reconciliation of the pipe rupture hazards evaluation whip restraint and jet shield design in accordance with the criteria outlined in DCD Subsections 3.6.1.3.2 and 3.6.2.5 are covered in as-built ITAAC identified in DCD Tier 1 to demonstrate that the as-built pipe rupture hazards mitigation features reflect the design, as reconciled. The reconciliation report will be made available for NRC inspection or audit when it has been completed.

   The as-designed pipe rupture hazard analysis completed for the first standard AP1000 plant will be available to subsequent standard AP1000 plants under the "one issue, one review, one position" approach for closure.

   14.3.3.# Piping Design ITAAC

   The piping design ITAAC consists of the piping analysis for safety-related ASME Code piping. The piping design is completed on a package-by-package basis for applicable systems. In order to support closure of the piping design ITAAC, information consisting of the as-designed piping analysis for piping lines chosen to demonstrate all aspects of the piping design will be made available for NRC review, inspection, and/or audit. This information will consist of a design report referencing the as-designed piping calculation packages, including ASME Section III piping analysis, support evaluations and piping component fatigue analysis for Class I piping. The piping packages to be analyzed are identified the in DCD.

   The ASME Code prescribes certain procedures and requirements that are to be followed for completing the piping design. The piping design ITAAC includes a verification of the ASME Code design report to ensure that the appropriate code design requirements for each system's safety class have been implemented.

   A reconciliation of the applicable safety-related as-built piping systems is covered in as-built ITAAC identified in DCD Tier 1 to demonstrate that the as-built piping reflects the design, as reconciled. The reconciliation report will be made available for NRC inspection or audit when it has been completed.

The piping design completed for the first standard AP1000 plant will be available to subsequent standard AP1000 plants under the "one issue, one review, one position" approach for closure.

6. COLA Part 10, Proposed License Conditions, item 2 – COL Item No. 3.6-1, will be revised from (Note that this revised item essentially identifies a milestone for advance completion of the ITAAC discussed in 14.3.3):

3.6-1	Pipe Break Hazards Analysis	3.6.4.1	Prior to initial fuel load

After a Combined License is issued, the following activity will be completed by the COL holder:

A pipe rupture hazard analysis is part of the piping design. It is used to identify postulated break locations and layout changes, support design, whip restraint design, and jet shield design. The final design for these activities will be completed prior to fabrication and installation of the piping and connected components. The as-built reconciliation of the pipe break hazards analysis in accordance with the criteria outlined in subsections 3.6.1.3.2 and 3.6.2.5 will be completed prior to fuel load.

To read:

3.6-1	As-Designed Pipe Rupture Hazards Analysis	3.6.4.1	Prior to installation of the piping and connected components in their final location

After a Combined License is issued, the following activity will be completed by the COL holder.

An as-designed pipe rupture hazard evaluation will be available for NRC review. The completed as-designed pipe rupture hazards evaluation will be in accordance with the criteria outlined in DCD Subsections 3.6.1.3.2 and 3.6.2.5. Systems, structures, and components identified to be essential targets and appropriate mitigation features (Reference is DCD Table 3.6-3) will be confirmed as part of the evaluation, and updated information will be provided as appropriate. A pipe rupture hazards analysis is part of the piping design. The evaluation will be performed for high and moderate energy piping to confirm the protection of systems, structures, and components (SSCs), which are required to be functional during and following a design basis event. The locations of the postulated ruptures and essential targets will be established and required pipe whip restraints and jet shield designs will be included. The evaluation will address environmental and flooding effects of cracks in high and moderate energy piping. The as-designed pipe rupture hazards evaluation is prepared on a generic basis to address COL applications referencing the AP1000 design.

7. COLA Part 10, Proposed License Conditions, item 2 – COL Item No. 3.9-2, will be deleted since this item is addressed by ITAAC in DCD Tier 1 Section 2 line items for the applicable systems.

~~3.9-2 Design Specification and Reports 3.9.8.2 Prior to initial fuel load~~

~~After a Combined License is issued, the following activities are completed by the COL holder:~~

~~Reconciliation of the as-built piping (verification of the thermal cycling and stratification loadings considered in the stress analysis discussed in subsection 3.9.3.1.2) is completed by the COL holder after the construction of the piping systems and prior to fuel load.~~

8. COLA Part 10, Proposed License Conditions, item 2 – COL Item No. 3.9-7, will be included as a new line item (Note that this new item essentially identifies a milestone for advance completion of the ITAAC discussed in 14.3.3):

3.9-7	As-Designed Piping Analysis	3.9.8.7	Prior to installation of the piping and connected components in their final location

After a Combined License is issued, the following activity will be completed by the COL holder:

The as-designed piping analysis is provided for the piping lines chosen to demonstrate all aspects of the piping design. A design report referencing the as-designed piping calculation packages, including ASME Section III piping analysis, support evaluations and piping component fatigue analysis for Class 1 piping using the methods and criteria outlined in DCD Table 3.9-19 is made available for NRC review. The availability of the piping design information and design reports for the piping packages is identified to the NRC.

9. Part 10, Appendix B, Inspections, Tests, Analyses and Acceptance Criteria, add the following after the last site-specific ITAAC (where # is the next sequential number):

Pipe Rupture Hazard Analysis ITAAC

The ITAAC for Pipe Rupture Hazard Analysis are included in attached Table 3.8-#.

Piping Design ITAAC

The ITAAC for Piping Design are included in attached Table 3.8-#.

10. Part 10, Appendix B, Inspections, Tests, Analyses and Acceptance Criteria, add the following Tables after the last site-specific ITAAC Table:

Table 3.8-#
Pipe Rupture Hazards Analysis (Sheet 1 of 1)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Systems, structures, and components (SSCs), that are required to be functional during and following a design basis event shall be protected against or qualified to withstand the dynamic and environmental effects associated with analyses of postulated failures in high and moderate energy piping.	Inspection of the as-designed pipe rupture hazard analysis report will be conducted. The report documents the analyses to determine where protection features are necessary to mitigate the consequence of a pipe break. Pipe break events involving high-energy fluid systems are analyzed for the effects of pipe whip, jet impingement, flooding, room pressurization, and temperature effects. Pipe break events involving moderate-energy fluid systems are analyzed for wetting from spray, flooding, and other environmental effects, as appropriate.	An as-designed pipe rupture hazard analysis report exists and concludes that the analysis performed for high and moderate energy piping confirms the protection of systems, structures, and components required to be functional during and following a design basis event.

Table 3.8-#
Piping Design (Sheet 1 of 1)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The ASME Code Section III piping is designed in accordance with ASME Code Section III requirements.	Inspection of ASME Code Design Reports (NCA-3550) and required documents will be conducted for the set of lines chosen to demonstrate compliance.	ASME Code Design Report(s) (NCA-3550) (certified, when required by ASME Code) exist and conclude that the design of the piping for lines chosen to demonstrate all aspects of the piping design complies with the requirements of ASME Code Section III.