PMVogtleCOLPEm Resource

From: Javorka, Deborah A. [DAJavork@southernco.com]
Sent: Monday, December 14, 2009 5:42 PM
To: Miller, James H., III; Miller, Buzz (Joseph); Gasser, Jeff T.; Jones, David H.; Tynan, Tom E.; Lloyd, Dale M.; Smith, Michael K.; Ajluni, Mark J.; Williams, James D. (Vogtle); Davis, James T.; Giddens, John M.; Moorer, Tom C.; Sparkman, Wesley A.; Aughtman, Amy G.; Sweeney, Brian J.; Pierce, Chuck R.; Reyes, Luis; Akstulewicz, Frank; Joshi, Ravindra; Hughes, Brian; Simms, Tanya; Anderson, Brian; Comar, Manny; Notich, Mark; Cain, Loyd; Harper, Oscar C.; Jackson, S. (MEAG); 'Mr. J.S. Prebula'; 'Mr. R.W. Prunty'; 'Mr. K.B. Allison'; 'Mr. J.M. Oddo'; 'Mr. D.C. Shutt'; 'Mr. E. Cummins'; 'Norm Boyter'; 'Sam Bradley'; 'Mr. R.B. Sisk'; 'Mr. J.L. Whiteman'; 'Mr. D.A. Lindgren (lindg1da@westinghouse.com)'; 'Mr. R.J. Grumbir'; 'Mr. E. Grant '; 'Mr. B. Hirmanpour'; 'neilhaggerty@comcast.net'; 'Ms. K.N. Slays'; 'Mr. P.S. Hastings'
Cc: Williams, Dana M.
Subject: SNC Letter ND-09-2015 - SNC VEGP Units 3&4 COL Response to Bellefonte Units 3&4 Safety Evaluation Report Open Items for Chapter 3
Attachments: ND-09-2015.pdf

Importance: High

An electronic copy of Southern Nuclear's letter, ND-09-2015 dated December 14, 2009 is attached.
A hard copy has been transmitted to the NRC Document Control Desk via FedEx. Thanks!

Deborah Javorka
Southern Nuclear Operating Company
Nuclear Development / Project Controls
42 Inverness Center Parkway - Bin B236
Birmingham, AL 35242
dajavork@southernco.com
Phone: (205) 992-5187
Fax: (205) 992-5296

Hearing Identifier: Vogtle_COL_Public
Email Number: 297

Mail Envelope Properties (235FF5C46790104687D2103E55C98F04C1499389)

Subject: SNC Letter ND-09-2015 - SNC VEGP Units 3&4 COL Response to Bellefonte Units 3&4 Safety Evaluation Report Open Items for Chapter 3
Sent Date: 12/14/2009 5:41:48 PM
Received Date: 12/14/2009 5:42:19 PM
From: Javorka, Deborah A.

Created By: DAJavork@southernco.com

Recipients:
"Williams, Dana M." <DANAWILL@SOUTHERNCO.COM>
Tracking Status: None
"Miller, James H., III" <JHMILLER@southernco.com>
Tracking Status: None
"Miller, Buzz (Joseph)" <JAMILLER@southernco.com>
Tracking Status: None
"Gasser, Jeff T." <JTGASSER@southernco.com>
Tracking Status: None
"Jones, David H." <DAHJONES@southernco.com>
Tracking Status: None
"Tynan, Tom E." <TETYNAN@southernco.com>
Tracking Status: None
"Lloyd, Dale M." <DMLLOYD@southernco.com>
Tracking Status: None
"Smith, Michael K." <MKSmith@southernco.com>
Tracking Status: None
"Ajluni, Mark J." <MJAJLUNI@southernco.com>
Tracking Status: None
"Williams, James D. (Vogtle)" <JADWILLI@southernco.com>
Tracking Status: None
"Davis, James T." <JTDAVIS@southernco.com>
Tracking Status: None
"Giddens, John M." <JMGIDDEN@southernco.com>
Tracking Status: None
"Moorer, Tom C." <TCMOORER@southernco.com>
Tracking Status: None
"Sparkman, Wesley A." <WASPARKM@southernco.com>
Tracking Status: None
"Aughtman, Amy G." <AGAUGHTM@SOUTHERNCO.COM>
Tracking Status: None
"Sweeney, Brian J." <X2SWEENE@southernco.com>
Tracking Status: None
"Pierce, Chuck R." <CRPIERCE@southernco.com>
Tracking Status: None
"Reyes, Luis" <Luis.Reyes@nrc.gov>
Tracking Status: None
"Akstulewicz, Frank" <Frank.Akstulewicz@nrc.gov>
Tracking Status: None
"Joshi, Ravindra" <Ravindra.Joshi@nrc.gov>
Tracking Status: None

"Hughes, Brian" <Brian.Hughes@nrc.gov>
Tracking Status: None
"Simms, Tanya" <Tanya.Simms@nrc.gov>
Tracking Status: None
"Anderson, Brian" <Brian.Anderson@nrc.gov>
Tracking Status: None
"Comar, Manny" <Manny.Comar@nrc.gov>
Tracking Status: None
"Notich, Mark" <Mark.Notich@nrc.gov>
Tracking Status: None
"Cain, Loyd" <Loyd.Cain@nrc.gov>
Tracking Status: None
"Harper, Oscar C." <OCHARPER@southernco.com>
Tracking Status: None
"Jackson, S. (MEAG)" <sjackson@meagpower.org>
Tracking Status: None
"'Mr. J.S. Prebula'" <jprebula@bechtel.com>
Tracking Status: None
"'Mr. R.W. Prunty'" <rwprunty@bechtel.com>
Tracking Status: None
"'Mr. K.B. Allison'" <kenneth.allison@shawgrp.com>
Tracking Status: None
"'Mr. J.M. Oddo'" <john.oddo@shawgrp.com>
Tracking Status: None
"'Mr. D.C. Shutt'" <daniel.shutt@shawgrp.com>
Tracking Status: None
"'Mr. E. Cummins'" <cumminwe@westinghouse.com>
Tracking Status: None
"'Norm Boyter'" <boyternc@westinghouse.com>
Tracking Status: None
"'Sam Bradley'" <bradlesa@westinghouse.com>
Tracking Status: None
"'Mr. R.B. Sisk'" <sisk1rb@westinghouse.com>
Tracking Status: None
"'Mr. J.L. Whiteman'" <whitemjl@westinghouse.com>
Tracking Status: None
"'Mr. D.A. Lindgren (lindg1da@westinghouse.com)'" <lindg1da@westinghouse.com>
Tracking Status: None
"'Mr. R.J. Grumbir'" <rgrumbir@gmail.com>
Tracking Status: None
"'Mr. E. Grant '" <eddie.grant@excelservices.com>
Tracking Status: None
"'Mr. B. Hirmanpour'" <Bob.Hirmanpour@excelservices.com>
Tracking Status: None
"'neilhaggerty@comcast.net'" <neilhaggerty@comcast.net>
Tracking Status: None
"'Ms. K.N. Slays'" <Kim.Slays@duke-energy.com>
Tracking Status: None
"'Mr. P.S. Hastings'" <peter.hastings@duke-energy.com>
Tracking Status: None

Post Office: FMXAPEX81PR.southernco.com

Files	**Size**	**Date & Time**
MESSAGE	426	12/14/2009 5:42:19 PM
ND-09-2015.pdf	1279209	

Options

Priority:	High
Return Notification:	No
Reply Requested:	No
Sensitivity:	Normal
Expiration Date:	
Recipients Received:	

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

Tel 205.992.5000

SOUTHERN COMPANY
Energy to Serve Your World

December 14, 2009

Docket Nos.: 52-025
52-026

ND-09-2015

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 is addressing the open items identified in the SER in the enclosure to this letter as the new Reference COL applicant. 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.

Mr. C.R. Pierce states he is the AP1000 Licensing Manager 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

Charles R. Pierce

Charles R. Pierce

Sworn to and subscribed before me this 14th *day of* December, *2009*

Notary Public: Deborah A. Jaworska

My commission expires: October 24, 2012

CRP/BJS/dmw

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

cc: Southern Nuclear Operating Company
Mr. J. H. Miller, III, President and CEO (w/o enclosure)
Mr. J. A. Miller, Executive Vice President, Nuclear Development (w/o enclosure)
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)
Mr. D. M. Lloyd, Vogtle 3 & 4 Project Support Director (w/o enclosure)
Mr. M. K. Smith, Technical Support Director (w/o enclosure)
Mr. M. J. Ajluni, Nuclear Licensing Manager
Mr. J. D. Williams, Vogtle 3 & 4 Site Support Manager
Mr. W. A. Sparkman, COL Project Engineer
Document Services RTYPE: AR01.1053
File AR.01.02.06

Nuclear Regulatory Commission
Mr. L. A. Reyes, Region II Administrator
Mr. F.M. Akstulewicz, Deputy Director Div. of Safety Systems & Risk Assess. (w/o enclosure)
Mr. R. G. Joshi, Lead Project Manager of New Reactors
Mr. B. Hughes, Project Manager of New Reactors
Ms. T. E. Simms, Project Manager of New Reactors
Mr. B. C. Anderson, Project Manager of New Reactors
Mr. M. M. Comar, Project Manager of New Reactors
Ms. S. Goetz, Project Manager of New Reactors
Mr. J. M. Sebrosky, Project Manager of New Reactors
Mr. D. C. Habib, Project Manager of New Reactors
Mr. C. P. Patel, Project Manager of New Reactors
Ms. D. L. McGovern, Project Manager of New Reactors
Ms. M. A. Sutton, Environmental Project Manager
Mr. M. D. Notich, Environmental Project Manager
Mr. L. M. Cain, Senior Resident Inspector of VEGP

Georgia Power Company
Mr. O. C. Harper, IV, Vice President, Resource Planning and Nuclear Development

Oglethorpe Power Corporation
Mr. M. W. Price, Executive Vice President and Chief Operating Officer
Mr. K. T. Haynes, Director of Contracts and Regulatory Oversight

Municipal Electric Authority of Georgia
Mr. S. M. Jackson, Vice President, Power Supply

Dalton Utilities
Mr. D. Cope, President and Chief Executive Officer

Bechtel Power Corporation
Mr. J. S. Prebula, Project Engineer (w/o enclosure)
Mr. R. W. Prunty, Licensing Engineer

Tetra Tech NUS, Inc.
Ms. K. K. Patterson, Project Manager

Shaw Stone & Webster, Inc.
Mr. K. B. Allison, Project Manager (w/o enclosure)
Mr. J. M. Oddo, Licensing Manager
Mr. D. C. Shutt, Licensing Engineer

Westinghouse Electric Company, LLC
Mr. W. E. Cummins, Vice President of Regulatory Affairs & Standardization (w/o enclosure)
Mr. N. C. Boyter, Consortium Project Director Vogtle Units 3 & 4 (w/o enclosure)
Mr. S. A. Bradley, Vogtle Project Licensing Manager
Mr. R. B. Sisk, Manager, AP1000 Licensing and Customer Interface
Mr. J. L. Whiteman, Principal Engineer, Licensing & Customer Interface
Mr. D. A. Lindgren, Principal Engineer, AP1000 Licensing and Customer Interface

NuStart Energy
Mr. R. J. Grumbir
Mr. E. R. Grant
Mr. B. Hirmanpour
Mr. N. Haggerty
Ms. K. N. Slays

Other NuStart Energy Associates
Ms. M. C. Kray, NuStart
Mr. S. P. Frantz, Morgan Lewis
Mr. P. S. Hastings, NuStart & Duke Energy
Mr. J. A. Bailey, TVA
Ms. A. L. Sterdis, TVA
Mr. J. P. Berger, EDF
Mr. M. W. Gettler, FP&L
Mr. P. Hinnenkamp, Entergy
Mr. G. D. Miller, PG&N
Mr. M. C. Nolan, Duke Energy
Mr. N. T. Simms, Duke Energy
Mr. G. A. Zinke, NuStart & Entergy
Mr. R. H. Kitchen, PGN
Ms. A. M. Monroe, SCE&G
Mr. T. Beville, DOE/PM

Southern Nuclear Operating Company

ND-09-2015

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 – to be provided later
03.09-01	Standard – See enclosed
03.09-02	Standard – to be provided later
03.09-03	Standard – to be provided later
03.09-04	Standard – See enclosed
03.09-05	Standard – to be provided later
03.09-06	Standard – See enclosed
03.10-01	Standard – to be provided later
03.11-01	Standard – See enclosed

Attachments / Enclosures	Pages Included
None	

eRAI Tracking No. 0569

NuStart Qb Tracking No. 3948

NRC SER OI 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:

Westinghouse Electric Company (WEC) is currently developing their response to AP1000 DCD SER Open Item OI-SRP3.6.2-EMB2-01 which is directly related to this topic. Following the WEC submittal to address their SER open item, the need for additional COL application submittals will be determined and provided as appropriate.

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

Associated VEGP COL Application Revisions:

None

eRAI Tracking No. 0110

NuStart Qb Tracking No. 3949

NRC SER OI Number 03.09-01:

On March 26 and 27, 2008, the NRC staff held a public meeting with the applicant and Westinghouse to discuss the review of the BLN COL application and the AP1000 DCD revision related to the IST program description, MOV testing, and functional design of pumps and valves. In RAI 3.9.6-2, the NRC staff requested that the applicant confirm the agreement at the public meeting that Westinghouse will make additional information available on the functional design and qualification of safety-related valves and dynamic restraints within the scope of the AP1000 DCD as part of design and procurement specifications that will be applicable to BLN Units 3 and 4. In its response to this RAI, the applicant stated that Westinghouse would make additional information available for staff audit regarding design and procurement specifications. On October 14 and 15, 2008, the NRC staff conducted an onsite review of design and procurement specifications for pumps, valves, and dynamic restraints to be used for the AP1000 reactor at the Westinghouse offices in Monroeville, PA. In response to the NRC staff comments on the DCD provisions for the functional design and qualification of valves, the AP1000 DCD was revised in Revision 17, Section 5.4.8.3 to specify that the requirements for qualification testing of power-operated active valves are based on the ASME Standard QME-1-2007. The NRC staff issued Revision 3 to RG 1.100 that accepts the use of ASME Standard QME-1-2007 for the functional design and qualification of valves, with certain conditions. As documented in the SER for the AP1000 DCD, Revision 17, the staff describes four follow-up items that remain to be resolved by Westinghouse. These issues need to be resolved to complete the review of the IST program in support of the BLN COL application. This is Open Item 3.9-1.

SNC Response:

This open item does not identify any specific actions for the COL application, but rather identifies a placeholder for completion of NRC reviews on the DCD amendment. If the NRC indicates that additional information is needed as a result of the completion of the review of the DCD material, then additional information will be provided.

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

Associated VEGP COL Application Revisions:

None.

eRAI Tracking No. 0110

NuStart Qb Tracking No. 3950

NRC SER OI Number 03.09-02:

AP1000 DCD, Section 3.9.6.2.2 discusses valve testing in a section titled "Power-Operated Valve Operability Tests." For example, this AP1000 DCD section specifies that operability testing as required by 10 CFR 50.55a(b)(3)(ii) is performed on MOVs in the ASME OM Code IST Program to demonstrate that the MOVs are capable of performing their design-basis safety functions. In RAI 3.9.6-8, the NRC staff requested that the applicant discuss the application of JOG MOV Periodic Verification Study, MPR-2524-A, referenced in BLN COL FSAR Section 3.9.6.2.2, and the NRC safety evaluation on the JOG program, dated September 2006, for periodic verification of the design-basis capability of safety-related MOVs, and plans regarding other POVs. In its response to this RAI, the applicant stated that the BLN COL FSAR would be revised to address this issue. Revision 1 to BLN COL FSAR Section 3.9.6.3, "Relief Requests," states that the BLN IST program utilizes ASME OM Code Case OMN-1 (Revision 1), "Alternative Rules for the Preservice and Inservice Testing of Certain Electric Motor-Operated Valve Assemblies in Light Water Reactor Power Plants." Revision 1 to the BLN COL FSAR also states that the BLN IST program, as applicable, will follow the guidance in the JOG MOV Periodic Verification Program, including the recommendations in the NRC safety evaluation on the JOG MOV periodic verification program, dated September 2006, for periodic verification of the design-basis capability of safety-related MOVs. The applicant also stated that the BLN COL FSAR will be revised to address this issue as part of the response to RAI 3.9.6-11. The NRC accepts, with conditions, ASME OM Code Case OMN-1 (Revision 0) in RG 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code." The NRC staff has not updated RG 1.192 at this time to accept Revision 1 to ASME OM Code Case OMN-1. Further, RAI 3.9.6-11 applies to POVs other than MOVs. Therefore, the applicant needs to address RAI 3.9.6-8 with respect to MOVs. The applicant needs to submit a request to apply an alternative to the ASME OM Code to use ASME OM Code Case OMN-1 (Revision 1). Further, the applicant needs to update BLN COL FSAR Section 3.9.6 to be consistent with Revision 17 to the AP1000 DCD. For example, Revision 1 to the BLN COL FSAR refers to sentences in Section 3.9.6.2.2 of the AP1000 DCD that have been revised in Revision 17 to the DCD. This is Open Item 3.9-2.

SNC Response:

This response is still being developed and will be provided later.

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

Associated VEGP COL Application Revisions:

To be determined.

eRAI Tracking No. 0110

NuStart Qb Tracking No. 3951

NRC SER OI Number 03.09-03:

In light of the weaknesses in the IST provisions in the ASME OM Code for quarterly MOV stroke-time testing, the NRC issued GL 96-05 to request that nuclear power plant licensees establish programs to assure the capability of safety-related MOVs to perform their design-basis functions over the long term. Further, the NRC revised 10 CFR 50.55a to require that nuclear power plant licensees supplement the MOV stroke-time testing specified in the ASME OM Code with a program to ensure that MOVs continue to be capable of performing their design-basis safety functions. In RAI 3.9.6-9, the NRC staff requested that the applicant clarify the paragraph titled "Active MOV Test Frequency Determination" in Section 3.9.6.2.2 of the BLN COL FSAR. In its response to this RAI, the applicant stated that the FSAR would be revised in response to this RAI. Revision 1 to BLN FSAR Section 3.9.6.2.2 indicates that the valve functional design and qualification requirements will be specified in procurement specifications. The FSAR references the guidance of the JOG MOV periodic verification program and the ASME OM Code Case OMN-1 requirements, following valve installation, to verify design-basis capability and to identify potential valve degradation impacts on functional margin. The FSAR states that the test frequency will be established using the guidance in ASME OM Code Case OMN-1. The NRC staff finds the provisions specified in Revision 1 to the BLN COL FSAR in response to this RAI to be acceptable, but not sufficient to fully describe the MOV Testing Operational Program. For example, several aspects of the RAI are not addressed in the FSAR, including: (a) use of ASME OM Code Case OMN-1 (Revision 0) as accepted in RG 1.192 in the BLN COL FSAR or request for an alternative to the ASME OM Code to implement ASME OM Code Case OMN-1 (Revision 1); (b) determination of MOV required capability for design-basis conditions on a periodic basis (such as by the JOG MOV periodic verification program); (c) determination of MOV output capability on a periodic basis; (d) how periodic testing objectively demonstrates continued MOV capability to open and/or close under design-basis conditions; (e) justification of approach for any IST intervals that exceed either 5 years or three refueling outages; and (f) how successful completion of the preservice and IST of MOVs demonstrates that the following criteria are met: (i) valve fully opens and/or closes as required by its safety function; (ii) adequate margin exists and includes consideration of diagnostic equipment inaccuracies, degraded voltage, control switch repeatability, load-sensitive MOV behavior, and margin for degradation; and (iii) maximum torque and/or thrust (as applicable) achieved by the MOV (allowing sufficient margin for diagnostic equipment inaccuracies and control switch repeatability) does not exceed the allowable structural and undervoltage motor capability limits for the individual parts of the MOV. This is Open Item 3.9-3.

SNC Response:

This response is still being developed and will be provided later.

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

Associated VEGP COL Application Revisions:

To be determined.

eRAI Tracking No. 0110

NuStart Qb Tracking No. 3952

NRC SER OI Number 03.09-04:

In addition to incorporating by reference Section 3.9.6.2.2 of the AP1000 DCD, the BLN COL FSAR includes a paragraph titled "Other Power-Operated Valve Operability Tests," that states that POVs other than active MOVs are exercised quarterly in accordance with ASME OM Code, Subsection ISTC, unless justification is provided in the IST program for testing these valves at other Code mandated frequencies. Lessons learned from the resolution of weaknesses in the design, qualification, and testing of MOVs are also applicable to other POVs used at nuclear power plants. In discussing the MOV lessons learned applicable to other POVs in Regulatory Issue Summary (RIS) 2000-03, "Resolution of Generic Safety Issue 158: Performance of Safety-Related Power-Operated Valves Under Design Basis Conditions," the NRC staff determined that the current regulations provide adequate requirements to ensure design-basis capability of safety-related POVs. For example, the staff noted that licensees are required by 10 CFR 50.65 (Maintenance Rule) to monitor the performance of SSCs in a manner sufficient to provide reasonable assurance that the SSCs are capable of fulfilling their intended functions. In RAI 3.9.6-11, the NRC staff requested that the applicant clarify the program description for safety-related POVs other than MOVs in the paragraph titled "Other Power-Operated Valve Operability Tests," in Section 3.9.6.2.2 of the BLN COL FSAR. In its response, the applicant stated that the BLN COL FSAR would be revised in response to this RAI. Revision 1 to BLN COL FSAR Section 3.9.6.2.2 provides a description of operability testing for POVs other than MOVs to be implemented at BLN Units 3 and 4. For example, the FSAR states that subsequent to verification of the design-basis capability of POVs as part of the design and qualification program, POVs that perform an active safety function will be tested after installation to ensure valve setup is acceptable to perform their required functions consistent with valve qualification. This testing will document the baseline performance of the valves and will include measurement of critical parameters with consideration of uncertainties associated with the performance of these tests and use of the test results. Additional periodic testing will be performed as part of the air-operated valve (AOV) program based on the JOG AOV program discussed in RIS 2000-03 with specific reference to NRC staff comments on that program. The BLN AOV program will also include the attributes for a successful POV periodic verification program described in RIS 2000-03 by incorporating lessons learned from nuclear power plant operations and research programs as they apply to the periodic testing of AOVs and other POVs in the IST Program. The FSAR specifies an example list of the AOV program attributes including valve categorization based on safety significance and risk ranking, AOV setpoints based on current vendor information or valve qualification diagnostic testing, periodic static testing to identify potential degradation, use of sufficient diagnostics to collect relevant data to verify that the valve meets functional requirements, specification of test frequency and evaluation based on data trends, post-maintenance procedures to ensure baseline testing will be re-performed as necessary when high-risk valve performance could be affected, inclusion of lessons learned from other valve programs, and retention and periodic evaluation of AOV test documentation. For the most part, the NRC staff finds that Revision 1 to the BLN COL FSAR addresses the lessons learned from the MOV operating experience and research programs in describing the program for the periodic verification of the design-basis capability of POVs other than MOVs. In addition to the current provisions, the BLN COL FSAR needs to address potential periodic dynamic testing of POVs other than MOVs based on the design qualification results or valve operating experience. Also, the FSAR should specify that post-maintenance procedures will be implemented for all safety-related POVs consistent with the QA requirements in 10 CFR Part 50, Appendix B, regardless of their specific risk ranking. The BLN COL FSAR should also clarify the applicability of its provisions to POVs other than AOVs and MOVs. This is Open Item 3.9-4.

SNC Response:

The RAI has three components, parts (a), (b) and (c) as indicated above.

(a) DCD Subsection 3.9.6.2.2 was revised to address POV periodic dynamic testing in Revision 17; the paragraph containing the subheading "Power-Operated Valve Operability Tests" states that Table 3.9-16 identifies valves that **will** require valve operability testing. [Emphasis added] FSAR Subsection 3.9.6.2.2, in the third paragraph following the paragraph with subheading "Other Power-Operated Valve Operability Tests" states that additional testing is performed as part of the air-operated valve (AOV) program, which includes the key elements for an AOV Program as identified in the JOG AOV program document, Joint Owners Group Air Operated Valve Program Document, Revision 1, December 13, 2000 (Reference 203 and Reference 204). The AOV program incorporates the attributes for a successful power-operated valve long-term periodic verification program, as discussed in Regulatory Issue Summary 2000-03, Resolution of Generic Safety Issue 158: Performance of Safety-Related Power-Operated Valves Under Design Basis Conditions, by incorporating lessons learned from previous nuclear power plant operations and research programs as they apply to the **periodic testing of air- and other power-operated valves** included in the IST program. [Emphasis added] The COLA changes identified in the Associated COL Application Revisions section below will further clarify the applicability to POVs other than MOVs.

(b) FSAR Subsection 3.9.6.2.2 in the sixth bulleted paragraph following the paragraph containing the subheading "Other Power-Operated Valve Operability Tests" states that post-maintenance procedures include appropriate instructions and criteria to ensure baseline testing is re-performed as necessary when maintenance on the valve, valve repair or replacement, have the potential to affect high-risk valve functional performance. However, this statement was not intended to mean that only maintenance on high-risk valves would be governed by procedure. The quality assurance program establishes the quality assurance policy and assigns major functional responsibilities for construction/pre-operation and/or operations activities affecting the quality and performance of safety-related structures, systems, and components. The requirements for procedures include the necessary measures to control the activities affecting quality performed in accordance with instructions, procedures or drawings of a type appropriate to the circumstances and which, where applicable, include quantitative or qualitative acceptance criteria. See the COLA changes identified in the Associated COL Application Revisions section below.

(c) Information in the COLA following the paragraph with subheading "Other Power-Operated Valve Operability Tests" applies to POVs other than AOVs. For clarity, the COLA change identified in the Associated COL Application Revisions section below will be made.

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

Associated VEGP COL Application Revisions:

(a) (1) Revise the last sentence of the third paragraph following the paragraph in FSAR Subsection 3.9.6.2.2 containing subheading "Other Power-Operated Valve Operability Tests" from:

... The AOV program incorporates the attributes for a successful power-operated valve long-term periodic verification program, as discussed in Regulatory Issue Summary 2000-03, Resolution of Generic Safety Issue 158: Performance of Safety-Related Power-Operated Valves Under Design Basis Conditions, by incorporating lessons learned from previous nuclear power plant operations and research programs as they apply to the periodic testing of air- and other power-operated valves included in the IST program. For example:

To read:

... The AOV program incorporates the attributes for a successful power-operated valve long-term periodic verification program, as discussed in Regulatory Issue Summary 2000-03, Resolution of Generic Safety Issue 158: Performance of Safety-Related Power-Operated Valves Under Design Basis Conditions, by incorporating lessons learned from previous nuclear power plant operations and research programs as they apply to the periodic testing of air- and other power-operated valves included in the IST program. For example, key lessons learned addressed in the AOV program include:

(2) Revise the last sentence of the third bulleted paragraph following the paragraph in FSAR Section 3.9.6.2.2 containing subheading "Other Power-Operated Valve Operability Tests" from:

- Periodic static testing is performed, at a minimum on high risk (high safety significance) valves, to identify potential degradation, unless those valves are periodically cycled during normal plant operation, under conditions that meet or exceed the worst case operating conditions within the licensing basis of the plant for the valve, which would provide adequate periodic demonstration of AOV capability. If the margin between component capability and design-basis requirements has not been previously determined, dynamic testing will be performed to establish a baseline and to determine these margins.

To read:

- Periodic static testing is performed, at a minimum on high risk (high safety significance) valves, to identify potential degradation, unless those valves are periodically cycled during normal plant operation, under conditions that meet or exceed the worst case operating conditions within the licensing basis of the plant for the valve, which would provide adequate periodic demonstration of AOV capability. If required, based on valve qualification or operating experience, periodic dynamic testing is performed to re-verify the capability of the valve to perform its required functions.

(b) Revise the sixth bulleted paragraph following the paragraph in FSAR Subsection 3.9.6.2.2 containing subheading "Other Power-Operated Valve Operability Tests" from:

- Post-maintenance procedures include appropriate instructions and criteria to ensure baseline testing is re-performed as necessary when maintenance on the valve, repair or replacement, have the potential to affect high risk valve functional performance.

To read:

- Post-maintenance procedures include appropriate instructions and criteria to ensure baseline testing is re-performed as necessary when maintenance on the valve, repair or replacement, have the potential to affect valve functional performance.

(c) Add the paragraph below as the last paragraph of FSAR Subsection 3.9.6.2.2 prior to the subheading "Check Valve Tests":

The attributes of the AOV testing program described above, to the extent that they apply to and can be implemented on other safety-related power-operated valves, such as electro-hydraulic valves, are applied to those other power-operated valves.

eRAI Tracking No. 0110

NuStart Qb Tracking No. 3953

NRC SER OI Number 03.09-05:

Section 3.9.2, "Dynamic Testing and Analysis," in the AP1000 DCD, describes tests to confirm that piping, components, restraints, and supports have been designed to withstand the dynamic effects of steady-state FIV and anticipated operational transient conditions. Section 14.2.9.1.7, "Expansion, Vibration and Dynamic Effects Testing," in Chapter 14, "Initial Test Program," of the AP1000 DCD, states that the purpose of the expansion, vibration and dynamic effects testing is to verify that the safety-related, high energy piping and components are properly installed and supported such that, in addition to other factors, vibrations caused by steady-state or dynamic effects do not result in excessive stress or fatigue to safety-related plant systems. Nuclear power plant operating experience has revealed the potential for adverse flow effects from vibration caused by hydrodynamic loads and acoustic resonance on reactor coolant, steam, and feedwater systems. In RAI 3.9.6-14, the NRC staff requested that the applicant discuss the planned implementation of the program indicated in the AP1000 DCD to address potential adverse flow effects on safety-related valves and dynamic restraints within the IST Program in the reactor coolant, steam, and feedwater systems at BLN from hydraulic loading and acoustic resonance during plant operation. In its response to this RAI, the applicant referenced the provisions in the AP1000 DCD for vibration monitoring and testing to be implemented at the BLN Units 3 and 4. For example, the applicant referred to the pre-operational test program in AP1000 DCD Section 3.9.2.1, the reactor vessel internals vibration testing program in Section 14.2.9.1.9, and the expansion, vibration, and dynamic effects testing in Section 14.2.9.1.7. The applicant considered these testing programs to be adequate to meet regulatory guidance and requirements, and that no additional vibration monitoring or testing programs are planned. It is unclear how these programs will address FIV effects on valves and dynamic restraints within the BLN IST Program as part of the initial test program specified in Chapter 14 of the AP1000 DCD. This is Open Item 3.9-5.

SNC Response:

This response is still being developed and will be provided later.

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

Associated VEGP COL Application Revisions:

To be determined.

eRAI Tracking No. 0110

NuStart Qb Tracking No. 3954

NRC SER OI Number 03.09-06:

In Part 4, "Technical Specifications," of the BLN COL application, several sections (for example, Section 5.5.3, "Inservice Testing Program)," refer to Section XI of the ASME BPV Code when discussing the IST Program although BLN COL FSAR Section 3.9.6 specifies the ASME OM Code, 2001 Edition/2003 Addenda for use in developing the IST Program. In RAI 3.9.6-16, the NRC staff requested that the applicant clarify the references for the IST Program in the BLN Technical Specifications to the ASME OM Code, 2001 Edition through the 2003 Addenda. In its response to this RAI, the applicant stated that Part 4 of the BLN COL application would be revised to update the Code references. As a result, Revision 1 to Part 4 of the BLN COL application has been updated to reference the ASME OM Code. However, the Technical Specifications and Technical Specification Bases need to be confirmed as consistent with the ASME OM Code, 2001 Edition through the 2003 Addenda, such as in paragraph d of Technical Specification Section 5.5.3, and in References 4 and 5 to Technical Specification Bases for Surveillance Requirement 3.7.1.1. This is Open Item 3.9-6.

SNC Response:

The plant-specific Technical Specifications (PSTS) and Bases in Part 4 of the COL application will be revised consistent with the AP1000 Generic Technical Specifications (GTS) and Bases of the referenced DCD (which are being revised in response to the AP1000 DCD SER Open Item, OI-SRP3.9.6-CIB1-05, provided by Westinghouse) to correct the identified references to the ASME Code. The PSTS will be revised to reflect the AP1000 GTS changes (to be provided by WEC) in a future amendment.

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

Associated VEGP COL Application Revisions:

COLA Part 4, Technical Specifications, will be revised to incorporate the AP1000 GTS changes identified in the WEC response to the AP1000 DCD SER Open Item, OI-SRP3.9.6-CIB1-05.

eRAI Tracking No. 0653

NuStart Qb Tracking No. 3955

NRC SER OI Number 03.10-01:

In RAI 3.10-1, dated August 7, 2008, the applicant was requested to provide an implementation program, including milestones and completion dates with appropriate information submitted with sufficient time for staff review and approval prior to installation of the equipment, not prior to fuel loading, in accordance with Section C.I.3.10.4 of RG 1.206.

In its response, the applicant stated that details of the implementation milestones for the seismic and dynamic qualification program are not currently available, and are not expected to be available until after a detailed construction schedule of the plant has been developed.

Appropriate scheduling information will be provided, when available, to the NRC as necessary to support timely completion of their inspection and audit functions. Additionally, seismic and dynamic qualification is the subject of ITAAC, and 10 CFR 52.99(a) does not require that a schedule for implementing ITAAC be provided to the NRC until one year after issuance of the COL.

The NRC staff determined that the applicant's response to RAI 3.10-1 is not adequate because, in accordance with Section C.I.3.10.4 of RG 1.206, if the results of seismic and dynamic qualification is not available at the time of the COL application, the applicant is expected to submit the following before the issuance of the combined license: (1) descriptions of the implementation program such as identification of seismic qualification methods (Testing or Analysis) for each type of equipment, and (2) milestones for when the different aspects of the seismic qualification program will be complete - dates or condition should be such that the NRC staff will be able to audit the qualification results prior to the installation of the equipment (not before fuel loading as part of the ITAAC program). This is **Open Item 3.10-1**.

SNC Response:

This response is still being developed and will be provided later.

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

Associated VEGP COL Application Revisions:

This response is still being developed and will be provided later.

eRAI Tracking No. 0198

NuStart Qb Tracking No. 3956

NRC SER OI Number 03.11-01:

BLN COL FSAR Section 3.11 incorporates by reference Section 3.11.2.2, "Environmental Qualification of Mechanical Equipment," in the AP1000 DCD, which references Appendix 3D, "Methodology for Qualifying AP1000 Safety-Related Electrical and Mechanical Equipment." In RAI 3.11-1, the NRC staff requested that the applicant describe in more detail the EQ Program for safety-related mechanical equipment to be used at BLN Units 3 and 4. In its response, the applicant stated that the EQ Program will be performed as described in Section 3.11 and Appendix 3D of the AP1000 DCD, by reference as stated in the BLN COL FSAR. The EQ Program will be implemented through design specifications, equipment procurement documents, and equipment qualification procedures. Equipment qualification specifications and equipment design specifications will be developed based on the AP1000 EQ requirements. The incorporation of the AP1000 DCD, Section 3.11 and Appendix 3D into the BLN COL FSAR also includes future maintenance, surveillance, and replacement activities to maintain EQ over the life of the BLN plant through operational programs and procedures. AP1000 DCD, Table 3.11-1 provides a listing of the safety-related mechanical equipment, its location, and the environment to be considered in the EQ Program. AP1000 DCD, Appendix 3D, describes: (1) qualification methodology for the critical safety-related nonmetallic sub-components; (2) thermal and radiation information for the nonmetallic components used in safety-related mechanical equipment; (3) plant normal, abnormal, and accident environmental parameters; and (4) documentation requirements. On October 14 and 15, 2008, the NRC staff conducted an onsite review of design and procurement specifications, including EQ, for pumps, valves, and dynamic restraints to be used for the AP1000 reactor at the Westinghouse offices in Monroeville, PA. The staff found that Westinghouse had included ASME Standard QME-1-2007, "Qualification of Active Mechanical Equipment Used in Nuclear Power Plants," in its design and procurement specifications for AP1000 components, including ASME QME-1, Appendix QR-B, "Guide for Qualification of Nonmetallic Parts." At the conclusion of the onsite review, the staff provided comments on the AP1000 design procurement specifications, and Westinghouse indicated that those comments would be addressed in a future revision to the specifications. The staff also identified several items that remain open from the onsite review that are specified in Section 3.9.6 of the SER on the AP1000 DCD revision. As noted in Section 3.9.6 of the BLN COL FSAR, the NRC staff documented the results of the on-site review with follow-up items in a memorandum dated November 6, 2008, (ML083110154). This is Open Item 3.11-1.

SNC Response:

This open item does not identify any specific actions for the COL application, but rather identifies that NRC reviews need to be completed on the DCD amendment. If the NRC indicates that additional information is needed as a result of the completion of the review of the DCD material, then a supplement to this response will be provided as appropriate.

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

Associated VEGP COL Application Revisions:

None