PMBelCOL PEmails

From: Jan Mazza
Sent: Thursday, March 13, 2008 7:36 AM
To: 'pmray@tva.gov'
Cc: BelCol Resource
Subject: Talking Points for the March 26-27 Public Meeting to Discuss Inservice Testing (IST) Requirements
Attachments: Bellefonte COLA Meeting Talking Points 3-12-08.doc

Phil,
The talking point slides for the meeting are attached.

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Public Meeting Talking Points

NRC Standard Review Plan Section 3.9.6, "Functional Design, Qualification, and Inservice Testing Program of Pumps, Valves, and Dynamic Restraints"

Bellefonte Nuclear Plant, Units 3 and 4
Combined License Application

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Division of Engineering
NRC Office of New Reactors

March 2008

Background

Paragraph (11) in 10 CFR 52.79(a) requires that an application for a combined license (COL) to construct and operate a nuclear power plant under this part must provide a description of the program(s) and their implementation necessary to ensure that the systems and components meet the requirements of the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* and the ASME *Code for Operation and Maintenance of Nuclear Power Plants* in accordance with 10 CFR 50.55a.

Final Safety Analysis Report (FSAR) for Bellefonte Units 3 and 4 COL application incorporates by reference proposed Revision 16 to AP1000 Design Control Document (DCD) with specific departures and supplemental information. Revision 15 to AP1000 DCD is certified in 10 CFR Part 52.

FSAR Table 1.6-201, "Additional Material Referenced," also incorporates by reference Westinghouse Technical Report APP-GW-GLR-134 (TR 134), Revision 0, "AP1000 DCD Impacts to Support COLA Standardization," which specifies changes to Revision 16 to AP1000 DCD.

Regulatory Guide (RG) 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," provides guidance for fully describing Operational Programs, including inservice testing (IST) and motor-operated valve (MOV) testing programs, as defined in Commission Paper SECY-05-197, "Review of Operational Programs in a Combined License Application and General Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria."

NRC staff using Standard Review Plan (SRP) Section 3.9.6, "Functional Design, Qualification, and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints," in review of Bellefonte COL application to determine whether the COL applicant meets the regulatory requirements to provide reasonable assurance that safety-related valves and dynamic restraints will be capable of performing their safety functions.

NRC staff preparing request for additional information to enable the staff to evaluate the functional design, qualification, and IST programs for safety-related valves and dynamic restraints at Bellefonte to reach a safety conclusion regarding request for COL issuance.

Functional Design and Qualification of Safety-Related Valves and Dynamic Restraints

Bellefonte FSAR incorporates by reference Subsection 3.9.3.2, “Pump and Valve Operability Assurance,” in Chapter 3, “Design of Structures, Components, Equipment and Systems,” and Section 5.4, “Component and Subsystem Design,” in Chapter 5, “Reactor Coolant System and Connected Systems,” of AP1000 DCD Tier 2.

In 1980s, operating experience at current nuclear power plants raised concerns regarding capability of motor-operated valves (MOVs) to perform their safety functions under design-basis conditions.

In response to those concerns, NRC issued Generic Letter (GL) 89-10, “Safety-Related Motor-Operated Valve Testing and Surveillance,” to request that nuclear power plant licensees develop programs to verify design-basis capability of their safety-related MOVs through dynamic testing where practicable.

Also in response to valve operating experience, NRC issued GL 95-07, “Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves,” to request that nuclear power plant licensees verify that design and application of their safety-related power-operated gate valves were adequate to avoid pressure locking and thermal binding that might prevent those valves from performing their safety functions.

Testing and research in response to those generic letters by nuclear industry and NRC identified significant inadequacies in valve design, qualification, and testing.

NRC discussed applicability of lessons learned from resolution of MOV concerns to other power-operated valves (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,” and Information Notice 96-48, “Motor-Operated Valve Performance Issues.”

In response to valve qualification weaknesses, ASME revised its QME-1 Standard, “Qualification of Active Mechanical Equipment used in Nuclear Power Plants,” in 2007 to incorporate valve lessons learned into provisions for POV functional qualification. The updated ASME standard also provides guidance for functional qualification of check and relief valves, pumps, and dynamic restraints.

Additional information areas for Bellefonte include:

Implementation of operational tests referenced in Subsection 3.9.3.2.2 of AP1000 DCD Tier 2 to verify that valve opens and closes prior to installation.

Implementation of cold hydro tests, hot functional tests, periodic inservice inspections, and periodic inservice operations required in Subsection 3.9.3.2.2 of AP1000 DCD Tier 2 to be performed in situ to verify functional capability of valves.

Implementation of provisions regarding design and qualification, and preoperational testing in Subsection 5.4.8, “Valves,” of AP1000 DCD Tier 2 for valves within scope of Chapter 5, and plans for these activities for other safety-related valves.

Resolution of potential pressure locking and thermal binding for power-operated gate valves other than MOVs, such as those discussed in Subsection 5.4.8.1.3, “Other Power-Operated Valves Including Explosively Actuated Valves Design and Qualification,” of AP1000 DCD Tier 2.

Implementation of provisions for design, testing, and inspection of relief devices and component supports within scope of Subsection 5.4.9, “Reactor Coolant System Pressure Relief Devices,” and Subsection 5.4.10, “Component Supports,” of AP1000 DCD Tier 2, and plans for those activities for other safety-related safety valves, relief devices, and component supports.

Application of ASME Standard QME-1-2007 in meeting AP1000 DCD Tier 2 provisions for safety-related valves and dynamic restraints as update to ASME QME-1-2002 referenced in Subsection 5.4.16 in AP1000 DCD Tier 2 Revision 16.

Conformance with acceptance criteria for functional design and qualification of valves and dynamic restraints specified in Section II, “Acceptance Criteria,” of SRP Section 3.9.6.

Information noted in Paragraph C.III.3.9.3.3, “Pump and Valve Operability Assurance,” of RG 1.206 for safety-related valves, including

(1) identify all active ASME Code Class 1, 2, and 3 valves;
(2) present criteria to be employed in a test program, or a program consisting of tests and analysis, to ensure operability of valves that are required to open or close to perform a safety function during or after specified plant event;
(3) discuss features of program, including conditions of test, scale effects (if appropriate), loadings for specified plant event, transient loads (including seismic component, dynamic coupling to other systems, stress limits, and deformation limits), and other information pertinent to assurance of operability;
(4) design stress limits established in FSAR Subsection 3.9.3.1; and
(5) program results, summarizing stress and deformation levels and environmental qualification, as well as maximum test envelope conditions for which each component qualifies, including end connections loads and operability results.

Information noted in Paragraph C.III.3.9.6.1, “Functional Design and Qualification of Pumps, Valves, and Dynamic Restraints,” of RG 1.206 for safety-related valves and dynamic restraints, including

(1) provisions for testing at maximum flow rates;
(2) provisions for functional design and qualification of each safety-related valve that demonstrate capability to perform its intended functions for full range of system differential pressures and flows, and ambient temperatures, and available voltage (as applicable) from normal operating to design-basis conditions;
(3) qualification program for safety-related valves that demonstrates that these valves do not experience leakage from loading;
(4) provisions for functional design and qualification of dynamic restraints in safety-related systems and access for performing IST program activities; and
(5) consideration of flow-induced loading in functional design and qualification to incorporate degraded flow conditions.

Component and Piping Supports

Bellefonte FSAR incorporates by reference Subsection 3.9.3.4, “Component and Piping Supports,” of AP1000 DCD Tier 2, and adds new Subsection 3.9.3.4.4, “Inspection, Testing, Repair and/or Replacement of Snubbers.”

Subsection 3.9.3.4.4 does not provide a list of snubbers, but indicates that the list will be included as part of testing program after piping analysis is completed.

Subsection 3.9.3.4.4 describes pre-service examination of snubbers, but indicates that details of inservice examination and testing program will be reported in inservice inspection and testing plan.

Additional information areas for Bellefonte include:

Information noted in Paragraph C.III.3.9.6.4, “Inservice Testing Program for Dynamic Restraints,” of RG 1.206, such as
(1) table listing safety-related components that use snubbers in their support systems including
    (a) systems and components that use snubbers,
    (b) number of snubbers used in each system and on components in that system,
    (c) types of snubbers (hydraulic or mechanical and corresponding supplier),
    (d) whether the snubber was constructed to industry codes,
    (e) whether snubber is used as a shock, vibration, or dual-purpose snubber, and
    (f) indication of whether dual-purpose or vibration arrester snubbers were evaluated for fatigue strength;
(2) describe IST program (including test frequency and duration and examination methods) related to visual inspections and functional testing of dynamic restraints and basis for testing;
(3) describe steps to be taken to assure snubbers are properly installed prior to preoperational piping and startup tests;
(4) confirm accessibility provisions for maintenance, IST and testing, and repair and replacement of snubbers; and
(5) describe implementation program to allow for NRC inspection to review snubber program prior to reliance on dynamic restraints to perform their safety function.

Inservice Testing of Pumps and Valves
Introduction

Bellefonte FSAR incorporates by reference Section 3.9.6, “Inservice Testing of Pumps and Valves,” of AP1000 DCD Tier 2 with supplemental information.

Bellefonte FSAR Section 3.9.6 states that alternate means of performing tests and inspections that provide equivalent demonstration may be developed in IST Program.

Bellefonte FSAR Section 3.9.6 states that IST Program will be submitted to NRC prior to anticipated date of commercial operation.

Additional information areas for Bellefonte include:

Alternatives or relief beyond those specified in Subsection 3.9.6.3, “Relief Requests,” of Bellefonte FSAR.

Implementation schedule that allows NRC staff to perform inspections to review IST and MOV programs prior to reliance on safety-related equipment to perform its safety functions.

Valve Testing

Bellefonte FSAR incorporates by reference Subsection 3.9.6.2.2, “Valve Testing,” of AP1000 DCD Tier 2 with supplemental information.

Table 3.9-16, “Valve Inservice Test Requirements,” in AP1000 DCD Tier 2 lists valves in IST Program for AP1000 design.

TR 134 modifies Table 3.9-16 to indicate type of valve and actuator for power-operated valves.

Bellefonte FSAR Subsection 3.9.6.2.2 references Joint Owners Group (JOG) MOV Program topical report MPR-2524-A.

Additional information areas for Bellefonte include:

Information noted in Paragraph C.III.3.9.6.3, “Inservice Testing Program for Valves,” for each valve in IST Program, including

(1) IST Program (including test requirements, procedures, and acceptance criteria) for valve preservice tests, valve replacement, valve repair and maintenance, and indication of valve position;

(2) proposed methods for measuring the reference values and IST values for POVs, including MOVs, air-operated valves, hydraulic-operated valves, and solenoid-operated valves;

(3) valve test procedures and schedules (including justifications for cold shutdown and refueling outage test schedules) and whether this information will be included in plant technical specifications; and

(4) milestones for preparing and implementing the IST Program to allow for review and inspection of those programs in advance of relying on nuclear power plant components within scope of those programs to perform their safety functions.

Application of JOG program MPR-2524-A with NRC safety evaluation dated September 2006.

Active MOV Test Frequency Determination

In addition to incorporating by reference Subsection 3.9.6.2.2 of AP1000 DCD Tier 2, Bellefonte FSAR includes paragraph titled "Active MOV Test Frequency Determination," that provides summary of factors to be considered in determining MOV test frequency.

In light of weaknesses in IST provisions in ASME *Boiler & Pressure Vessel Code* and *Code for Operation and Maintenance at Nuclear Power Plants* (OM Code) for quarterly MOV stroke-time testing, NRC issued GL 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves," to request that nuclear power plant licensees establish programs to assure capability of safety-related MOVs to perform their design-basis functions over the long term.

In addition, NRC revised Section 55a in Part 50 of Title 10 to *Code of Federal Regulations* (10 CFR 50.55a) to require that nuclear power plant licensees supplement MOV stroke-time testing specified in ASME OM Code with program to periodically verify design-basis capability of safety-related MOVs.

Additional information areas for Bellefonte include:

Implementation of ASME OM Code Case OMN-1 and its specific provisions for verifying MOV design-basis capability on a periodic basis in comparison to information summary in Bellefonte FSAR.

Determination of MOV required capability for design-basis conditions, including uncertainties.

Determination of MOV output capability for design-basis conditions, including uncertainties.

Information noted in Paragraph C.III.3.9.6.3.1, "Inservice Testing Program for Motor-Operated Valves," of RG 1.206, including

(1) how periodic testing (or analysis combined with test results where testing is not conducted at design-basis conditions) objectively demonstrates continued MOV capability to open and/or close under design-basis conditions;
(2) justification for any IST intervals that exceed either 5 years or three refueling outages, whichever interval is longer;
(3) how successful completion of the preservice and IST of MOVs demonstrates that following criteria are met: (a) valve fully opens and/or closes as required by its safety function; (b) adequate margin exists and includes consideration of diagnostic equipment inaccuracies, degraded voltage, control switch repeatability, load-sensitive MOV behavior, and margin for degradation; and (c) maximum torque and/or thrust (as applicable) achieved by MOV (allowing sufficient margin for diagnostic equipment inaccuracies and control switch repeatability) does not exceed allowable structural and undervoltage motor capability limits for individual parts of MOV.

MOV Design Basis Verification

In addition to incorporating by reference Subsection 3.9.6.2.2 of AP1000 DCD Tier 2, Bellefonte FSAR includes paragraph titled "Design Basis Verification Test," that states that design-basis verification (operability) test will be performed on each MOV so as to verify capability of each valve to meet its safety-related design requirements prior to power operation, and that this test will be performed at conditions that are as close to design-basis conditions as practicable.

Nuclear power plant operating experience revealed weaknesses in design-basis qualification of safety-related MOVs that were addressed through industry programs developed in response to GL 89-10 and GL 96-05.

ASME QME-1-2007 incorporates lessons learned for functional qualification of MOVs and other POVs to be used at nuclear power plants.

Additional information areas for Bellefonte include:

Demonstration of design-basis capability of safety-related MOVs with sufficient time for NRC review prior to reliance on those MOVs to perform their safety functions.

Implementation of FSAR provision for testing of MOVs at conditions that are as close to design-basis conditions as practicable, including design-basis system fluid pressure, temperature, and flow; ambient temperature; and reduced motor voltage; and extrapolation of test results to design-basis conditions.

Availability of industry-accepted approach for verification of MOV design-basis capability, such as ASME QME-1-2007.

Other Power-Operated Valve Operability Tests

In addition to incorporating by reference Subsection 3.9.6.2.2 of AP1000 DCD Tier 2, Bellefonte FSAR includes paragraph titled "Other Power-Operated Valve Operability Tests," that states that power-operated valves (POVs) other than active MOVs are exercised quarterly in accordance with ASME OM ISTC, unless justification is provided in IST Program for testing these valves at other Code-mandated frequencies.

Lessons learned from resolution of weaknesses in design, qualification, and testing of MOVs are also applicable to other POVs used at nuclear power plants.

In discussing MOV lessons learned applicable to other POVs in RIS 2000-03, NRC staff states that current regulations provide adequate requirements to ensure verification of design-basis capability of safety-related POVs.

Additional information areas for Bellefonte include:

Information noted in Paragraph C.III.3.9.6.3.2, "Inservice Testing Program for Power-Operated Valves Other Than Motor-Operated Valves," including

(1) describe how the POVs are qualified to perform their design-basis functions either before installation or as part of preoperational testing;
(2) describe POV IST program and show how program incorporates lessons learned from MOV analysis and tests performed in response to GL 89-10; and
(3) explain how solenoid-operated valves are verified to meet their Class 1E electrical requirements by performing their safety functions for appropriate electrical power supply amperage and voltage.

Check Valve Tests

Bellefonte FSAR incorporates by reference subsection titled “Check Valve Tests,” in Subsection 3.9.6.2.2 of AP1000 DCD Tier 2.

TR 134 modifies Subsection 3.9.6.2 and Subsection 3.9.6.2.2 of Revision 16 to AP1000 DCD Tier 2 to indicate that check valves must be exercised in open and closed directions.

Additional information areas for Bellefonte include:

Information noted in Paragraph C.III.3.9.6.3.3, “Inservice Testing Program for Check Valves,” of RG 1.206, including

(1) describe preservice and IST for each check valve (including diagnostic equipment or nonintrusive techniques, testing performed under temperature and flow conditions, how test results identify flow necessary to open the check valve, and how testing includes effects of rapid pump starts and stops and other reverse flow conditions);
(2) describe nonintrusive diagnostic techniques to periodically assess degradation and performance characteristics;
(3) describe how successful completion of pre-service and IST is assessed (including demonstrating that the disk fully opens or closes, determining disk positions without disassembly, verifying free disk movement, and demonstrating disk is stable in open position);
(4) confirm piping design features accommodate check valve testing Code requirements; and
(5) show how IST program meets guidelines of Appendix II to ASME OM Code (including bi-directional testing of check valves).

Pressure Isolation Valves

Bellefonte FSAR incorporates by reference Subsection 3.9.6.2.2 of AP1000 DCD Tier 2.

Additional information areas for Bellefonte include:

Information noted in Paragraph C.III.3.9.6.3.4 of RG 1.206, including classification, allowable leak rate, and test interval for pressure isolation valves.

Pressure/Vacuum Relief Devices

Bellefonte FSAR incorporates by reference subsection titled “Pressure/Vacuum Relief Devices,” in Subsection 3.9.6.2.2 of AP1000 DCD Tier 2.

Additional information areas for Bellefonte include:

Information indicated in Paragraph C.III.3.9.6.3.4 of RG 1.206, including type of, and test parameters for, safety and relief valves to be used at Bellefonte.

Relief Requests

Bellefonte FSAR incorporates by reference Subsection 3.9.6.3, “Relief Requests,” of AP1000 DCD Tier 2 with three potential reliefs or alternatives.

Bellefonte FSAR indicates that IST Program utilizes 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.”

Bellefonte FSAR indicates that relief request will be required for containment leak testing of normal residual heat removal system containment penetration relief valve (RNS-V021) and containment isolation MOV (RNS-V023) for pressurizing the lines in the reverse direction to the flow of a containment leak.

Bellefonte FSAR indicates that relief request will be required for timed slow closure of main steam isolation valves and main feedwater isolation valves (SGS-V040A/B, V057A/B).

Additional information areas for Bellefonte include:

Information listed in Paragraph C.III.3.9.6.5, “Relief Requests and Alternative Authorizations to ASME OM Code,” of RG 1.206, for reliefs or alternatives, including

(1) identify component by name and number, component functions, ASME Section III Code class, valve category, and pump group;
(2) identify applicable ASME Code section;
(3) for relief pursuant to 10 CFR 50.55a(f)(6)(i) or (g)(6)(i), specify and explain basis under which relief is requested;
(4) for alternative pursuant to 10 CFR 50.55a(a)(3), provide details regarding proposed alternative demonstrating that (i) proposed IST provides an acceptable level of quality and safety, or (ii) compliance with specified requirement would result in hardship or unusual difficulty without compensating increase in level of quality or safety; and
(5) describe implementation program, including milestones, for proposed IST program.

Operational Programs

Bellefonte FSAR Section 13.4, “Operational Programs,” indicates that FSAR Table 13.4-201, “Operational Programs Required by NRC Regulations,” lists each operational program, regulatory source for program, FSAR section in which operational program is described, and associated implementation milestones.

FSAR Table 13.4-201 specifies implementation milestone for IST Program as “after generator online on nuclear heat,” and for MOV Testing Program as “prior to initial fuel load.”

Section 3, “Operational Program Implementation,” in Part 10 of Bellefonte COLA provides proposed license conditions for various operational programs.

One specified license condition is that MOV Testing Program will be implemented prior to fuel loading.

Section 3 in Part 10 provides proposed license condition that requires licensee to submit schedule no later than 12 months after COL issuance that supports planning for and conduct of NRC inspections of operational programs with periodic updating.

Additional information areas for Bellefonte include:

> Assurance from implementation milestones specified in Table 13.4-201 of timely availability of IST and MOV Programs for NRC staff to conduct inspections to review development and implementation of programs prior to reliance on safety-related components to perform their safety functions.
>
> Intentions regarding license condition on IST Program implementation in COLA Part 10.

SRP Acceptance Criteria for IST and MOV Operational Programs

Bellefonte FSAR Table 1.9-202, “Conformance with SRP Acceptance Criteria,” states that FSAR position in Section 3.9.6 is acceptable with reference to three Notes in table that assert conformance with

(1) previous revision of SRP,
(2) design aspects stated in AP1000 DCD, or
(3) plant or site-specific aspects stated under “FSAR Position.”

Additional information areas for Bellefonte include:

Conformance of Bellefonte COL application with acceptance criteria for IST program for valves and dynamic restraints specified in Section II, “Acceptance Criteria,” of SRP Section 3.9.6.

Flow-Induced Vibration

Section 3.9.2, “Dynamic Testing and Analysis,” in AP1000 DCD Tier 2 describes tests to confirm that piping, components, restraints, and supports have been designed to withstand dynamic effects of steady-state flow-induced vibration (FIV) and anticipated operational transient conditions.

Nuclear power plant operating experience has revealed potential for adverse flow effects from vibration caused by hydrodynamic loads and acoustic resonance on reactor coolant, steam, and feedwater systems.

Although primary operating experience has been obtained from boiling water reactor (BWR) nuclear power plants, lessons learned from this experience are also applicable to pressurized water reactor (PWR) nuclear power plants.

Additional information areas for Bellefonte include:

> Implementation of program indicated in AP1000 DCD to address potential adverse flow effects on safety-related valves and dynamic restraints within IST Program in reactor coolant, steam, and feedwater systems at Bellefonte from hydraulic loading and acoustic resonance during plant operation.

Implementation of Subsection 3.9.6.2, “Inservice Testing of Valves,” in AP1000 DCD Tier 2

Third paragraph of AP1000 DCD Subsection 3.9.6.2 indicates that DCD Table 3.9-16 includes type of testing to be performed and frequency at which testing should be performed; and that

(1) test program conforms to ASME OM, Subsection ISTC, to the extent practical; and

(2) guidance in NRC Generic Letters, AEOD reports, and industry and utility guidelines (including NRC Generic Letter 89-04) is considered in developing test program.

Additional information areas for Bellefonte include:

Implementation of options indicated in AP1000 DCD for Bellefonte IST program.

Third paragraph of AP1000 DCD Subsection states that inservice testing incorporates use of nonintrusive techniques to periodically assess degradation and performance of selected valves.

Additional information areas for Bellefonte include:

Implementation of provision for use of nonintrusive techniques in IST Program.

Fourth paragraph of AP1000 DCD Subsection 3.9.6.2 states that operability test for safety-related POVs with active function may be either static or dynamic (flow and differential pressure) test.

Additional information areas for Bellefonte include:

Justification for plans to use static tests for POV operability determinations.

Implementation of "Power-Operated Valve Operability Tests" in Subsection 3.9.6.2.2, "Valve Testing," in AP1000 DCD Tier 2

Subsection 3.9.6.2.2, "Valve Testing," in AP1000 DCD Tier 2 includes general provisions for POV operability testing by COL applicants.

TR 134 includes a revision to this subsection that operability testing as required by 10 CFR 50.55a(b)(3)(ii) is performed on MOVs in ASME OM Code IST Program to demonstrate that MOVs are capable of performing their design-basis safety functions.

Additional information areas for Bellefonte include:

Intention to use non-intrusive diagnostic techniques for inservice operability testing of POVs indicated in first sentence of AP1000 DCD Subsection 3.9.6.2.2.

Identification of specific valves to undergo operability testing per statement in second sentence of subsection that Table 3.9-16 identifies valves that may require operability testing.

Implementation of initial test frequency consistent with industry-wide approach for periodic MOV design-basis verification in contrast to fourth sentence of DCD subsection that refers to 3 refueling outage or 5 year initial frequency.

Basis for use of static testing with diagnostic measurements for operability assessments implied in first sentence of second paragraph of subsection in proposed DCD Revision 16.

Implementation of risk ranking and functional margin for determining test frequency indicated in second paragraph of subsection in proposed DCD Revision 16, or application of approved methodology (such as JOG MOV program).

Basis and justification for determination of functional margin without dynamic performance data implied in third paragraph of subsection in proposed DCD Revision 16.

Combined License Information

Subsection 3.9.8.4, “Valve Inservice Testing,” in Section 3.9.8, “Combined License Information,” in AP1000 DCD Tier 2 specifies that COL applicants referencing AP1000 design will develop IST Program in conformance with valve IST requirements outlined in Section 3.9.6 and Table 3.9-16.

Subsection 3.9.8.4 also states that COL applicant will complete evaluation as identified in Subsection 3.9.6.2.2 to determine frequency of POV operability testing.

Additional information areas for Bellefonte include:

Implementation of these AP1000 DCD provisions for development of IST program and evaluation to determine POV operability testing frequency.

Table 3.9-16, “Valve Inservice Test Requirements,” in AP1000 DCD Tier 2

Table 3.9-16, “Valve Inservice Test Requirements,” in AP1000 DCD Tier 2 identifies valves to be included in IST program for AP1000 plant, including valve tag number, valve description, valve type, safety-related missions, safety functions, ASME IST Category, IST type and frequency, and justifications for extended intervals.

TR 134 modifies Table 3.9-16 to indicate type of valve and actuator for power-operated valves.

Additional information areas for Bellefonte include:

Availability of plant-specific drawings to identify IST valves for comparison to AP1000 table.

Evaluation of Note 31 in Table 3.9-16 in comparison to IST Program description for Bellefonte.

Implementation of TR 134 Provisions

TR 134 modifies third paragraph in Subsection 3.9.6.2 of AP1000 DCD Tier 2, Rev. 16, by including a statement that POV testing utilizes guidance from Generic Letter 96-05 and JOG MOV periodic verification study, MPR 2524-A; and stating that during the IST period, the following are performed to demonstrate acceptability of functional performance of POVs other than MOVs:
(1) periodically assess diagnostic methods used in verification for valve function; and (2) evaluation of lessons learned through other related programs such as MOV GL 89-10 and 96-05 Programs.

Additional information areas for Bellefonte include:

Program description for POV testing for Bellefonte to satisfy general statement in AP1000 DCD that testing utilizes guidance from GL 96-05 and the JOG study.

Plans to periodically assess diagnostic methods used to verify valve function for POVs other than MOVs.

Evaluation of lessons learned from other programs used in establishing IST program for POVs other than MOVs.

TR 134 modifies second paragraph in Subsection 3.9.6.2.1, “Valve Functions Tested,” of Revision 16 to AP1000 DCD Tier 2 to state that testing of throttling (pressure regulation) is not required in ASME OM Code.

Additional information areas for Bellefonte include:

Applicability of TR 134 statement to edition and addenda of ASME OM Code being implemented for Bellefonte.

TR 134 modifies last paragraph in Subsection 3.9.6.2.1 of Revision 16 to AP1000 DCD Tier 2 to incorporate definitions of valve categories from ASME OM Code.

Additional information areas for Bellefonte include:

Editorial correction of definition for Category D valves.

TR 134 modifies second sentence under Remote Valve Position Indication Inservice Tests in Subsection 3.9.6.2.2 of Revision 16 to AP1000 DCD Tier 2 to state that frequency for position indication test will be once every 2 years unless otherwise justified.

Additional information areas for Bellefonte include:

Description of request for relief from, or alternative to, OM Code testing provision for position indication.