UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 18, 2011

Mr. George H. Gellrich, Vice President
Calvert Cliffs Nuclear Power Plant, LLC
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

SUBJECT: CORRECTED SAFETY EVALUATION FOR SNUBBER PROGRAM RELIEF REQUEST RR-SNUB-1 - CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 (TAC NOS. ME4892 AND ME4893)

Dear Mr. Gellrich:

By letter dated February 8, 2011, the Nuclear Regulatory Commission (NRC) issued a safety evaluation (SE) approving your application dated October 11, 2010, to implement relief request RR-SNUB-1 for the fourth 10-year interval inservice inspection (ISI) program pertaining to the examination and testing of snubbers at the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 (Calvert Cliffs). Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(i), the NRC staff authorized alternative RR-SNUB-1 at Calvert Cliffs for all safety-related American Society of Mechanical Engineers Boiler and Pressure Vessel Code Class 1, 2, and 3 snubbers for the remainder of the fourth 10-year ISI and testing interval which began on July 1, 2009, and will end on June 30, 2019, on the basis that it provides an acceptable level of quality and safety.

Subsequently, by letter dated March 2, 2011, you identified apparent discrepancies in the NRC SE describing the qualifications of personnel performing certain snubber inservice activities. Specifically, IWF-5300(a) inservice examinations are conducted by task qualified personnel who are knowledgeable and experienced with snubber operation and maintenance but not VT-3 certified as IWF-5300 examinations do not involve any repair or replacement activities. Furthermore, IWF-5200(a) examinations, which do involve repair or replacement activities, are performed by VT-3 certified personnel.

The NRC staff has reviewed your comments and is in agreement. As a result, the staff has prepared the enclosed corrected SE. The corrected SE does not alter the staff's previous conclusion that the proposed alternative in RR-SNUB-1 provides an acceptable level of quality and safety and that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(i), and is in compliance with the ASME Code requirements. Therefore, the staff affirms its previous authorization of the alternative noted above, at Calvert

Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, for all safety-related ASME Code Class 1, 2, and 3 snubbers for the remainder of the fourth 10-year ISI and testing interval which began on July 1, 2009, and will end on June 30, 2019.

Sincerely,

John P. Boska for

Nancy L. Salgado, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

FOURTH 10-YEAR INTERVAL INSERVICE EXAMINATION PROGRAM FOR SNUBBERS

RELIEF REQUEST RR-SNUB-1

CALVERT CLIFFS NUCLEAR POWER PLANT, LLC

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-317 AND 50-318

1.0 INTRODUCTION

By letter dated February 8, 2011 (Agencywide Document Access and Management System (ADAMS) Accession No. ML110320646), the Nuclear Regulatory Commission (NRC) approved relief request RR-SNUB-1 for the fourth 10-year interval inservice inspection (ISI) program pertaining to the examination and testing of snubbers at Calvert Cliffs Nuclear Power Plant (Calvert Cliffs), Units 1 and 2. Subsequently, by letter dated March 2, 2011 (ADAMS ML110630199), the licensee identified discrepancies in the NRC safety evaluation (SE) describing the qualifications of personnel performing certain snubber inservice activities. As a result, the NRC staff is reissuing the SE in its entirety with change bars to indicate the revisions.

By letter dated October 11, 2010 (ADAMS ML102870107), Calvert Cliffs Nuclear Power Plant, LLC, the licensee, submitted relief request RR-SNUB-1 for its fourth 10-year interval inservice inspection (ISI) program pertaining to the examination and testing of snubbers at Calvert Cliffs Nuclear Power Plant (Calvert Cliffs), Units 1 and 2. The fourth 10-year ISI interval began on July 1, 2009, and will end on June 30, 2019. In response to the NRC staff's request for additional information (RAI), the licensee submitted its response in a letter dated December 15, 2010 (ADAMS ML103510315).

The applicable American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," edition for Calvert Cliffs Units 1 and 2 fourth 10-year ISI interval is the 2004 edition. The licensee requested relief from certain ISI and testing requirements of the ASME Code, Section XI 2004 Edition, Article IWF-5000. Article IWF-5000 references the ASME/American Nuclear Standards Institute (ANSI) *Code for Operation and Maintenance of Nuclear Power Plants* (OM), Part 4 (OM-4), 1987 Edition with OMa-1988 Addenda for ISI and testing of snubbers. The licensee proposed to perform the snubber ISI and testing activities using Calvert Cliffs Units 1 and 2, Technical Requirements Manual (TRM), Section 15.7.2, "Snubbers," in lieu of ASME Code, Section XI requirements. Specifically, pursuant to Title 10 of the *Code of*

Federal Regulations (10 CFR) 50.55a(a)(3)(i), the licensee requested to use the proposed alternative, RR-SNUB-1, on the basis that the alternative provides an acceptable level of quality and safety.

2.0 REGULATORY EVALUATION

10 CFR 50.55a(g), "Inservice inspection requirements," requires, in part, that the ISI of ASME Code Class 1, 2, and 3 components (including supports) shall be performed in accordance with Section XI of the ASME Code and applicable addenda incorporated by reference in the regulation. Exceptions to these requirements are allowed where specific written relief has been granted by the NRC, pursuant to 10 CFR 50.55a(g)(6)(i), or alternatives have been authorized pursuant to paragraphs (a)(3)(i) or (a)(3)(ii) of 10 CFR 50.55a.

In proposing an alternative or requesting relief, the licensee must demonstrate that: (1) the proposed alternative provides an acceptable level of quality and safety (10 CFR 50.55a(a)(3)(i)); (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety (10 CFR 50.55a(a)(3)(ii)); or (3) conformance is impractical for the facility (10 CFR 50.55a(g)(6)(i)). Section 50.55a allows the NRC to authorize alternatives and to grant relief from ASME Code requirements upon making necessary findings.

3.0 TECHNICAL EVALUATION

3.1 Licensee's Alternative Request RR-SNUB-1

3.1.1 Component for Which Relief is Requested

All Calvert Cliffs Units 1 and 2, safety-related ASME Code Class 1, 2, and 3 snubbers.

3.1.2 Code Requirements

The ASME Code, Section XI, Article IWF-5000, provides ISI requirements for snubbers.

Paragraphs IWF-5200(a) and IWF-5300(a) require that snubber preservice and inservice examinations be performed in accordance with ASME/ANSI OM, Part 4, using the VT-3 visual examination method described in IWA-2213.

Paragraphs IWF-5200(b) and IWF-5300(b) require that snubber preservice and inservice tests be performed in accordance with ASME/ANSI OM, Part 4.

3.1.3 Licensee's Proposed Alternative

The licensee proposes to use Calvert Cliffs Units 1 and 2, TRM Section 15.7.2, "Snubbers," to perform visual examinations and functional testing of ASME Code Class 1, 2, and 3 snubbers in lieu of meeting ASME Code, Section XI requirements.

3.1.4 Licensee's Basis for Requesting Relief

Calvert Cliffs through application of TRM, Section 15.7.2, "Snubbers", conducts ISI of snubbers in accordance with alternative methods for determining appropriate inspection intervals that are discussed in NRC Generic Letter (GL) 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions." In addition, the ISI frequency discussed in OM-4, was originally based on an expected refueling outage frequency of 18 months. Calvert Cliffs Units 1 and 2 currently operate on a 24-month fuel cycle.

Calvert Cliffs proposed relief to implement the following methodology for inservice (visual) inspection frequency and the effect of discovery of inoperable snubbers on inspection frequency: ISIs shall be performed in accordance with the schedule determined by Table 1. Snubbers are categorized as inaccessible or accessible during reactor operation. Each of these categories (inaccessible and accessible) may be inspected independently or jointly according to the schedule determined by Table 1.

TABLE 1
SNUBBER VISUAL INSPECTION INTERVAL

	NUMBER OF INOPERABLE SNUBBERS		
Population or Category (Notes 1 and 2)	Column A Extend Interval (Notes 3 and 6)	Column B Repeat Interval (Notes 4 and 6)	Column C Reduce Interval (Notes 5 and 6)
1	0	0	1
80	0	0	2
100	0	1	4
150	0	3	8
200	2	5	13
300	5	12	25
400	8	18	36
500	12	24	48
750	20	40	78
1000 or greater	29	56	109

Note 1: The next visual inspection interval for a snubber population or category size shall be determined based upon the previous inspection interval and the number of inoperable snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. However, the licensee must make and document that decision before any inspection and shall use that decision as the basis upon which to determine the next inspection interval for that category.

Note 2: Interpolation between population or category sizes and the number of inoperable snubbers is permissible. Use next lower integer for the value of the limit for Columns A, B, or C if that integer includes a fractional value of inoperable snubbers as determined by interpolation.

Note 3: If the number of inoperable snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months.

Note 4: If the number of inoperable snubbers is equal to or less than the number in Column B but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.

Note 5: If the number of inoperable snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of inoperable snubbers is less than the number in Column C but greater than the number in Column B, the next interval shall be reduced proportionally by interpolation, that is, the previous interval shall be reduced by a factor that is one-third ofthe ratio of the difference between the number of inoperable snubbers found during the previous interval and the number in Column B to the difference in the numbers in Columns B and C.

Note 6: An extension of 1.25 times the inspection interval is applicable for all inspection intervals up to and including 48 months.

Calvert Cliffs requested the above visual inspection schedule in a license amendment pursuant to the line-item alternative offered by GL 90-09. GL 90-09 presented a snubber visual inspection interval that was based on the number of inoperable snubbers found during the previous inspection in proportion to the size of the various snubber populations. It also addressed extending inspection intervals up to 24 months to coincide with fuel cycles of similar duration. The NRC approved this license amendment request by letter dated September 4, 1991 (ADAMS Accession No. ML010470281). The snubber visual inspection and testing requirements were subsequently relocated from the TSs to the Calvert Cliffs TRM, Section 15.7.2.

All other snubber examination and testing activities, implemented in accordance with TRM, Section 15.7.2, with the exception of the performance-driven visual inspection schedule based on a 24-month fuel cycle, meet ASME Code, Section XI, Article IWF-5000 requirements, through application of ASME/ANSI OM (Part 4), 1987 with ASME/ANSI OMa-1988 Addenda, **except VT-3 visual examination as required by IWF-5300(a).**

With this alternative visual inspection schedule, Calvert Cliffs has continued to demonstrate a history of low snubber failure rates while maintaining an effective snubber maintenance program. As a result, there is reasonable assurance of continued satisfactory snubber performance given the continuation of this alternative visual inspection schedule. While not specifically discussed in the Calvert Cliffs' TRM, other requirements of OM-4 are addressed in surveillance test and preventive maintenance procedures under Calvert Cliffs' Snubber Program. This includes the conduct of preservice and inservice operability testing along with examination and testing documentation retention.

Preservice examinations required as a result of snubber installation on new or greatly modified piping systems will be performed in accordance with OM-4 and as directed by Calvert Cliffs configuration control and work control processes.

OMa-1988 imposes surveillance requirements for visual inspection and functional testing of snubbers. A visual inspection is the observation of the condition of the installed snubbers to identify those that are damaged, degraded, or inoperable as caused by physical means, leakage, corrosion, or environmental exposure. To verify that a snubber can operate within specific performance limits, functional testing is required that typically involves removing the snubber and testing it on a specially designed test stand. Functional testing provides a 95% confidence that 90-100% of the snubbers operate within the specified acceptance limits. The performance of visual inspections is a separate process that complements the functional testing program and provides additional confidence of snubber operability.

The Code specifies a schedule for snubber visual inspections that is based on the number of inoperable snubbers found during the previous visual inspection. Because the current schedule for snubber visual inspections is based only on the number of inoperable snubbers found during the previous inspection, irrespective of the size of the snubber population, the visual inspection schedule is excessively restrictive. A significant amount of resources must be spent, and plant personnel are subjected to unnecessary radiological exposure in order to comply with the visual examination requirements.

As an alternative to performing snubber inservice examination and testing in accordance with OM-4, as required by IWF-5300, Calvert Cliffs will apply the visual and functional testing requirements that are prescribed by Calvert Cliffs 1 & 2 TRM, Section 15.7.2 (including sampling and frequency requirements). An alternate schedule for visual inspections has been developed that maintains the same confidence level as the existing schedule and generally allows performance of the inspections and corrective actions during plant outages. This schedule is given in Table 15.7.2-1, invoked from the TRM. The alternative inspection schedule is based on the number of unacceptable snubbers found during the previous inspection in proportion to the sizes of the various snubber populations or categories.

While the schedule of examinations is to be determined from the Calvert Cliffs TRM, the **IWF-5200(a) preservice** examinations are still to be performed using VT-3 visual examination certified personnel**, whereas, the IWF-5300(a) inservice examinations will be performed by task qualified personnel.**

3.2 NRC Staff Evaluation

The licensee proposed that the inservice visual examinations and functional testing of ASME Code Class 1, 2, and 3 snubbers be performed in accordance with the requirements of the Calvert Cliffs Units 1 and 2, TRM Section 15.7.2, "Snubbers." The licensee requested relief from meeting the requirements in the ASME Code, Section XI, paragraphs IWF-5200(a) and (b), and IWF-5300(a) and (b).

Paragraphs IWF-5200(a) and (b), and IWF-5300(a) and (b), reference OM-4, 1987 Edition with OMa-1988 Addenda. OM-4 specifies the requirements for visual examination and functional

testing of snubbers. Calvert Cliffs Units 1 and 2 TRM, Section 15.7.2 incorporates GL 90-09 for the snubber visual inspection schedule. GL 90-09 acknowledges that the visual inspection schedule (as noted in OM-4) is excessively restrictive. The GL 90-09 alternative schedule for visual inspections provides the same confidence level as that provided by OM-4.

Calvert Cliffs did not ask for relief from the paragraphs IWF-5200(c) and IWF-5300(c) of Article IWF-5000 requirements. In a clarification and RAI response dated December 15, 2010, the licensee stated that Calvert Cliffs will meet all the IWF-5200(c) and IWF-5300(c) requirements through other Calvert Cliffs site procedures and processes **including the VT-3 visual examination requirements in accordance with IWA-2213.**

Inservice examination requirements are defined by the following: (1) visual examination; (2) visual examination interval frequency; (3) method of visual examination; (4) subsequent examination intervals; and (5) inservice examination failure evaluation. In addition, inservice operability testing requirements are defined by: (1) inservice operability or functional test; (2) snubber sample size; (3) additional sampling; (4) failure evaluation; (5) test failure mode groups; and (6) corrective actions for the 10% sample plan that is similar to the one provided by OM-4. The criteria for the OM-4 requirements and TRM 15.7.2 are compared in the following table:

	Criteria	**ASME/ANSI OM Part 4 -1987 through OMa-1988 Addenda**	**Calvert Cliffs Nuclear Power Plants, Units 1 and 2 TRM 15.7.2**
Inservice Examination			
1.	Visual Examination	Paragraph 2.3.1.1, Visual Examination, provides visual examination acceptance criteria.	TRM 15.7.2, Technical Verification Requirements (TVR) 15.7.2.1 provides visual inspection (examination) acceptance criteria.
2.	Visual Examination Interval Frequency	Paragraph 2.3.2.2 provides visual examination interval frequency.	TRM Table 15.7.2-1 provides snubber visual inspection (examination) interval frequency.
3.	Method of Visual Examination	IWF-5200(a) and IWF-5300(a) requires use of the VT-3 visual examination method described in IWA-2213.	The licensee states in their relief request that **IWF-5200(a) preservice** examination shall be performed using VT-3 visual examination certified personnel**, and IWF-5300(a) inservice examination shall be performed by task qualified personnel.**
4.	Subsequent Examination Intervals	Paragraph 2.3.2 provides guidance for subsequent inservice examination intervals.	TRM Table 15.7.2-1 provides subsequent visual inspection intervals.

Corrected by letter dated March 18, 2011

	Criteria	ASME/ANSI OM Part 4 -1987 through OMa-1988 Addenda	Calvert Cliffs Nuclear Power Plants, Units 1 and 2 TRM 15.7.2
5.	Inservice Examination Failure Evaluation	Paragraph 2.3.4 provides details about the snubber inservice examination failure evaluation.	TRM, TVR 15.7.2.1.b provides details related to inservice examination failure evaluation.
Inservice Operability Test			
1.	Inservice Operability Test Requirements	Paragraph 3.2.1.1, Operability Test, provides details about snubber operability test requirements either with an in-place or bench test.	TRM, TVR 15.7.2.1.c provides details about snubber inservice operability test requirements, The licensee states in their relief request that snubbers will be tested either with an in-place or a bench test.
2.	Snubber Sample size	Paragraph 3.2.3 states that each defined test plan group shall use either a "10% sampling plan;" a "37 testing sample plan;" or a "55 testing sample plan" during each refueling outage.	TRM, TVR 15.7.2.1.c provides a snubber sample plan.
3.	Additional Sampling	(a) Paragraph 3.2.3.1(b) provides additional sampling requirements for a "10% sampling plan." (b) & (c) Paragraph 3.2.3.2(b) provides additional sampling requirements for a "37 testing sample plan," and "55 testing sample plans.	(a) TRM, TVR 15.7.2.1.c provides additional sampling requirements for "10% sampling plan." (b) & (c) Calvert Cliffs is not using "37 testing sample plan," or "55 testing sample plan."
4.	Inservice Operability Failure Evaluation	Paragraph 3.2.4.1 provides snubber inservice operability failure evaluation.	TRM, TVR 15.7.2.1.c provides details about inservice operability failure evaluations.
5.	Test Failure Mode Groups	Paragraph 3.2.4.2 requires that unacceptable snubber(s) shall be categorized into failure mode group(s).	The licensee states in their relief request that failure mode grouping is not incorporated into the TRM. However, test failures are divided into two groups (1) small bore snubbers less than eight inches; and (2) large bore snubbers larger than eight inches, without categorizing any other mode group(s).

	Criteria	ASME/ANSI OM Part 4 -1987 through OMa-1988 Addenda	Calvert Cliffs Nuclear Power Plants, Units 1 and 2 TRM 15.7.2
6.	Corrective Actions for 10% Testing Sample Plan	Paragraphs 3.2.5.1, and 3.2.5.2 requires that unacceptable snubbers during functional tests shall be repaired, modified, or replaced.	The licensee states that unacceptable snubbers during functional tests shall be repaired or replaced by Calvert Cliffs surveillance test and preventive maintenance procedures.

The following paragraphs contain detailed reviews of the comparison between OM-4 and the TRM Section 3.7.5 requirements as summarized in the above Table.

Inservice Examination Requirements

(1) Visual Examination

OM-4, paragraph 2.3.1.1, requires snubber visual examinations to identify impaired functional ability due to physical damage, leakage, corrosion, or degradation. TRM, TVR 15.7.2.1.b, "Visual Inspection Acceptance Criteria," requires that visual inspections shall verify that: (1) the snubber has no visible indications of damage or impaired operability; and (2) that the snubber installation exhibits no visual indications of detachment from the foundation or supporting structures. TRM, TVR 15.7.2 snubber visual examination requirements are equivalent to snubber visual examination requirements of OM-4, paragraph 2.3.1.1. Therefore, this alternative provides an acceptable level of quality and safety.

(2) Visual Examination Interval Frequency

OM-4, paragraph 2.3.2.2 provides visual examination interval frequency. TRM Table 15.7.2-1, "Snubber Visual Inspection Interval" provides snubber visual inspection interval frequency requirements which are different than the OM-4 visual inspection interval requirements, but similar to the visual inspection interval frequency as specified in GL 90-09. GL 90-09 acknowledges that the visual inspection interval frequency (as contained in OM-4) is excessively restrictive and that licensees with large snubber populations have spent a significant amount of resources and have subjected plant personnel to unnecessary radiological exposure to comply with the visual examination requirements. GL 90-09 states that its alternative schedule (interval frequency) for visual inspection provides the same confidence level as provided by OM-4. Therefore, this alternative provides an acceptable level of quality and safety.

(3) Method of Visual Examination

IWF-5200(a) and IWF-5300(a) requires that preservice and inservice examinations be performed in accordance with OM-4, using the VT-3 visual examination method described in IWA-2213. IWA-2213 states that, "VT-3 examinations are conducted to determine the general mechanical and structural condition of components and their supports by verifying parameters such as clearance, settings, and physical displacements; and to detect discontinuities and imperfections, such as loss of integrity at bolts and welded connections, loose or missing parts, debris, corrosion, wear, or erosion. VT-3 includes examinations for conditions that could affect operability or functional adequacy of snubbers and constant load and spring type supports."

In their response to an RAI from the NRC, the licensee stated that to meet the requirements of IWF-5200(a), a Repair/Replacement (R&R) Plan was developed, in accordance with a Calvert Cliffs maintenance procedure, for each new snubber requiring a preservice examination. The implementation of the R&R Plan ensures that a VT-3 examination is performed as directed by IWF-5200(a) during preservice activities. Snubber VT-3 examinations are conducted in accordance with a Calvert Cliffs nondestructive examination procedure, which includes all of the requirements of IWA-2213.The licensee stated that for snubbers that are rotated in from stock, snubber preservice examinations are performed in accordance with the VT-3 methods. These visual inspections address specific criteria which include the general mechanical and structural condition of a snubber as well as the applicable snubber specific aspects discussed in IWA-2213.

The requirements of IWF-5200(b), for both new snubbers and snubbers rotated in from stock, are satisfied through the implementation of Calvert Cliffs technical procedures which provide direction on preservice operability examination and testing of snubbers. The examination and testing performed per these procedures meets the requirements of OM-4.

The licensee stated that IWF-5300(a) inservice examination of snubbers will be performed using IWA-2213 methodology by task qualified personnel. This snubber inservice examination is only snubber (pin-to-pin) examination and does not require examination of structure, intergral and non-integral attachments which require VT-3 examination. Additionally, the NRC has endorsed the use of the ASME OM Code, Subsection ISTD, for snubber (pin-to-pin) inservice examination. The ASME OM Code snubber inservice examination methods are as specified by the Owner. Therefore, the licensee proposed alternative to use task qualified personnel for snubber (pin-to-pin) examination provides an acceptable level of quality and safety.

The intent and scope of the visual inspection requirements for Calvert Cliffs Units 1 and 2 are equivalent to the OM-4, VT-3 examination requirements. Therefore, this alternative provides an acceptable level of quality and safety.

(4) Subsequent Examination Intervals

OM-4, paragraph 2.3.2 provides the subsequent examination interval based on the number of unaccepted snubbers discovered. TRM Table 15.7.2-1 establishes subsequent snubber visual inspection intervals based on the number of unacceptable snubbers discovered using the guidance in GL 90-09, in lieu of OM-4 paragraph 2.3.2 requirements. The TRM requirements are equivalent to the guidance provided in GL 90-09, and provide the same confidence level as OM-4. Therefore, this alternative provides an acceptable level of quality and safety.

(5) Inservice Examination Failure Evaluation

OM-4, paragraph 2.3.4.1 requires that snubbers not meeting examination criteria be evaluated to determine the cause of unacceptability. Paragraph 2.3.4.2 states that snubbers found unacceptable may be tested in accordance with the requirements of paragraph 3.2. TRM, TVR 15.7.2.1.b, states that snubbers which appear inoperable during visual inspections may be determined to be operable for the purpose of establishing the next visual inspection interval, provided that: (1) the cause of the rejection is clearly established, remedied and functionally tested for that particular snubber and for other snubbers that may be generically susceptible; or (2) the affected snubber is functionally tested in the as-found condition and determined operable per the acceptance criteria of TRM, TVR 15.7.2.1.b, "Hydraulic Snubbers Functional Test Acceptance Criteria," as applicable. The TRM requirements are considered to be equivalent to the requirements of OM-4. Therefore, this alternative provides an acceptable level of quality and safety.

Inservice Operability Testing Requirements

(1) Inservice Operability Test

OM-4, paragraph 3.2.1.1, requires that snubber operational readiness tests verify the activation, release rate, and breakaway force or drag force of the tested snubbers by either an in-place or bench test. TRM, TVR 15.7.2.1.b states that the hydraulic snubber functional test is to verify that: (1) activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression; (2) snubber bleed rate, or release rate where required, is within the specified range in compression and tension, and (3) for snubbers specifically required to not displace under continuous load, the snubber maintains the ability to withstand load without displacement. The licensee states in their relief request that the snubbers shall be tested either with an in-place or bench test. The NRC staff finds that the TRM requirements are equivalent to the snubber operability test requirements of OM-4, paragraph 3.2.1.1. Therefore, this alternative provides an acceptable level of quality and safety.

(2) Snubber Sample Size

OM-4, Paragraph 3.2.3 requires either a 10% testing sampling plan; a "37 testing sample plan;" or a "55 testing sample plan." TRM, TVR 15.7.2.1.c, states that a representative sample of 10% of each type of snubbers in use in the plant shall be functionally tested either by an in-place or a bench test. The licensee's 10% testing sample is similar to the one in the 10% testing sample plan, as specified in OM-4. As a result, the numbers of snubbers tested during outages are

equivalent to the OM-4 requirements. Therefore, the TRM requirements for snubber sample size provide an acceptable level of quality and safety.

(3) Additional Sampling (for 10% testing sample plan)

OM-4, paragraph 3.2.3.1(b), requires that an additional sample size must be at least one-half the size of the initial sample size of the "defined test plan group" of snubbers. That is, for a 10% sample program, an additional 5% of the same type of snubbers in the overall population would need to be tested. TRM, TVR 15.7.2.1.c requires that for each snubber of the type that does not meet the functional test acceptance criteria of TRM, TVR 15.7.2.1.d, an additional 5% of that type of snubber shall be functionally tested. Therefore, the TRM requirements for 5% additional sampling when using the 10% testing sample plan are equivalent and provides an acceptable level of quality and safety.

(4) Inservice Operability Failure Evaluation

OM-4, paragraph 3.2.4.1 requires that snubbers not meeting the operability testing acceptance criteria in paragraph 3.2.1 shall be evaluated to determine the cause of the failure. TRM, TVR 15.7.2.1.c, states that if any snubber selected for functional testing either fails to lock up or fails to move (e.g. snubber is frozen in place), the cause of the failure will be evaluated, and if the failure is caused by a manufacturer or design deficiency, all generically susceptible snubbers of the same design, subject to the same defects, shall be functionally tested. Therefore, the NRC staff finds that the TRM requirements related to inservice operability failure evaluation are equivalent to the OM-4 requirements and provide an acceptable level of quality and safety.

(5) Test Failure Mode Groups

OM-4, paragraph 3.2.4.2 requires that unacceptable snubber(s) be categorized into test failure mode group(s). A test failure mode group shall include all unacceptable snubbers that have a given failure mode, and all other snubbers subject to the same failure mode. In their RAI response, the licensee stated that all snubbers at Calvert Cliffs are hydraulic snubbers and functional test failures are divided into two groups (1) small bore snubbers less than 8 inches; and (2) large bore snubbers larger than 8 inches, without categorizing any other mode group(s).

The Calvert Cliffs TRM does not specifically address "Failure Mode Groups." However, plant procedures that address extent of condition and failure grouping for sample expansion accomplish the same intent as "Failure Mode Grouping," in OM-4. The TRM requirements, along with plant implementing procedures, are considered to be equivalent to the OM-4 requirements. Therefore, this alternative provides an acceptable level of quality and safety.

(6) Inservice Operability Testing Corrective Actions for 10% sample plan

OM-4, paragraphs 3.2.5.1 and 3.2.5.2 require that unacceptable snubbers be adjusted, repaired, modified, or replaced. The licensee stated in their relief request that snubbers which fail the visual inspection or the functional test acceptance criteria shall be repaired or replaced using the Calvert Cliffs' surveillance test and preventive maintenance procedures. Replacement snubbers which have repairs which might affect functional test results shall be tested to meet

the functional test criteria before installation. Therefore, the NRC staff finds that the corrective actions associated with unacceptable snubbers at Calvert Cliffs are equivalent to the OM-4 requirements. Using the licensee's procedures to address corrective actions for snubbers provides an acceptable level of quality and safety.

Based on the above reviews of the comparison of the OM-4 and the TRM 15.7.2 requirements, the NRC staff finds that snubber inservice visual examinations and functional testing, conducted in accordance with the Calvert Cliffs Units 1 and 2 TRM, Section 15.7.2, provides reasonable assurance of snubber operability equivalent to that of the ASME Code, Section XI, paragraphs IWF-5200(a) and (b), and IWF-5300(a) and (b). Therefore, the staff finds that the licensee's proposed alternative provides an acceptable level of quality and safety. It should be noted that in authorizing Relief Request RR-SNUB-1, Calvert Cliffs Units 1 and 2, TRM Section 15.7.2 becomes a regulatory requirement that may be used in lieu of ASME Code, Section XI requirements for performing ISI and testing of snubbers. Changes to these requirements must be reviewed and approved by the NRC staff for authorization, pursuant to 10 CFR 50.55a(a)(3).

4.0 CONCLUSION

As set forth above, the NRC staff determines that the proposed alternative in RR-SNUB-1, provides an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(i), and is in compliance with the ASME Code requirements. All other ASME Code, Section XI requirements for which relief was not specifically requested and approved remain applicable.

Therefore, the NRC staff authorizes the alternative noted above, at Calvert Cliffs Units 1 and 2, for all safety-related ASME Code Class 1, 2, and 3 snubbers, for the remainder of the fourth 10-year ISI and testing interval which began on July 1, 2009, and will end on June 30, 2019.

Principal Contributor: G Bedi, NRR

Date: February 8, 2011

Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, for all safety-related ASME Code Class 1, 2, and 3 snubbers for the remainder of the fourth 10-year ISI and testing interval which began on July 1, 2009, and will end on June 30, 2019.

Sincerely,

/ra/

Nancy L. Salgado, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosure:
Safety Evaluation

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