ATTACHMENT (1)

PROPOSED ALTERNATIVE ISI-020 IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i) - ALTERNATIVE PROVIDES ACCEPTABLE LEVEL OF QUALITY AND SAFETY

ATTACHMENT (1)

PROPOSED ALTERNATIVE ISI-020 IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i) - ALTERNATIVE PROVIDES ACCEPTABLE LEVEL OF QUALITY AND SAFETY

1. American Society of Mechanical Engineers (ASME) Code Component(s) Affected

The affected component is the Unit 2 Calvert Cliffs Nuclear Power Plant (CCNPP) Reactor Pressure Vessel (RPV), specifically the following ASME Boiler and Pressure Vessel (BPV) Code Section XI (Reference 1) examination categories and item numbers covering examinations of the RPV shell, head, and nozzle welds. These examination categories and item numbers are from IWB-2500 and Table IWB-2500-1 of the ASME BPV, Code Section XI, 1998 Edition.

Examination Category	Item No.	Description
B-A	B1.11	Circumferential Shell Welds
B-A	B1.12	Longitudinal Shell Welds
B-A	B1.21	Circumferential Head Welds
B-A	B1.22	Meridional Head Welds (Lower Head only)
B-A	B1.30	Shell-to-Flange Weld
B-D	B3.90	Nozzle-to-Vessel Welds
B-D	B3.100	Nozzle Inner Radius Areas

(Throughout this request the above examination categories are referred to as "the subject examinations" and the ASME BPV Code, Section XI, is referred to as "the Code.")

2. Applicable Code Edition and Addenda

The CCNPP Unit 2 Third Ten-Year Inservice Inspection (ISI) interval is scheduled to end on or before June 30, 2009. The 1998 Edition (no Addenda) is the applicable ASME Code Section XI for this interval.

3. Applicable Code Requirement

IWA-2430(d)(1), each inspection interval may be reduced or extended by as much as one year. Adjustments shall not cause successive intervals to be altered more than one year from the original pattern of intervals.

IWB-2412, Inspection Program B, requires volumetric examination of essentially 100% of RPV pressure retaining welds identified in Table IWB-2500-1 once each ten-year interval.

4. Reason for Request

The intent of the request is to extend the ISI interval for applicable welds in the CCNPP Unit 2 RPV within Examination Category B-A and B-D by one refueling cycle beyond the currently scheduled inspection to allow time for the Nuclear Regulatory Commission (NRC) to review industry efforts to extend the ISI interval for the subject examinations from 10 to 20 years. These efforts use ASME Code Case N-691 (Reference 2) as a basis for using risk-informed insights to show that extending the inspection interval from 10 to 20 years results in a small change in the RPV failure frequency that satisfies the requirements of Regulatory Guide 1.174, Revision 1 (Reference 3). Following NRC approval of these efforts, CCNPP intends to submit a separate request to extend the current Ten-Year ISI interval for CCNPP Unit 2 to 20 years. This 20-year ISI interval will result in a reduction in man-rem exposure and examination costs.

5. Proposed Alternative and Basis for Use

Calvert Cliffs Nuclear Power Plant proposes to defer the Code required volumetric examination of the Unit 2 RPV full penetration pressure retaining Examination Category B-A and B-D welds for the Third Ten-Year ISI interval by one fuel cycle to no later than June 30, 2011. The one cycle deferral will allow additional time for completing evaluations and staff review associated with Pressurized Water Reactor Owners Group Topical Report, WCAP-16168-NP and response to Request for Additional Information (References 4 and 5). The NRC has provided in References 6 and 6a, a framework which could potentially support a one cycle inspection relief request.

The Third Ten-Year ISI interval for CCNPP Unit 2 is currently scheduled to end on June 30, 2009. Applying the extension allowed by IWA-2430(d)(1) would extend the interval end date to June 30, 2010. The final outage in the current ISI interval is scheduled for the spring of 2009. Additional extension time is required to allow deferral beyond the one year extension to allow the subject examinations to occur during the spring of 2011 Refueling Outage (U2 RFO 18). The additional extension being requested is up to 365 days beyond the one year extension allowed by IWA-2430(d)(1).

In accordance with 10 CFR 50.55a(a)(3)(i), an alternate inspection interval end date is requested on the basis that the current inspection interval can be extended based on a negligible change in risk by satisfying the risk criteria specified in Reference 3.

The requirements for a technical basis and technical justification to extend the ten-year RPV ISI interval by one refueling cycle are contained in Reference 6. The technical justification consists of five areas described below:

5.1 Plant specific reactor vessel inservice inspection history
5.2 Fleetwide reactor vessel inservice inspection history
5.3 Degradation mechanisms in the reactor vessel
5.4 Material condition of the reactor vessel relative to embrittlement
5.5 Operational experience relative to RPV structural integrity challenging events

5.1 Unit 2 Reactor Vessel Inservice Inspection History

Calvert Cliffs Nuclear Power Plant Unit 2 is in its Third Ten-Year ISI interval for the RPV examinations. Therefore, the preservice examinations and two ISI examinations have been performed on all of the Examination Category B-A and B-D welds to date with the exception of ASME Examination Category B-A, Item B1.22, Meridional Head welds of the lower head.

There are six lower head Meridional welds. Only one of these welds received preservice and two inservice examinations (Meridional weld 1-204A). The Code of record for the preservice and first ISI interval was the ASME Section XI, 1974 Edition with the Summer 1975 Addenda which only required 10 percent of the length of each Meridional weld to be examined (all six welds were examined during preservice and in the first ISI interval). The code of record for the second ISI interval was the ASME Section XI, 1983 Edition with the Summer 1983 Addenda which required only one of the Meridional welds to be examined for its entire length (Meridional weld 1-204A was selected).

In summary, the preservice examination was performed in accordance with ASME Section XI, 1974 Edition and the Summer 1975 Addenda and the ISI examinations have been performed in accordance with ASME Section XI 1974 Edition and Summer 1975 Addenda, the 1983 Edition with Summer 1983

Addenda and Regulatory Guide 1.150, Revision 1 (Reference 7). The ISI examinations to date have not identified any reportable indications.

Based on the examination method and the coverage attained, it is reasonable to conclude that the examinations were of sufficient quality and coverage to detect any significant flaws that would challenge RPV integrity. Inspection history for the welds to which the subject examinations apply is contained in the following table.

TABLE 1
CCNPP UNIT 2 INSERVICE INSPECTION RESULTS

WELD ID	ASME WELD CAT.	DATE LAST EXAMINED	% COVERAGE ATTAINED	# OF REPORTABLE INDICATIONS	# OF INDICATIONS BEING MONITORED	GROWTH OF INDICATIONS CURRENTLY BEING MONITORED
1-203A (LONGITUDINAL - UPPER SHELL)	B-A	APRIL 1999	100	0	0	0
1-203B (LONGITUDINAL - UPPER SHELL)	B-A	APRIL 1999	100	0	0	0
1-203C (LONGITUDINAL - UPPER SHELL)	B-A	APRIL 1999	100	0	0	0
1-204A (MERIDIONAL - LOWER HEAD)	B-A	APRIL 1999	50[1]	0	0	0
1-204B (MERIDIONAL - LOWER HEAD)	B-A	1987	10[2]	0	0	0
1-204C (MERIDIONAL - LOWER HEAD)	B-A	1987	10[2]	0	0	0
1-204D (MERIDIONAL - LOWER HEAD)	B-A	1987	10[2]	0	0	0
1-204E (MERIDIONAL - LOWER HEAD)	B-A	1987	10[2]	0	0	0
1-204F (MERIDIONAL - LOWER HEAD)	B-A	1979	10[2]	0	0	0
2-203A (LONGITUDINAL - MIDDLE SHELL)	B-A	APRIL 1999	100	0	0	0
2-203B (LONGITUDINAL - MIDDLE SHELL)	B-A	APRIL 1999	100	0	0	0
2-203C (LONGITUDINAL - MIDDLE SHELL)	B-A	APRIL 1999	100	0	0	0
3-203A (LONGITUDINAL - LOWER SHELL)	B-A	APRIL 1999	95	0	0	0
3-203-B (LONGITUDINAL - LOWER SHELL)	B-A	APRIL 1999	100	0	0	0

ATTACHMENT (1)

PROPOSED ALTERNATIVE ISI-020 IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(i) - ALTERNATIVE PROVIDES ACCEPTABLE LEVEL OF QUALITY AND SAFETY

TABLE 1
CCNPP UNIT 2 INSERVICE INSPECTION RESULTS

WELD ID	ASME WELD CAT.	DATE LAST EXAMINED	% COVERAGE ATTAINED	# OF REPORTABLE INDICATIONS	# OF INDICATIONS BEING MONITORED	GROWTH OF INDICATIONS CURRENTLY BEING MONITORED
3-203-C (LONGITUDINAL - LOWER SHELL)	B-A	APRIL 1999	100	0	0	0
4-204 (CIRCUMFERENTIAL - LOWER SHELL TO DOME)	B-A	APRIL 1999	100	0	0	0
7-203 (CIRCUMFERENTIAL - UPPER SHELL TO FLANGE)	B-A	APRIL 1999	84	0	0	0
8-203 (CIRCUMFERENTIAL - UPPER SHELL TO LOWER SHELL)	B-A	APRIL 1999	100	0	0	0
9-203 (CIRCUMFERENTIAL - MIDDLE SHELL TO LOWER SHELL)	B-A	APRIL 1999	93	0	0	0
10-203 (CIRCUMFERENTIAL - LOWER SHELL TO LOWER HEAD)	B-A	APRIL 1999	94	0	0	0
4-205A (CIRCUMFERENTIAL - INLET NOZZLE @ 60°)	B-D	APRIL 1999	90	0	0	0
4-205A-IRS (INNER RADIUS SECTION)	B-D	APRIL 1999	100	0	0	0
4-205B (CIRCUMFERENTIAL - INLET NOZZLE @ 120°)	B-D	APRIL 1999	90	0	0	0
4-205B-IRS (INNER RADIUS SECTION)	B-D	APRIL 1999	100	0	0	0
4-205C (CIRCUMFERENTIAL - INLET NOZZLE @ 240°)	B-D	APRIL 1999	90	0	0	0
4-205C-IRS (INNER RADIUS SECTION)	B-D	APRIL 1999	100	0	0	0
4-205D (CIRCUMFERENTIAL - INLET NOZZLE @ 300°)	B-D	APRIL 1999	90	0	0	0
4-205D-IRS (INNER RADIUS SECTION)	B-D	APRIL 1999	100	0	0	0

TABLE 1
CCNPP UNIT 2 INSERVICE INSPECTION RESULTS

WELD ID	ASME WELD CAT.	DATE LAST EXAMINED	% COVERAGE ATTAINED	# OF REPORTABLE INDICATIONS	# OF INDICATIONS BEING MONITORED	GROWTH OF INDICATIONS CURRENTLY BEING MONITORED
10-205A (CIRCUMFERENTIAL - OUTLET NOZZLE @ 0°)	B-D	APRIL 1999	62	0	0	0
10-205A-IRS (INNER RADIUS SECTION)	B-D	APRIL 1999	90	0	0	0
10-205B (CIRCUMFERENTIAL - OUTLET NOZZLE @ 180°)	B-D	APRIL 1999	62	0	0	0
10-205B-IRS (INNER RADIUS SECTION)	B-D	APRIL 1999	90	0	0	0

Notes:

1. Only one Meridional weld (1-204A) was required to be examined per ASME XI 1983 Edition with the Summer 1983 Addenda during the Second Interval. The weld was examined the entire length where accessible. Due to the flow skit configuration (the flow skirt is affixed to the bottom head of the reactor pressure vessel) only 50% of the required weld volume could be accessed for examination.
2. The 1974, Summer of 1975 Edition of ASME XI required that only 10% of the length of Meridional welds (1-204B,1-204C, 1-204D, 1-204E, and 1-204F) be examined during the First Interval.

5.2 Fleetwide Reactor Vessel Inservice Inspection History

As part of the technical basis for ASME Code Case N-691, a survey of RPV ISI history for 14 pressurized water reactors (PWRs) was performed. These 14 plants represented 301 total years of service and included RPVs fabricated by various vendors. The plants reported that no reportable findings had been discovered during examinations of Examination Category B-A and B-D welds of their RPVs. It is widely recognized in the fracture mechanics community that fatigue crack growth of embedded flaws is substantially smaller than that of surface breaking flaws. Surface breaking flaws in the RPV cladding are typically a result of lack of fusion defects between bands of cladding. In studies performed by Pacific Northwest National Laboratory for the NRC Pressurized Thermal Shock (PTS) Risk Reevaluation, it was determined that in plants with multi-pass cladding, for a flaw to exist through the cladding, two flaws would have to be aligned on top of one another. The probability of this occurring is very low (<0.0001). The CCNPP Unit 2 RPV is constructed with multi-pass cladding and therefore has a low probability of containing through-cladding surface-breaking flaws.

All PWR plants have performed their first ten-year ISI of the subject examinations. No surface-breaking or unacceptable near surface flaws have been found in any of these inspections performed per the requirements of Reference 7 or ASME Section XI, Appendix VIII.

5.3 Degradation Mechanisms in the Reactor Vessel

The welds for which the subject examinations are conducted are similar metal low alloy steel welds. The only currently known degradation mechanism for this type of weld is fatigue due to thermal and mechanical cycling from operational transients. Studies have shown that while flaw growth of simulated flaws in a reactor vessel would be small, the operational transient which has the greatest contribution to flaw growth is the cool down transient. Based on operating experience, the cool down transient is a low frequency transient and is not expected to occur more than a few instances during the requested inspection extension period. Therefore, any flaw growth during the requested deferral period will be inherently small.

The fatigue usage factors for the welds in the subject examinations are much less than the ASME Code design limit of 1 after 40 years of operation. These usage factors are calculated using a very conservative design duty cycle. It is very unlikely that more than a few of these events (e.g., heatup or cooldown) would actually occur during the extension period of this proposed alternative.

It is important to note that this request does not apply to any dissimilar metal welds, including Alloy 600 base metal or Alloy 82/182 weld material where primary water stress corrosion cracking is a concern or any other augmented inspection requirements imposed.

5.4 Material Condition of the Reactor Vessel Relative to Embrittlement

The RPV beltline is the limiting area in terms of embrittlement for the subject examinations. The composition of each material in the RPV beltline, along with fluence and embrittlement data, can be found in the NRC Reactor Vessel Integrity Database (Reference 8). This information is provided for CCNPP Unit 2 in the following table.

Note: The RT_{PTS} values have been updated as discussed below.

TABLE 2
CALVERT CLIFFS NUCLEAR POWER PLANT UNIT 2
MATERIAL VALUES

Major Material Region Description			Cu [wt%]	Ni [wt%]	Un-Irradiated RT_{NDT}		RT_{PTS} @32 EFPY
Type	Heat	Location			[°F]	Method	
Plate D-8906-1	A-4463-1	Intermediate Shell	0.15	0.56	10	Plant Specific	190
Plate D-8906-2	B-9427-2	Intermediate Shell	0.11	0.56	10	Plant Specific	144
Plate D-8906-3	A-4463-2	Intermediate Shell	0.14	0.55	5	Plant Specific	171
Plate D-8907-1	C-5804-1	Lower Shell	0.15	0.60	-8	Plant Specific	175
Plate D-8907-2	C-5286-1	Lower Shell	0.14	0.66	20	Plant Specific	160
Plate D-8907-3	C-5803-3	Lower Shell	0.11	0.74	-16	Plant Specific	122
Weld 2-203-A, B, C	A8746	Axial Weld	0.16	0.10	-56	Plant Specific	117

TABLE 2
CALVERT CLIFFS NUCLEAR POWER PLANT UNIT 2
MATERIAL VALUES

Major Material Region Description			Cu [wt%]	Ni [wt%]	Un-Irradiated RT_{NDT}		RT_{PTS} @32 EFPY
Type	Heat	Location			[°F]	Method	
Weld 3-203-A, B, C	33A277	Axial Weld	0.24	0.16	-80	Plant Specific	49
Weld 9-203	10137	Circumferential Weld	0.21	0.06	-60	Plant Specific	67

The 10 CFR 50.61 currently provides PTS screening criteria of RT_{PTS} equal to 270°F for plates and axial welds and RT_{PTS} equal to 300°F for circumferential welds. Based on current projections, the intermediate shell plate is the most limiting value [(190°F at 32 Effective Full Power Years (EFPY)]. The projected RT_{PTS} value at 32 EFPY for this material is well below the PTS screening criteria. Furthermore, it is recognized by the NRC and industry that a large amount of conservatism exists in the current PTS screening criteria (Reference 9). In the NRC PTS Risk Reevaluation, results have shown that it may be possible to remove an amount of conservatism equivalent to reducing a plant's RT_{PTS} value by at least 70°F. While the exact amount of conservatism that will be removed has not been determined, it is clear that CCNPP Unit 2 will be below the current PTS screening criteria during the extension period and most likely below the potential revised PTS screening criteria.

5.5 Operational Experience Relative to RPV Structural Integrity Challenging Events

It is widely recognized that the greatest possible challenge to reactor pressure vessel integrity for a PWR is PTS. A PTS event can be generally described as a rapid cooling of the RPV followed by a late repressurization. Plants have taken steps such as implementing emergency operating procedures (EOPs) and operator training to lower the likelihood of a PTS event occurring. Due to the implementation of such measures, industry experience indicates the number of occurrences of PTS events fleetwide is very small. When considered over the combined fleetwide PWR operating history, the frequency of PTS events is very small. When considering the frequency of PTS events and the length of the requested extension, the probability of a PTS event occurring during the requested extension is also very low. Combining the low probability of a PTS event with the low probability of a flaw existing in the RPV (given the previously discussed inspection history), the probability of RPV failure due to PTS is also very small.

Calvert Cliffs Nuclear Power Plant Unit 2 has implemented EOPs and operator training to prevent the occurrence of PTS events. Consistent with the Combustion Engineering (CE) Emergency Response Guidelines (ERGs), the CCNPP EOPs allow operators to identify the onset of PTS conditions and provide the steps required to mitigate any cold pressurization challenge to RPV integrity. The basic PTS mitigation strategy of the CCNPP EOPs involves 1) termination of the primary system cooldown, 2) termination of Emergency Core Cooling System flow (if proper criteria are met), 3) depressurization of the primary system, 4) establishment of stable primary system conditions in the normal operating range, and 5) implementation of a thermal "soaking" period prior to any cooldown outside of the normal operating region. By combining 1) the basic requirements of the CE ERGs, 2) the use of plant specific set points with a defined technical basis, and 3) the formal reconciliation of any differences between the CE

ERG reference plant and CCNPP, the CCNPP EOPs provide adequate means for preventing potential PTS transients.

The current requirements for inspection of RPV pressure-retaining welds have been in effect since the 1989 Edition of ASME Code Section XI. The industry has expended significant cost and man-rem exposure that have shown no service-induced flaws in the ASME Section XI Examination Category B-A or B-D RPV welds. ASME Section XI Code Case N-691 and industry efforts have shown that risk insights can be used to extend the reactor vessel ISI interval from 10 to 20 years. The ten-year extension satisfies the change in risk requirements of Reference 3; and, in accordance with 10 CFR 50.55a(a)(3)(i), maintains an acceptable level of quality and safety. Based on these efforts having shown that the risk of vessel failure with a ten-year inspection interval extension is low and achieves an acceptable level of quality and safety, it is reasonable to conclude that one refueling cycle extension will also achieve an acceptable level of quality and safety. On the basis of the above discussion, the risk associated with extending the inspection interval by one refueling cycle is small. Therefore, CCNPP considers the proposed alternative for the subject examinations at CCNPP Unit 2 to provide an acceptable level of quality and safety in accordance with 10 CFR 50.55a(a)(3)(i).

6.0 Duration of Proposed Alternative

The alternative is requested to extend the Third Ten-Year ISI interval for one refueling cycle for the Examination Category B-A and B-D RPV welds beyond the ASME Code required Ten-Year inspection interval and the Code allowed one year extension. This request is applicable to the Third Ten-Year ISI interval only. If this relief request is approved, the Third Ten-Year ISI interval will end at the conclusion of the spring of 2011 outage (that is, no later than June 30, 2011) for the subject examinations.

7.0 References

1. ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition with no Addenda

2. ASME Boiler and Pressure Vessel Code, Code Case N-691, "Application of Risk-Informed Insights to Increase the Inspection Interval for Pressurized Water Reactor Vessels", Section XI, Division 1, November 2003

3. Regulatory Guide 1.174, Revision 1, November 2002, An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis

4. WCAP-16168-NP, Revision 1, January 2006, Risk-Informed Extension of Reactor Vessel In-Service Inspection Interval

5. PWR Owners Group Letter OG-07-455, from F. P. Schiffley, II (PWROG) to Document Control Desk (NRC), dated October 16, 2007, Pressurized Water Reactor Owners Group, Responses to the NRC Request for Additional Information (RAI) on PWR Owners Group (PWROG) WCAP-16168-NP, Rev. 1 "Risk-Informed Extension of Reactor Vessel In-Service Inspection Interval" (TAC No. MC9768) MUHP 5097/5098/5099 Task 2008/2059

6. Letter from R. A. Gramm (NRC) to G. Bischoff (WOG), dated January 27, 2005, Summary of Teleconference with the Westinghouse Owners Group Regarding Potential One Cycle Relief of Reactor Pressure Vessel Shell Weld Inspections at Pressurized Water Reactors Related to WCAP-16168-NP, "Risk-Informed Extension of Reactor Vessel In-Service Inspection Intervals"

6a. NRC Memorandum from G. Shukla to R. A. Gramm, dated March 9, 2005, Summary of Meeting held on February 9, 2005, with the Westinghouse Owners Group regarding General Discussion of Topical Reports Review Status, including Risk-Informed Topical Reports

7. Regulatory Guide 1.150, Revision 1, dated February 1983, Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations

8. Nuclear Regulatory Commission Reactor Vessel Integrity Database, Version 2.0.1, dated July 6, 2000

9. NRC Memorandum from A. C. Thadani to S. J. Collins, dated December 31, 2002, Technical Basis for Revision of the Pressurized Thermal Shock (PTS) Screening Criteria in the PTS Rule (10 CFR 50.61)

ATTACHMENT (2)

PROPOSED ALTERNATIVE ISI-021 IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(ii) - COMPLIANCE WITH THE SPECIFIED REQUIREMENTS WOULD RESULT IN HARDSHIP OR UNUSUAL DIFFICULTY WITHOUT A COMPENSATING INCREASE IN THE LEVEL OF QUALITY AND SAFETY

ATTACHMENT (2)

PROPOSED ALTERNATIVE ISI-021 IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(ii) - COMPLIANCE WITH THE SPECIFIED REQUIREMENTS WOULD RESULT IN HARDSHIP OR UNUSUAL DIFFICULTY WITHOUT A COMPENSATING INCREASE IN THE LEVEL OF QUALITY AND SAFETY

American Society of Mechanical Engineers (ASME) Code Component(s) Affected

The affected component is the Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 2 Reactor Pressure Vessel (RPV).

The ASME Boiler and Pressure Vessel Code Section XI, Examination Category and Item Number of Table IWB-2500-1 addressed in this request are:

Examination Category	Item No.	Description
B-N-2	B13.50	Interior Attachments Within Beltline Region
B-N-2	B13.60	Interior Attachments Beyond Beltline Region
B-N-3	B13.70	Core Support Structure

(Throughout this request the above Examination Category and Item Number descriptions are referred to as "the subject examinations" and the ASME Boiler and Pressure Vessel Code Section XI is referred to as "the Code".)

Applicable Code Edition and Addenda

The CCNPP Unit 2 Third Ten-Year Inservice Inspection (ISI) interval is scheduled to end on or before June 30, 2009. The 1998 Edition (no Addenda) (Reference 1) is the applicable ASME Code Section XI for this interval.

Applicable Code Requirement

IWA-2430(d)(1), each inspection interval may be reduced or extended by as much as one year. Adjustments shall not cause successive intervals to be altered more than one year from the original pattern of intervals.

Additionally, Table IWB-2500-1, Examination Category B-N-2 and B-N-3, Item Numbers B13.50, B13.60, and B13.70 requires a visual examination of the interior attachments within and beyond the beltline region and a visual examination of the core support structure of the RPV once each ten-year interval.

Reason for Request

Attachment (1) of this letter submits a separate relief request to defer the RPV Examination Category B-A and B-D welds from 2009 to 2011 while the Nuclear Regulatory Commission completes its review of the Pressurized Water Reactor Owners Group Topical Report, WCAP-16168-NP (Reference 2). The intent of this request for up to a 12 month interval extension beyond the Code allowed 12 month extension is to allow for deferment of the subject examinations by one refueling cycle and allow for the subject examinations to be performed at the same time as the RPV shell, head, and nozzle weld examinations.

During the Ten-Year ISI interval of the RPV shell, lower head, and nozzle welds in 1999, CCNPP also performed visual examinations of the RPV interior attachments and the core support structure. Since the core support structure (called a core barrel on Combustion Engineering designed plants) requires removal to facilitate examination of the RPV shell, lower head, and nozzle welds, the visual examinations of

ASME Examination Category B-N-2 and B-N-3 have historically been performed during the same outage at the end of the ISI interval.

Calvert Cliffs Nuclear Power Plant has also committed to the development and implementation of a plant specific Reactor Vessel Internals (RVI) inspection program and subsequent submittal to the Nuclear Regulatory Commission two years prior to the period of extended operation. Calvert Cliffs Nuclear Power Plant may elect to perform the enhanced examinations for the RVI inspection program coincident with the core barrel removal in 2011. The scope of the RVI examination is expected to require a complete core offload and removal of all internals to facilitate implementation of the examinations.

Performing all related examinations during the same refueling outage will result in significant savings in dose and outage duration since the same equipment and personnel used for visual and volumetric examination of the RPV shell welds and nozzle welds from the RPV interior can be used to implement the required RVI examinations. Additionally, removing the RPV internals only once to accommodate all the examinations discussed in this relief request would result in significant savings in radiation exposure.

Proposed Alternative and Basis for Use

The Third Ten-Year ISI interval for CCNPP began on July 1, 1999 and is scheduled to conclude on or before June 30, 2009. With the allowed one-year extension of IWA-2430(d)(1), the interval may be extended to June 30, 2010.

Calvert Cliffs Nuclear Power Plant proposes to perform the subject examinations for the Third Ten-Year ISI interval on or before June 30, 2011. The subject examinations are currently scheduled to be performed during the Spring of 2009 refueling outage (U2RFO17). The proposed alternative inspection date is up to 12 months beyond the Code allowed inspection interval extension and would enable the subject examinations to be performed during the spring 2011 Refueling Outage (U2RFO18). In accordance with 10 CFR 50.55a(a)(3)(ii), this interval extension is requested on the basis that performing the examination of the RPV interior attachments and core support structure separate in time from the RPV shell, head, and nozzle welds would result in hardship or unusual difficulty without a compensating increase in quality or safety.

The examination required by ASME Examination Category B-N-2 and B-N-3 requires the removal of all the fuel and the core barrel from the RPV. Additionally, an unnecessary risk is created by removal of the core barrel more than once within an inspection interval to perform a visual examination without a compensating increase in quality or safety. Further, the radiation exposure to perform the ASME Examination Category B-N-2 and B-N-3 examinations would essentially double if the subject examinations were performed separate in time from the RPV shell, lower head, and nozzle weld examinations.

The visual examinations of the RPV interior attachments and the core support structure have been performed several times at CCNPP with no relevant indications noted during the examinations. The examinations were last performed during the 1999 Refueling Outage with acceptable results. Additionally, review of industry surveys indicate that these examinations have been performed many times by the industry without any significant findings.

ATTACHMENT (2)

PROPOSED ALTERNATIVE ISI-021 IN ACCORDANCE WITH 10 CFR 50.55a(a)(3)(ii) - COMPLIANCE WITH THE SPECIFIED REQUIREMENTS WOULD RESULT IN HARDSHIP OR UNUSUAL DIFFICULTY WITHOUT A COMPENSATING INCREASE IN THE LEVEL OF QUALITY AND SAFETY

During the 2009 Refueling Outage, CCNPP will be performing the ASME Examination Category B-N-1 visual examination. This examination will include the space above and below the reactor core that is made accessible for examination by the removal of components during normal refueling outages. This examination is required once each period and will provide reasonable assurance of structural integrity.

Therefore, in accordance with 10 CFR 50.55a(a)(3)(ii), this one refueling cycle interval extension is requested on the basis that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Duration of Proposed Alternative

The alternative is requested to extend the Third Ten-Year ISI interval for the Examination Category B-N-2 and B-N-3, Item Numbers B13.50, B13.60, and B13.70 visual examinations beyond the ASME Code allowed one year extension. This request is applicable to the Third Ten-Year ISI interval only. If this relief request is approved, the Third Ten-Year ISI interval will end at the conclusion of the spring of 2011 outage (that is, not later than June 30, 2011) for the subject examinations.

References

1. ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition with no Addenda
2. WCAP-16168-NP, Revision 1, January 2006, Risk-Informed Extension of Reactor Vessel In-Service Inspection Interval