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Constellation Energy Group

Nine Mile Point
Nuclear Station

November 20, 2002
NMP2L 2073

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

SUBJECT: Nine Mile Point Unit 2
Docket No. 50-410
License No. NPF-69
TAC No. MB5732

Request for Relief from ASME Code Section XI, Appendix VIII, Supplement 11, Inservice Inspection Requirements

Gentlemen:

Nine Mile Point Nuclear Station, LLC (NMPNS) is submitting the enclosed inservice inspection relief request ISI-23B for Nine Mile Point Unit 2 (NMP2). Upon NRC approval, this relief request will allow utilization of the performance demonstration initiative (PDI) program as an alternative to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), 1995 Edition with 1996 Addenda, Appendix VIII, Supplement 11, requirements. Relief is being requested in accordance with 10CFR50.55a(a)(3)(i) on the basis that the proposed alternative will provide an acceptable level of quality and safety.

According to 10CFR50.55a(g)(6)(ii)(C), as of November 22, 2001, weld overlay examinations must meet the ASME Code Section XI, 1995 Edition, 1996 Addenda, Appendix VIII, Supplement 11 requirements. As the result of discussions with the Electric Power Research Institute (EPRI) staff, NMPNS has determined that prior to performing ultrasonic testing of any ASME Code Class weld overlays at NMP2, relief from the requirements of the ASME Code, Section XI, Appendix VIII, Supplement 11, would be necessary. To accomplish this, a relief request must be submitted proposing either (1) adoption of proposed Code Case N-653, "Qualification Requirements for Full Structural Overlaid Wrought Austenitic Piping Welds, Section XI, Division 1," with some modifications, or (2) use of the EPRI PDI Program in lieu of the ASME Code, Section XI, Appendix VIII, Supplement 11, requirements. EPRI has worked in conjunction with the NRC staff to develop a sample request for using alternative 2 above, to ensure that sufficient information is included in each licensee's relief request to support NRC approval.

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Relief request ISI-23B applies to a weld overlay that is ASME Code Class 1 and also subject to examination requirements of NRC Generic Letter (GL) 88-01, "NRC Position on IGSCC in BWR Austenitic Stainless Steel Piping." NMPNS plans to utilize the PDI program to satisfy both ASME Code requirements and GL 88-01 requirements. Relief request ISI-23B has been prepared using the EPRI sample and guidance previously discussed. Attachment 1 to the relief request provides a comparison matrix identifying the differences among (a) the ASME Code, Section XI, Appendix VIII, Supplement 11, (b) the proposed ASME Code Case N-653, and (c) the PDI program for weld overlay examinations. This additional information was developed by EPRI and is provided to assist in NRC review of the relief request.

NMPNS requests NRC approval of relief request ISI-23B by October 1, 2003, to support NMP2 weld examinations planned for refueling outage number 9 in Spring 2004.

Very truly yours,

Bruce S. Montgomery
Manager Engineering Services

BSM/IAA/jm
Enclosure:
cc: Mr. H. J. Miller, NRC Regional Administrator, Region I
Mr. G. K. Hunegs, NRC Senior Resident Inspector
Mr. P. S. Tam, Senior Project Manager, NRR (2 copies)

ENCLOSURE

(This Enclosure consists of Relief Request ISI-23B and
Attachment 1 to ISI-23B.)

NINE MILE POINT UNIT 2
SECOND INSERVICE INSPECTION INTERVAL
RELIEF REQUEST ISI-23B

A. COMPONENT IDENTIFICATION

System:	Feedwater System
Class:	ASME Code Class 1
Component Description:	Dissimilar Metal Weld Between Feedwater Nozzle N4D and 12.0" Safe End
Component Identification:	2RPV-KB20-OL, Nozzle-To-Safe End Weld

B. ASME CODE SECTION XI REQUIREMENTS

ASME Code Section XI, 1995 Edition with 1996 Addenda, Appendix VIII, Supplement 11, "Qualification Requirements For Full Structural Overlaid Wrought Austenitic Piping Welds"

The Code requirements for which relief is being requested are contained within Appendix VIII, Supplement 11. For example, paragraph 1.1(d)(1), requires that all base metal flaws be cracks. Paragraph 1.1(e)(1) requires that at least 20 percent but less than 40 percent of the flaws shall be oriented within $\pm$20 degrees of the pipe axial direction. Paragraph 1.1(e)(1) also requires that the rules of IWA-3300 shall be used to determine whether closely spaced flaws should be treated as single or multiple flaws. Paragraph 1.1(e)(2)(a)(1) requires that a base grading unit shall include at least 3 inches of the length of the overlaid weld. Paragraph 1.1(e)(2)(b)(1) requires that a overlay grading unit shall include the overlay material and the base metal-to-overlay interface of at least 6 square inches. The overlay grading unit shall be rectangular, with minimum dimensions of 2 inches. Paragraph 3.2(b) requires that all extensions of base metal cracking into the overlay material by at least 0.1 inch are reported as being intrusions into the overlay material.

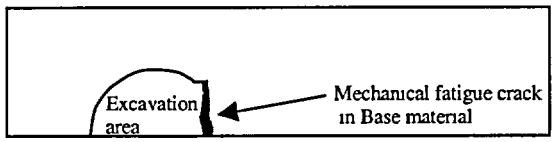
C. RELIEF REQUESTED

Pursuant to 10 CFR 50.55a(a)(3)(i), Nine Mile Point Nuclear Station, LLC (NMPNS) requests relief to use the Electric Power Research Institute (EPRI) Performance Demonstration Initiative (PDI) Program for implementation of ASME Code, Section XI, Appendix VIII, Supplement 11 requirements.

D. BASIS FOR RELIEF

Paragraph 1.1(d)(1), requires that all base metal flaws be cracks. As illustrated below, implanting a crack requires excavation of the base material on at least one side of the flaw. While this may be satisfactory for ferritic materials, it does not produce a usable axial flaw in austenitic materials because the sound beam, which normally passes only through base material, must now travel through weld material on at least one side, producing an unrealistic flaw response. To resolve this issue, the PDI program revised this paragraph to allow use of alternative flaw mechanisms under controlled conditions. For example, alternative flaws shall be limited to when implantation of cracks precludes obtaining an effective ultrasonic response, flaws shall be semielliptical with a tip width of less than or equal to 0.002 inch, and at least 70 percent of the flaws in the detection and sizing test shall be cracks and the remainder shall be alternative flaws.

NINE MILE POINT UNIT 2
SECOND INSERVICE INSPECTION INTERVAL
RELIEF REQUEST ISI-23B



Relief is requested to allow closer spacing of flaws provided they do not interfere with detection or discrimination. The existing specimens used to date for qualification to the Tri-party (NRC/BWROG/EPRI) agreement have a flaw population density greater than allowed by the current Code requirements. These samples have been used successfully for all previous qualifications under the Tri-party agreement program. To facilitate their use and provide continuity from the Tri-party agreement program to Supplement 11, the PDI Program has merged the Tri-party test specimens into their weld overlay program. For example: the requirement for using IWA-3300 for proximity flaw evaluation in paragraph 1.1(e)(1) was excluded, instead indications will be sized based on their individual merits; paragraph 1.1(d)(1) includes the statement that intentional overlay fabrication flaws shall not interfere with ultrasonic detection or characterization of the base metal flaws; paragraph 1.1(e)(2)(a)(1) was modified to require that a base metal grading unit include at least 1 inch of the length of the overlaid weld, rather than 3 inches; paragraph 1.1(e)(2)(a)(3) was modified to require sufficient unflawed overlaid weld and base metal to exist on all sides of the grading unit to preclude interfering reflections from adjacent flaws, rather than the 1 inch requirement of Supplement 11; paragraph 1.1(e)(2)(b)(1) was modified to define an overlay fabrication grading unit as including the overlay material and the base metal-to-overlay interface for a length of at least 1 inch, rather than the 6 square inches requirement of Supplement 11; and paragraph 1.1(e)(2)(b)(2) states that overlay fabrication grading units designed to be unflawed shall be separated by unflawed overlay material and unflawed base metal-to-overlay interface for at least 1 inch at both ends, rather than around its entire perimeter.

Additionally, the requirement for axially oriented overlay fabrication flaws in paragraph 1.1(e)(1) was excluded from the PDI Program as an improbable scenario. Weld overlays are typically applied using automated gas tungsten arc welding techniques with the filler metal being applied in a circumferential direction. Because resultant fabrication induced discontinuities would also be expected to have major dimensions oriented in the circumferential direction, axial overlay fabrication flaws are unrealistic.

The requirement in paragraph 3.2(b) for reporting all extensions of cracking into the overlay is omitted from the PDI Program because it is redundant to the root means square (RMS) calculations performed in paragraph 3.2(c) and its presence adds confusion and ambiguity to depth sizing as required by paragraph 3.2(c). This also makes the weld overlay program consistent with the Supplement 2 depth sizing criteria.

PDI submitted these changes as Code Case N-653. ASME approved Code Case N-653 on September 7, 2001, however, the Code Case will not be published until later in 2002. A detailed comparison matrix between Supplement 11, the proposed ASME Section XI Code Case N-653, and the PDI Program (refer to Attachment 1) provides supporting documentation. The first column identifies the current requirements in the 95 Edition and 96 Addenda of Supplement 11, while the second (middle) column identifies the changes made by the Code Case.

There are, however, some additional changes that were inadvertently omitted from the Code Case. The most significant change is paragraph 1.1(a)(1) where the phrase *"and base metal on both sides"*, was inadvertently included in the description of a base metal grading unit. The PDI program intentionally excludes this requirement because some of the qualification samples include flaws on both sides of the weld. Additionally to avoid confusion, several instances of the term "cracks" or "cracking" were changed to the term "flaws" because of the use of alternative flaw mechanisms. The overlay thickness tolerance contained in paragraph 1.1(b) last sentence, was also reworded and the phrase *"and the remainder shall be alternative flaws"* was added to the next to last sentence in paragraph 1.1(d)(1).

Additionally, the NRC staff issued a request for additional information (RAI) that would result in some revisions to the semantics used to describe the PDI program. NMPNS has incorporated the PDI proposed changes to Attachment 1, column three for information purposes. NMPNS recognizes that the proposed wording may change based upon future NRC staff and PDI discussions.

These changes are identified by **bold** print in the third column of the enclosure.

E. ALTERNATIVE EXAMINATIONS

As an alternate to the requirements of ASME Section XI, 1995 Edition, 1996 Addenda, Appendix VIII, Supplement 11, NMPNS proposes to use the PDI Program. Compliance with the PDI Program will provide an adequate level of quality and safety for examination of the affected welds (i.e., weld overlay repairs).

F. IMPLEMENTATION SCHEDULE

The remainder of the Second Ten-Year Inservice Inspection Interval for Unit 2, (April 5, 1998 through April 4, 2008).

G. ATTACHMENTS

Attachment 1 Comparison of the ASME Code, Section XI, Supplement 11 to ASME Code Case N-653 and the EPRI PDI Program

ATTACHMENT 1 Comparison of the ASME Code, Section XI, Supplement 11 to ASME Code Case N-653 and the EPRI PDI Program		
SUPPLEMENT 11 – QUALIFICATION REQUIREMENTS FOR FULL STRUCTURAL OVERLAID WROUGHT AUSTENITIC PIPING WELDS	**CODE CASE N-653** **(Provided for Information Only)**	**PDI PROGRAM:** **The Proposed Alternative to Supplement 11 Requirements**
1.0 SPECIMEN REQUIREMENTS		
Qualification test specimens shall meet the requirements listed herein, unless a set of specimens is designed to accommodate specific limitations stated in the scope of the examination procedure (e.g., pipe size, weld joint configuration, access limitations). The same specimens may be used to demonstrate both detection and sizing qualification.	**No Change**	**No Change**
1.1 General. The specimen set shall conform to the following requirements.	**No Change**	**No Change**
(a) Specimens shall have sufficient volume to minimize spurious reflections that may interfere with the interpretation process.	**No Change**	**No Change**
(b) The specimen set shall consist of at least three specimens having different nominal pipe diameters and overlay thicknesses. They shall include the minimum and maximum nominal pipe diameters for which the examination procedure is applicable. Pipe diameters within a range of 0.9 to 1.5 times a nominal diameter shall be considered equivalent. If the procedure is applicable to pipe diameters of 24 in. or larger, the specimen set must include at least one specimen 24 in. or larger but need not include the maximum diameter. The specimen set must include at least one specimen with overlay thickness within -0.1 in. to +0.25 in. of the maximum nominal overlay thickness for which the procedure is applicable.	**No Change**	*(b)* The specimen set shall consist of at least three specimens having different nominal pipe diameters and overlay thicknesses. They shall include the minimum and maximum nominal pipe diameters for which the examination procedure is applicable. Pipe diameters within a range of 0.9 to 1.5 times a nominal diameter shall be considered equivalent. If the procedure is applicable to pipe diameters of 24 in. or larger, the specimen set must include at least one specimen 24 in. or larger but need not include the maximum diameter. The specimen set **shall include specimens with overlays not thicker than 0.1 in. more than the minimum thickness, nor thinner than 0.25 in. of the maximum nominal overlay thickness for which the examination procedure is applicable.**
(c) The surface condition of at least two specimens shall approximate the roughest surface condition for which the examination procedure is applicable.	**No Change**	**No Change**
(d) Flaw Conditions		

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(1) Base metal flaws. All flaws must be cracks in or near the butt weld heat-affected zone, open to the inside surface, and extending at least 75% through the base metal wall. Flaws may extend 100% through the base metal and into the overlay material; in this case, intentional overlay fabrication flaws shall not interfere with ultrasonic detection or characterization of the cracking. Specimens containing IGSCC shall be used when available.	(1) Base metal flaws. All flaws must be in or near the butt weld heat-affected zone, open to the inside surface, and extending at least 75% through the base metal wall. Intentional overlay fabrication flaws shall not interfere with ultrasonic detection or characterization of the cracking. Specimens containing IGSCC shall be used when available. At least 70 percent of the flaws in the detection and sizing tests shall be cracks. Alternative flaw mechanisms, if used, shall provide crack-like reflective characteristics and shall be limited by the following: (a) Flaws shall be limited to when implantation of cracks precludes obtaining a realistic ultrasonic response. (b) Flaws shall be semielliptical with a tip width of less than or equal to 0.002 inches.	(1) Base metal flaws. All flaws must be in or near the butt weld heat-affected zone, open to the inside surface, and extending at least 75% through the base metal wall. Intentional overlay fabrication flaws shall not interfere with ultrasonic detection or characterization of the **base metal flaws.** Specimens containing IGSCC shall be used when available. At least 70 percent of the flaws in the detection and sizing tests shall be cracks **and the remainder shall be alternative flaws.** Alternative flaw mechanisms, if used, shall provide crack-like reflective characteristics and shall be limited by the following: (a) **The use of Alternative flaws** shall be limited to when **the** implantation of cracks **produces spurious reflectors that are uncharacteristic of actual flaws.** (b) Flaws shall be semielliptical with a tip width of less than or equal to 0.002 inches.
(2) Overlay fabrication flaws. At least 40% of the flaws shall be non-crack fabrication flaws (e.g., sidewall lack of fusion or laminar lack of bond) in the overlay or the pipe-to-overlay interface. At least 20% of the flaws shall be cracks. The balance of the flaws shall be of either type.	**No Change**	**No Change**
(e) Detection Specimens		

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(1) At least 20% but less than 40% of the flaws shall be oriented within ±20 deg. of the pipe axial direction. The remainder shall be oriented circumferentially. Flaws shall not be open to any surface to which the candidate has physical or visual access. The rules of IWA-3300 shall be used to determine whether closely spaced flaws should be treated as single or multiple flaws.	(1) At least 20% but less than 40% of the base metal flaws shall be oriented within ±20 deg. of the pipe axial direction. The remainder shall be oriented circumferentially. Flaws shall not be open to any surface to which the candidate has physical or visual access.	(1) At least 20% but less than 40% of the base metal flaws shall be oriented within ±20 deg. of the pipe axial direction. The remainder shall be oriented circumferentially. Flaws shall not be open to any surface to which the candidate has physical or visual access.
(2) Specimens shall be divided into base and over-lay grading units. Each specimen shall contain one or both types of grading units.	(2) Specimens shall be divided into base metal and overlay fabrication grading units. Each specimen shall contain one or both types of grading units. Flaws shall not interfere with ultrasonic detection or characterization of other flaws.	(2) Specimens shall be divided into base metal and overlay fabrication grading units. Each specimen shall contain one or both types of grading units. Flaws shall not interfere with ultrasonic detection or characterization of other flaws.
(a)(1) A base grading unit shall include at least 3 in. of the length of the overlaid weld. The base grading unit includes the outer 25% of the overlaid weld and base metal on both sides. The base grading unit shall not include the inner 75% of the overlaid weld and base metal overlay material, or base metal-to-overlay interface.	*(a)(1)* A base metal grading unit shall include at least 1 in. of the length of the overlaid weld. The base metal grading unit includes the outer 25% of the overlaid weld and base metal on both sides. The base metal grading unit shall not include the inner 75% of the overlaid weld and base metal overlay material, or base metal-to-overlay interface.	*(a)(1)* **A base metal grading unit includes the overlay material and the outer 25% of the original overlaid weld. The base metal grading unit shall extend circumferentially for at least 1 in. and shall start at the weld centerline and be wide enough in the axial direction to encompass one half of the original weld crown and a minimum of 0.50" of the adjacent base material.**
(a)(2) When base metal cracking penetrates into the overlay material, the base grading unit shall include the overlay metal within 1 in. of the crack location. This portion of the overlay material shall not be used as part of any overlay grading unit.	(a)(2) When base metal cracking penetrates into the overlay material, the base metal grading unit shall not be used as part of any overlay fabrication grading unit.	(a)(2) When base metal **flaws penetrate** into the overlay material, the base metal grading unit shall not be used as part of any overlay fabrication grading unit.

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(a)(3) When a base grading unit is designed to be unflawed, at least 1 in. of unflawed overlaid weld and base metal shall exist on either side of the base grading unit. The segment of weld length used in one base grading unit shall not be used in another base grading unit. Base grading units need not be uniformly spaced around the specimen.	(a)(3) Sufficient unflawed overlaid weld and base metal shall exist on all sides of the grading unit to preclude interfering reflections from adjacent flaws.	(a)(3) Sufficient unflawed overlaid weld and base metal shall exist on all sides of the grading unit to preclude interfering reflections from adjacent flaws.
(b)(l) An overlay grading unit shall include the overlay material and the base metal-to-overlay interface of at least 6 sq. in. The overlay grading unit shall be rectangular, with minimum dimensions of 2 in.	*(b)*(l) An overlay fabrication grading unit shall include the overlay material and the base metal-to-overlay interface for a length of at least 1 in.	*(b)*(l) An overlay fabrication grading unit shall include the overlay material and the base metal-to-overlay interface for a length of at least 1 in.
(b)(2) An overlay grading unit designed to be unflawed shall be surrounded by unflawed overlay material and unflawed base metal-to-overlay interface for at least 1 in. around its entire perimeter. The specific area used in one overlay grading unit shall not be used in another overlay grading unit. Overlay grading units need not be spaced uniformly about the specimen.	(b)(2) Overlay fabrication grading units designed to be unflawed shall be separated by unflawed overlay material and unflawed base metal-to-overlay interface for at least 1 in. at both ends. Sufficient unflawed overlaid weld and base metal shall exist on both sides of the overlay fabrication grading unit to preclude interfering reflections from adjacent flaws. The specific area used in one overlay fabrication grading unit shall not be used in another overlay fabrication grading unit. Overlay fabrication grading units need not be spaced uniformly about the specimen.	(b)(2) Overlay fabrication grading units designed to be unflawed shall be separated by unflawed overlay material and unflawed base metal-to-overlay interface for at least 1 in. at both ends. Sufficient unflawed overlaid weld and base metal shall exist on both sides of the overlay fabrication grading unit to preclude interfering reflections from adjacent flaws. The specific area used in one overlay fabrication grading unit shall not be used in another overlay fabrication grading unit. Overlay fabrication grading units need not be spaced uniformly about the specimen.

ATTACHMENT 1 Comparison of the ASME Code, Section XI, Supplement 11 to ASME Code Case N-653 and the EPRI PDI Program		
SUPPLEMENT 11 – QUALIFICATION REQUIREMENTS FOR FULL STRUCTURAL OVERLAID WROUGHT AUSTENITIC PIPING WELDS	**CODE CASE N-653** **(Provided for Information Only)**	**PDI PROGRAM:** **The Proposed Alternative to Supplement 11 Requirements**
(b)(3) Detection sets shall be selected from Table VIII-S2-1. The minimum detection sample set is five flawed base grading units, ten unflawed base grading units, five flawed overlay grading units, and ten unflawed overlay grading units. For each type of grading unit, the set shall contain at least twice as many unflawed as flawed grading units.	(b)(3) Detection sets shall be selected from Table VIII-S2-1. The minimum detection sample set is five flawed base metal grading units, ten unflawed base metal grading units, five flawed overlay fabrication grading units, and ten unflawed overlay fabrication grading units. For each type of grading unit, the set shall contain at least twice as many unflawed as flawed grading units. For initial procedure qualification, detection sets shall include the equivalent of three personnel qualification sets. To qualify new values of essential variables, at least one personnel qualification set is required.	(b)(3) Detection sets shall be selected from Table VIII-S2-1. The minimum detection sample set is five flawed base metal grading units, ten unflawed base metal grading units, five flawed overlay fabrication grading units, and ten unflawed overlay fabrication grading units. For each type of grading unit, the set shall contain at least twice as many unflawed as flawed grading units. For initial procedure qualification, detection sets shall include the equivalent of three personnel qualification sets. To qualify new values of essential variables, at least one personnel qualification set is required.
(f) Sizing Specimen		
(1) The minimum number of flaws shall be ten. At least 30% of the flaws shall be overlay fabrication flaws. At least 40% of the flaws shall be cracks open to the inside surface.	(1) The minimum number of flaws shall be ten. At least 30% of the flaws shall be overlay fabrication flaws. At least 40% of the flaws shall be cracks open to the inside surface. For initial procedure qualification, sizing sets shall include the equivalent of three personnel qualification sets. To qualify new values of essential variables, at least one personnel qualification set is required.	(1) The minimum number of flaws shall be ten. At least 30% of the flaws shall be overlay fabrication flaws. At least 40% of the flaws **shall be open** to the inside surface. **Sizing sets shall contain a distribution of flaw dimensions to assess sizing capabilities.** For initial procedure qualification, sizing sets shall include the equivalent of three personnel qualification sets. To qualify new values of essential variables, at least one personnel qualification set is required.
(2) At least 20% but less than 40% of the flaws shall be oriented axially. The remainder shall be oriented circumferentially. Flaws shall not be open to any surface to which the candidate has physical or visual access.	**No Change**	**No Change**
(3) Base metal cracking used for length sizing demonstrations shall be oriented circumferentially.	**No Change**	(3) Base metal **flaws** used for length sizing demonstrations shall be oriented circumferentially.

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SUPPLEMENT 11 – QUALIFICATION REQUIREMENTS FOR FULL STRUCTURAL OVERLAID WROUGHT AUSTENITIC PIPING WELDS	**CODE CASE N-653** **(Provided for Information Only)**	**PDI PROGRAM:** **The Proposed Alternative to Supplement 11 Requirements**
(4) Depth sizing specimen sets shall include at least two distinct locations where cracking in the base metal extends into the overlay material by at least 0.1 in. in the through-wall direction.	**No Change**	(4) Depth sizing specimen sets shall include at least two distinct locations where **a base metal flaw extends** into the overlay material by at least 0.1 in. in the through-wall direction.
2.0 CONDUCT OF PERFORMANCE DEMONSTRATION		
The specimen inside surface and identification shall be concealed from the candidate. All examinations shall be completed prior to grading the results and presenting the results to the candidate. Divulgence of particular specimen results or candidate viewing of unmasked specimens after the performance demonstration is prohibited.	The specimen inside surface and identification shall be concealed from the candidate. All examinations shall be completed prior to grading the results and presenting the results to the candidate. Divulgence of particular specimen results or candidate viewing of unmasked specimens after the performance demonstration is prohibited. The overlay fabrication flaw test and the base metal flaw test may be performed separately.	The specimen inside surface and identification shall be concealed from the candidate. All examinations shall be completed prior to grading the results and presenting the results to the candidate. Divulgence of particular specimen results or candidate viewing of unmasked specimens after the performance demonstration is prohibited. The overlay fabrication flaw test and the base metal flaw test may be performed separately.
2.1 Detection Test.		
Flawed and unflawed grading units shall be randomly mixed. Although the boundaries of specific grading units shall not be revealed to the candidate, the candidate shall be made aware of the type or types of grading units (base or overlay) that are present for each specimen.	Flawed and unflawed grading units shall be randomly mixed. Although the boundaries of specific grading units shall not be revealed to the candidate, the candidate shall be made aware of the type or types of grading units (base metal or overlay fabrication) that are present for each specimen.	Flawed and unflawed grading units shall be randomly mixed. Although the boundaries of specific grading units shall not be revealed to the candidate, the candidate shall be made aware of the type or types of grading units (base metal or overlay fabrication) that are present for each specimen.
2.2 Length Sizing Test		
(a) The length sizing test may be conducted separately or in conjunction with the detection test.	**No Change**	**No Change**

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SUPPLEMENT 11 – QUALIFICATION REQUIREMENTS FOR FULL STRUCTURAL OVERLAID WROUGHT AUSTENITIC PIPING WELDS	**CODE CASE N-653** **(Provided for Information Only)**	**PDI PROGRAM:** **The Proposed Alternative to Supplement 11 Requirements**
(b) When the length sizing test is conducted in conjunction with the detection test and the detected flaws do not satisfy the requirements of 1.1(f), additional specimens shall be provided to the candidate. The regions containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the length of the flaw in each region.	**No Change**	**No Change**
(c) For a separate length sizing test, the regions of each specimen containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the length of the flaw in each region.	**No Change**	**No Change**
(d) For flaws in base grading units, the candidate shall estimate the length of that part of the flaw that is in the outer 25% of the base wall thickness.	*(d)* For flaws in base metal grading units, the candidate shall estimate the length of that part of the flaw that is in the outer 25% of the base metal wall thickness.	*(d)* For flaws in base metal grading units, the candidate shall estimate the length of that part of the flaw that is in the outer 25% of the base metal wall thickness.
2.3 Depth Sizing Test.		
For the depth sizing test, 80% of the flaws shall be sized at a specific location on the surface of the specimen identified to the candidate. For the remaining flaws, the regions of each specimen containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the maximum depth of the flaw in each region.	The candidate shall determine the depth of the flaw in each region.	**(a) The depth sizing test may be conducted separately or in conjunction with the detection test.**
		(b) When the depth sizing test is conducted in conjunction with the detection test and the detected flaws do not satisfy the requirements of 1.1(f), additional specimens shall be provided to the candidate. The regions containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the maximum depth of the flaw in each region.

ATTACHMENT 1 Comparison of the ASME Code, Section XI, Supplement 11 to ASME Code Case N-653 and the EPRI PDI Program		
SUPPLEMENT 11 – QUALIFICATION REQUIREMENTS FOR FULL STRUCTURAL OVERLAID WROUGHT AUSTENITIC PIPING WELDS	**CODE CASE N-653** **(Provided for Information Only)**	**PDI PROGRAM:** **The Proposed Alternative to Supplement 11 Requirements**
		(c) For a separate depth sizing test, the regions of each specimen containing a flaw to be sized shall be identified to the candidate. The candidate shall determine the maximum depth of the flaw in each region.
3.0 ACCEPTANCE CRITERIA		
3.1 Detection Acceptance Criteria		
Examination procedures, equipment, and personnel are qualified for detection when the results of the performance demonstration satisfy the acceptance criteria of Table VIII-S2-1 for both detection and false calls. The criteria shall be satisfied separately by the demonstration results for base grading units and for overlay grading units.	Examination procedures are qualified for detection when all flaws within the scope of the procedure are detected and the results of the performance demonstration satisfy the acceptance criteria of Table VIII-S2-1 for false calls. Examination equipment and personnel are qualified for detection when the results of the performance demonstration satisfy the acceptance criteria of Table VIII-S2-1 for both detection and false calls. The criteria shall be satisfied separately by the demonstration results for base metal grading units and for overlay fabrication grading units.	**(a) Examination procedures are qualified for detection when:**
		1) All flaws within the scope of the procedure are detected and the results of the performance demonstration satisfy the acceptance criteria of Table VIII-S2-1 for false calls.
		(a) At least one successful personnel demonstration has been performed meeting the acceptance criteria defined in (b).
		(b) Examination equipment and personnel are qualified for detection when the results of the performance demonstration satisfy the acceptance criteria of Table VIII-S2-1 for both detection and false calls.

ATTACHMENT 1 Comparison of the ASME Code, Section XI, Supplement 11 to ASME Code Case N-653 and the EPRI PDI Program		
SUPPLEMENT 11 – QUALIFICATION REQUIREMENTS FOR FULL STRUCTURAL OVERLAID WROUGHT AUSTENITIC PIPING WELDS	**CODE CASE N-653** **(Provided for Information Only)**	**PDI PROGRAM:** **The Proposed Alternative to Supplement 11 Requirements**
		(c) The criteria in (a), (b) shall be satisfied separately by the demonstration results for base metal grading units and for overlay fabrication grading units.
3.2 Sizing Acceptance Criteria.		
Examination procedures, equipment, and personnel are qualified for sizing when the results of the performance demonstration satisfy the following criteria.	**No Change**	**No Change**
(a) The RMS error of the flaw length measurements, as compared to the true flaw lengths, is less than or equal to 0.75 inch. The length of base metal cracking is measured at the 75% through-base-metal position.	**No Change**	*(a)* The **RMS** error of the flaw length measurements, as compared to the true flaw lengths, is less than or equal to 0.75 inch. The length of base metal **flaws** is measured at the 75% through-base-metal position.
(b) All extensions of base metal cracking into the overlay material by at least 0.1 in. are reported as being intrusions into the overlay material.	**This requirement is omitted.**	**This requirement is omitted.**
(c) The RMS error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125 in.	*(b)* The RMS error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125 in.	*(b)* The RMS error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125 in.