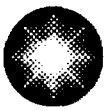
P.O. Box 63
Lycoming, New York 13093



Constellation Energy Group

Nine Mile Point
Nuclear Station

October 23 2003
NMP1L 1780

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

SUBJECT: Nine Mile Point Units 1 and 2
Docket Nos. 50-220 and 50-410
Facility License Nos. DPR-63 and NPF-69

Request for Relief from Qualification Requirements for Dissimilar Metal Piping Welds

Gentlemen:

By letter dated August 8, 2003, Nine Mile Point Nuclear Station, LLC (NMPNS) submitted inservice inspection relief requests ISI-24A and ISI-24B for Nine Mile Point Unit 1 (NMP1) and Unit 2 (NMP2), respectively. In accordance with a telephone conversation with the NRC staff on August 19, 2003, NMPNS has subsequently conducted a review of contractor inspection capabilities and concluded that relief from ASME Code, Section XI, Appendix VIII, Supplement 10, qualification requirements in the area of flaw depth sizing is not needed. NMPNS, therefore, is submitting revisions to the original relief requests that include only the performance demonstration initiative (PDI) alternative to the Supplement 10 requirements. These revisions are contained in Attachments 1 and 2, and replace the original relief requests in their entirety. Differences from the original relief requests are identified by "lined through" text accompanied by change bars in the margin. Attachment 3 to the August 8, 2003, submittal remains unchanged and need not be re-submitted.

NMPNS requests NRC approval of the revised relief requests by February 15, 2004, to support examinations planned for NMP2 during the next refueling outage (RFO9).

Very truly yours,

Peter E. Katz

Peter E. Katz
Vice President Nine Mile Point

PEK/IAA/bjh
Attachments

A047

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)

ATTACHMENT 1
(Revised Relief Request ISI-24A for Nine Mile Point Unit 1)

NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
RELIEF REQUEST ISI-24A

A. COMPONENT IDENTIFICATION

System:	Various Systems
Class:	Quality Group A, ASME Code Class 1
Component Description:	Pressure Retaining Piping Welds subject to examination using procedures, personnel, and equipment qualified to ASME Section XI, Appendix VIII, Supplement 10 criteria
Component Identification:	Attachment 1 provides a list of applicable dissimilar metal welds

B. ASME CODE SECTION XI REQUIREMENTS

ASME Section XI, 1995 Edition with 1996 Addenda, Appendix VIII, Supplement 10, "Qualification Requirements For Dissimilar Metal Piping Welds."

The following paragraphs or statements are from ASME Section XI, Appendix VIII, Supplement 10 and identify the specific requirements that are included in this request for relief.

Item 1 - Paragraph 1.1(b) states in part - Pipe diameters within a range of 0.9 to 1.5 times a nominal diameter shall be considered equivalent.

Item 2 - Paragraph 1.1(d) states - All flaws in the specimen set shall be cracks.

Item 3 - Paragraph 1.1(d)(1) states - At least 50% of the cracks shall be in austenitic material. At least 50% of the cracks in austenitic material shall be contained wholly in weld or buttering material. At least 10% of the cracks shall be in ferritic material. The remainder of the cracks may be in either austenitic or ferritic material.

Item 4 - Paragraph 1.2(b) states in part - The number of unflawed grading units shall be at least twice the number of flawed grading units.

Item 5 - Paragraph 1.2(c)(1) and 1.3(c) state in part - At least 1/3 of the flaws, rounded to the next higher whole number, shall have depths between 10% and 30% of the nominal pipe wall thickness. Paragraph 1.4(b) distribution table requires 20% of the flaws to have depths between 10% and 30%.

Item 6 - Paragraph 2.0 first sentence states - The specimen inside surface and identification shall be concealed from the candidate.

Item 7 - Paragraph 2.2(b) states in part - The regions containing a flaw to be sized shall be identified to the candidate.

Item 8 - Paragraph 2.2(c) states in part - For a separate length sizing test, the regions of each specimen containing a flaw to be sized shall be identified to the candidate.

Item 9 - Paragraph 2.3(a) states - 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.

Item 10 - Paragraph 2.3(b) states - 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.

Item 11 - Table VIII-S2-1 provides the false call criteria when the number of unflawed grading units is at least twice the number of flawed grading units.

~~Item 12 - Paragraph 3.2(b) states - Examination procedures, equipment, and personnel are qualified for depth sizing when the RMS error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125 in.~~

C. **RELIEF REQUESTED**

Pursuant to 10 CFR 50.55a(a)(3)(i), Nine Mile Point Nuclear Station, LLC (NMPNS) requests relief to use the proposed alternative Performance Demonstration Initiative (PDI) Program described below in lieu of the ASME Code Section XI, Appendix VIII, Supplement 10 requirements on the basis that the proposed alternative will provide an acceptable level of quality and safety for examination of the affected welds.

A copy of the proposed revision to Supplement 10 is attached as an Enclosure. It identifies the proposed alternatives and allows them to be viewed in context. It also identifies additional clarifications and enhancements for information. It has been submitted to the ASME Code for consideration and as of September 2002, has been approved by the NDE Subcommittee.

~~In addition, NMPNS requests relief from the depth sizing less than or equal to 0.125 inch RMS error.~~

D. **BASIS FOR RELIEF**

Item 1 - The proposed alternative to Paragraph 1.1(b) states:

"The specimen set shall include the minimum and maximum pipe diameters and thicknesses for which the examination procedure is applicable. Pipe diameters within a range of **½ in. (13 mm) of the** nominal diameter shall be considered equivalent. Pipe diameters larger than 24 in. **(610 mm)** shall be considered to be flat. When a range of thicknesses is to be examined, a thickness tolerance of ±25% is acceptable."

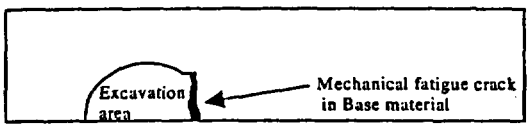
Technical Basis - The change in the minimum pipe diameter tolerance from 0.9 times the diameter to the nominal diameter minus 0.5 inch provides tolerances more in line with industry practice. Though the alternative is less stringent for small pipe diameters, they typically have a thinner wall thickness than larger diameter piping. A thinner wall thickness results in shorter sound path distances that reduce the detrimental effects of the curvature. This change maintains consistency between Supplement 10 and the recent revision to Supplement 2.

Item 2 - The proposed alternative to Paragraph 1.1(d) states:

"At least 60% of the flaws shall be cracks, the remainder shall be alternative flaws. Specimens with IGSCC shall be used when available. Alternative flaws, if used, shall provide crack-like reflective characteristics and shall be limited to the case where implantation of cracks produces spurious reflectors that are uncharacteristic of actual flaws. Alternative flaw mechanisms shall have a tip width of less than or equal to 0.002 in. (.05 mm). Note, to avoid confusion the proposed alternative modifies instances of the term "cracks" or "cracking" to the term "flaws" because of the use of alternative flaw mechanisms."

Technical Basis - 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 useable 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. In addition, it is important to preserve the dendritic structure present in field welds that would otherwise be destroyed by the implantation process. To resolve these issues, the proposed alternative allows the use of up to 40% fabricated flaws as an alternative flaw mechanism under controlled conditions. The fabricated flaws are isostatically compressed, which produces ultrasonic reflective characteristics similar to tight cracks.



Item 3 - The proposed alternative to Paragraph 1.1(d)(1) states:

"At least **80%** of the **flaws** shall be contained wholly in weld or buttering material. At least **one and a maximum of** 10% of the **flaws** shall be in ferritic **base** material. **At least one and a maximum of 10% of the flaws shall be in austenitic base material.**"

Technical Basis - Under the current Code, as few as 25% of the flaws are contained in austenitic weld or buttering material. Recent experience has indicated that flaws contained within the weld are the likely scenarios. The metallurgical structure of austenitic weld material is ultrasonically more challenging than either ferritic or austenitic base material. The proposed alternative is therefore more challenging than the current Code.

Item 4 - The proposed alternative to Paragraph 1.2(b) states:

"Detection sets shall be selected from Table VIII-S10-1. The number of unflawed grading units shall be at least **one and a half** times the number of flawed grading units."

Technical Basis - Table VIII-S10-1 provides a statistically based ratio between the number of unflawed grading units and the number of flawed grading units. The proposed alternative reduces the ratio to 1.5 times to reduce the number of test samples to a more reasonable number from the human factors perspective. However, the statistical basis used for screening personnel and procedures is still maintained at the same level with competent personnel being successful and less skilled personnel being unsuccessful. The acceptance criteria for the statistical basis are in Table VIII-S10-1.

Item 5 - The proposed alternative to the flaw distribution requirements of Paragraph 1.2(c)(1) (detection) and 1.3(c) (length) is to use the Paragraph 1.4(b) (depth) distribution table (see below) for all qualifications.

Flaw Depth (% Wall Thickness)	Minimum Number of Flaws
10-30%	20%
31-60%	20%
61-100%	20%

Technical Basis - The proposed alternative uses the depth sizing distribution for both detection and depth sizing because it provides for a better distribution of flaw sizes within the test set. This distribution allows candidates to perform detection, length, and depth sizing demonstrations simultaneously utilizing the same test set. The requirement that at least 75% of the flaws shall be in the range of 10 to 60% of wall thickness provides an overall distribution tolerance yet the distribution uncertainty decreases the possibilities for testmanship that would be inherent to a uniform distribution. It must be noted that it is possible to achieve the same distribution utilizing the present requirements, but it is preferable to make the criteria consistent.

Item 6 - The proposed alternative to Paragraph 2.0 first sentence states:

"For qualifications from the outside surface, the specimen inside surface and identification shall be concealed from the candidate. When qualifications are performed from the inside surface, the flaw location and specimen identification shall be obscured to maintain a "blind test."

Technical Basis - The current Code requires that the inside surface be concealed from the candidate. This makes qualifications conducted from the inside of the pipe (e.g., PWR nozzle to safe end welds) impractical. The proposed alternative differentiates between ID and OD scanning surfaces, requires that they be conducted separately, and requires that flaws be concealed from the candidate. This is consistent with the recent revision to Supplement 2.

Items 7 and 8 - The proposed alternatives to Paragraph 2.2(b) and 2.2(c) state:

"... containing a flaw to be sized **may** be identified to the candidate."

Technical Basis - The current Code requires that the regions of each specimen containing a flaw to be length sized shall be identified to the candidate. The candidate shall determine the length of the flaw in each region (Note, that length and depth sizing use the term "regions" while detection uses the term "grading units" - the two terms define different concepts and are not intended to be equal or interchangeable). To ensure security of the samples, the proposed alternative modifies the first "shall" to a "may" to allow the test administrator the option of not identifying specifically where a flaw is located. This is consistent with the recent revision to Supplement 2.

Items 9 and 10 - The proposed alternative to Paragraph 2.3(a) and 2.3(b) state:

"... regions of each specimen containing a flaw to be sized **may** be identified to the candidate."

Technical Basis - The current Code requires that a large number of flaws be sized at a specific location. The proposed alternative changes the "shall" to a "may" which modifies this from a specific area to a more generalized region to ensure security of samples. This is consistent with the recent revision to Supplement 2. It also incorporates terminology from length sizing for additional clarity.

NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
RELIEF REQUEST ISI-24A

Item 11 - The proposed alternative modifies the acceptance criteria of Table VIII-S2-1 as follows:

10
TABLE VIII-~~S2~~-1
PERFORMANCE DEMONSTRATION DETECTION TEST
ACCEPTANCE CRITERIA

Detection Test Acceptance Criteria		False Call Test Acceptance Criteria	
No. of Flawed Grading Units	Minimum Detection Criteria	No. of Unflawed Grading Units	Maximum Number of False Calls
~~5~~	~~5~~	~~10~~	~~0~~
~~6~~	~~6~~	~~12~~	~~1~~
~~7~~	~~6~~	~~14~~	~~1~~
~~8~~	~~7~~	~~16~~	~~2~~
~~9~~	~~7~~	~~18~~	~~2~~
10	8	~~20~~ 15	~~3~~ 2
11	9	~~22~~ 17	~~3~~ 3
12	9	~~24~~ 18	~~3~~ 3
13	10	~~26~~ 20	~~4~~ 3
14	10	~~28~~ 21	~~5~~ 3
15	11	~~30~~ 23	~~5~~ 3
16	12	~~32~~ 24	~~6~~ 4
17	12	~~34~~ 26	~~6~~ 4
18	13	~~36~~ 27	~~7~~ 4
19	13	~~38~~ 29	~~7~~ 4
20	14	~~40~~ 30	~~8~~ 5

Technical Basis - The proposed alternative is identified as new Table VIII-S10-1 above. It was modified to reflect the reduced number of unflawed grading units and allowable false calls. As a part of ongoing Code activities, Pacific Northwest National Laboratory has reviewed the statistical significance of these revisions and offered the revised Table VIII-S10-1.

~~Item 12 - The proposed alternative to Paragraph 3.2(b) states:~~

~~"Examination procedures, equipment, and personnel are qualified for depth sizing when the RMS error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125 in."~~

~~Technical Basis - The industry is in the process of qualifying personnel to Supplement 10; however, as of March 14, 2003, Nine Mile Point Nuclear Station was informed that personnel qualifying to the Supplement 10 procedures have not been successful in achieving the 0.125 inch RMS criteria for depth sizing. Industry personnel have only been capable of achieving an accuracy of 0.155 in. RMS.~~

NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
RELIEF REQUEST ISI-24A

E. ALTERNATIVE EXAMINATIONS

As an alternate to the requirements of ASME Section XI, 1995 Edition, 1996 Addenda, Appendix VIII, Supplement 10, NMPNS proposes to use the PDI Program alternative as described in the Enclosure.

~~NMPNS also proposes that if a flaw is detected during the performance of an ultrasonic examination, the flaw will be sized using the depth sizing of a 0.155 inch RMS value determined during the PDI performance demonstration. In addition NMPNS proposes to take into account the increase in allowable depth sizing error, by adding the difference between the ASME Code required 0.125 inch RMS error and the demonstrated 0.155 inch RMS error to measurements acquired from actual flaw sizing. Specifically, 0.030 inches will be added to the measured flaw size when performing fracture mechanics calculations.~~

F. IMPLEMENTATION SCHEDULE

The remainder of the Third Ten-Year Inservice Inspection Interval for Unit 1 (December 26, 1999 through December 25, 2009)

G. ATTACHMENTS

Attachment 1	List of Applicable Dissimilar Metal Welds
Enclosure	Comparison of the ASME Code, Section XI, Supplement 10 current requirements to the proposed changes.

NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
RELIEF REQUEST ISI-24A

Attachment 1 List of Applicable Dissimilar Metal Welds					
System	**Weld Identification**	**Weld Description**	**System**	**Weld Identification**	**Weld Description**
00.0 Closure Head	RV-WD-011	Nozzle N7A to Flange	32.0 Reactor Recirculation	32-WD-208	Nozzle N2E to Safe End
00.0 Closure Head	RV-WD-013	Nozzle N7B to Flange	32.0 Reactor Recirculation	32-WD-002	Nozzle N1A to Safe End
00.0 Closure Head	RV-WD-015	Nozzle N7C to Flange	32.0 Reactor Recirculation	32-WD-045	Nozzle N1B to Safe End
00.0 Closure Head	RV-WD-017	Nozzle N7D to Flange	32.0 Reactor Recirculation	32-WD-085	Nozzle N1C to Safe End
00.0 Closure Head	RV-WD-019	Nozzle N7E to Flange	32.0 Reactor Recirculation	32-WD-125	Nozzle N1D to Safe End
00.0 Closure Head	RV-WD-021	Nozzle N7F to Flange	32.0 Reactor Recirculation	32-WD-167	Nozzle N1E to Safe End
00.0 Closure Head	RV-WD-023	Nozzle N7G to Flange	33.0 Reactor Water Clean-Up	33-WD-004	Pipe to Pipe Bend
00.0 Closure Head	RV-WD-025	Nozzle N7H to Flange	33.0 Reactor Water Clean-Up	33-WD-014	Pipe to Pipe
00.0 Closure Head	RV-WD-027	Nozzle N7J to Flange	36.0 Reactor Instrumentation	36-WD-003	Nozzle N13A to Safe End
00.0 Closure Head	RV-WD-029	Nozzle N7K to Flange	36.0 Reactor Instrumentation	36-WD-073	Nozzle N13B to Safe End
00.0 Closure Head	RV-WD-031	Nozzle N7M to Flange	36.0 Reactor Instrumentation	36-WD-141	Nozzle N14A to Safe End
00.0 Closure Head	RV-WD-033	Nozzle N7N to Flange	36.0 Reactor Instrumentation	36-WD-315	Nozzle N14B to Safe End
00.0 Closure Head	RV-WD-035	Nozzle N7P to Flange	36.0 Reactor Instrumentation	36-WD-538	Nozzle N15A to Safe End
00.0 Closure Head	RV-WD-037	Nozzle N7R to Flange	36.0 Reactor Instrumentation	36-WD-705	Nozzle N15B to Safe End
00.0 Closure Head	RV-WD-039	Nozzle N7S to Flange	36.0 Reactor Instrumentation	36-WD-1000	Nozzle N16B to Safe End
00.0 Closure Head	RV-WD-041	Nozzle N7T to Flange	36.0 Reactor Instrumentation	36-WD-924	Nozzle N16A to Safe End
00.0 Closure Head	RV-WD-043	Nozzle N7U to Flange	36.0 Reactor Instrumentation	36-WD-1074	Closure Head Nozzle N7L to Flange
32.0 Reactor Recirculation	32-WD-042	Nozzle N2A to Safe End	36.0 Reactor Instrumentation	36-WD-1136	Nozzle N17B to Safe End
32.0 Reactor Recirculation	32-WD-082	Nozzle N2B to Safe End	37.0 Reactor Head Vent	37-WD-002	Nozzle N8 to Flange
32.0 Reactor Recirculation	32-WD-122	Nozzle N2C to Safe End	39.0 Emergency Condenser	39-WD-002	Nozzle N5A to Safe End

NINE MILE POINT UNIT 1
THIRD INSERVICE INSPECTION INTERVAL
RELIEF REQUEST ISI-24A

Attachment 1 List of Applicable Dissimilar Metal Welds					
System	**Weld Identification**	**Weld Description**	**System**	**Weld Identification**	**Weld Description**
32.0 Reactor Recirculation	32-WD-164	Nozzle N2D to Safe End	39.0 Emergency Condenser	39-WD-090	Nozzle N5B to Safe End
40.0 Reactor Core Spray	40-WD-039	Nozzle N6A to Safe End	42.1 Liquid Poison	42.1-WD-034	Nozzle N12 to Safe End
40.0 Reactor Core Spray	40-WD-080	Nozzle N6B to Safe End	44.1 Control Rod Drive	44.1-WD-017	Nozzle N9 to Safe End

ATTACHMENT 2
(Revised Relief Request ISI-24B for Nine Mile Point Unit 2)

NINE MILE POINT UNIT 2
SECOND INSERVICE INSPECTION INTERVAL
RELIEF REQUEST ISI-24B

A. COMPONENT IDENTIFICATION

System:	Various Systems
Class:	ASME Code Class 1
Component Description:	Pressure Retaining Piping Welds subject to examination using procedures, personnel, and equipment qualified to ASME Section XI, Appendix VIII, Supplement 10 criteria
Component Identification:	Attachment 1 provides a list of applicable dissimilar metal welds

B. ASME CODE SECTION XI REQUIREMENTS

ASME Section XI, 1995 Edition with 1996 Addenda, Appendix VIII, Supplement 10, "Qualification Requirements For Dissimilar Metal Piping Welds."

The following paragraphs or statements are from ASME Section XI, Appendix VIII, Supplement 10 and identify the specific requirements that are included in this request for relief.

Item 1 - Paragraph 1.1(b) states in part - Pipe diameters within a range of 0.9 to 1.5 times a nominal diameter shall be considered equivalent.

Item 2 - Paragraph 1.1(d) states - All flaws in the specimen set shall be cracks.

Item 3 - Paragraph 1.1(d)(1) states - At least 50% of the cracks shall be in austenitic material. At least 50% of the cracks in austenitic material shall be contained wholly in weld or buttering material. At least 10% of the cracks shall be in ferritic material. The remainder of the cracks may be in either austenitic or ferritic material.

Item 4 - Paragraph 1.2(b) states in part - The number of unflawed grading units shall be at least twice the number of flawed grading units.

Item 5 - Paragraph 1.2(c)(1) and 1.3(c) state in part - At least 1/3 of the flaws, rounded to the next higher whole number, shall have depths between 10% and 30% of the nominal pipe wall thickness. Paragraph 1.4(b) distribution table requires 20% of the flaws to have depths between 10% and 30%.

Item 6 - Paragraph 2.0 first sentence states - The specimen inside surface and identification shall be concealed from the candidate.

Item 7 - Paragraph 2.2(b) states in part - The regions containing a flaw to be sized shall be identified to the candidate.

Item 8 - Paragraph 2.2(c) states in part - For a separate length sizing test, the regions of each specimen containing a flaw to be sized shall be identified to the candidate.

Item 9 - Paragraph 2.3(a) states - 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.

Item 10 - Paragraph 2.3(b) states - 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.

Item 11 - Table VIII-S2-1 provides the false call criteria when the number of unflawed grading units is at least twice the number of flawed grading units.

~~Item 12 - Paragraph 3.2(b) states - Examination procedures, equipment, and personnel are qualified for depth sizing when the RMS error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125 in.~~

C. **RELIEF REQUESTED**

Pursuant to 10 CFR 50.55a(a)(3)(i), Nine Mile Point Nuclear Station, LLC (NMPNS) requests relief to use the proposed alternative Performance Demonstration Initiative (PDI) Program described below in lieu of the ASME Code, Section XI, Appendix VIII, Supplement 10 requirements on the basis that the proposed alternative will provide an acceptable level of quality and safety for examination of the affected welds.

A copy of the proposed revision to Supplement 10 is attached as an Enclosure. It identifies the proposed alternatives and allows them to be viewed in context. It also identifies additional clarifications and enhancements for information. It has been submitted to the ASME Code for consideration and as of September 2002, has been approved by the NDE Subcommittee.

~~In addition, NMPNS requests relief from the depth sizing less than or equal to 0.125 inch RMS error.~~

D. **BASIS FOR RELIEF**

Item 1 - The proposed alternative to Paragraph 1.1(b) states:

"The specimen set shall include the minimum and maximum pipe diameters and thicknesses for which the examination procedure is applicable. Pipe diameters within a range of **½ in. (13 mm) of the** nominal diameter shall be considered equivalent. Pipe diameters larger than 24 in. **(610 mm)** shall be considered to be flat. When a range of thicknesses is to be examined, a thickness tolerance of ±25% is acceptable."

Technical Basis - The change in the minimum pipe diameter tolerance from 0.9 times the diameter to the nominal diameter minus 0.5 inch provides tolerances more in line with industry practice. Though the alternative is less stringent for small pipe diameters, they typically have a thinner wall thickness than larger diameter piping. A thinner wall thickness results in shorter sound path distances that reduce the detrimental effects of the curvature. This change maintains consistency between Supplement 10 and the recent revision to Supplement 2.

Item 2 - The proposed alternative to Paragraph 1.1(d) states:

"At least 60% of the flaws shall be cracks, the remainder shall be alternative flaws. Specimens with IGSCC shall be used when available. Alternative flaws, if used, shall provide crack-like reflective characteristics and shall be limited to the case where implantation of cracks produces spurious reflectors that are uncharacteristic of actual flaws. Alternative flaw mechanisms shall have a tip width of less than or equal to 0.002 in. (.05 mm). Note, to avoid confusion the proposed alternative modifies instances of the term "cracks" or "cracking" to the term "flaws" because of the use of alternative flaw mechanisms."

Technical Basis - 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 useable 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. In addition, it is important to preserve the dendritic structure present in field welds that would otherwise be destroyed by the implantation process. To resolve these issues, the proposed alternative allows the use of up to 40% fabricated flaws as an alternative flaw mechanism under controlled conditions. The fabricated flaws are isostatically compressed, which produces ultrasonic reflective characteristics similar to tight cracks.

Item 3 - The proposed alternative to Paragraph 1.1(d)(1) states:

"At least **80%** of the **flaws** shall be contained wholly in weld or buttering material. At least **one and a maximum of** 10% of the **flaws** shall be in ferritic **base** material. **At least one and a maximum of 10% of the flaws shall be in austenitic base material.**"

Technical Basis - Under the current Code, as few as 25% of the flaws are contained in austenitic weld or buttering material. Recent experience has indicated that flaws contained within the weld are the likely scenarios. The metallurgical structure of austenitic weld material is ultrasonically more challenging than either ferritic or austenitic base material. The proposed alternative is therefore more challenging than the current Code.

Item 4 - The proposed alternative to Paragraph 1.2(b) states:

"Detection sets shall be selected from Table VIII-S10-1. The number of unflawed grading units shall be at least **one and a half** times the number of flawed grading units."

Technical Basis - Table VIII-S10-1 provides a statistically based ratio between the number of unflawed grading units and the number of flawed grading units. The proposed alternative reduces the ratio to 1.5 times to reduce the number of test samples to a more reasonable number from the human factors perspective. However, the statistical basis used for screening personnel and procedures is still maintained at the same level with competent personnel being successful and less skilled personnel being unsuccessful. The acceptance criteria for the statistical basis are in Table VIII-S10-1.

Item 5 - The proposed alternative to the flaw distribution requirements of Paragraph 1.2(c)(1) (detection) and 1.3(c) (length) is to use the Paragraph 1.4(b) (depth) distribution table (see below) for all qualifications.

Flaw Depth (% Wall Thickness)	Minimum Number of Flaws
10-30%	20%
31-60%	20%
61-100%	20%

Technical Basis - The proposed alternative uses the depth sizing distribution for both detection and depth sizing because it provides for a better distribution of flaw sizes within the test set. This distribution allows candidates to perform detection, length, and depth sizing demonstrations simultaneously utilizing the same test set. The requirement that at least 75% of the flaws shall be in the range of 10 to 60% of wall thickness provides an overall distribution tolerance yet the distribution uncertainty decreases the possibilities for testmanship that would be inherent to a uniform distribution. It must be noted that it is possible to achieve the same distribution utilizing the present requirements, but it is preferable to make the criteria consistent.

Item 6 - The proposed alternative to Paragraph 2.0 first sentence states:

"For qualifications from the outside surface, the specimen inside surface and identification shall be concealed from the candidate. When qualifications are performed from the inside surface, the flaw location and specimen identification shall be obscured to maintain a "blind test."

Technical Basis - The current Code requires that the inside surface be concealed from the candidate. This makes qualifications conducted from the inside of the pipe (e.g., PWR nozzle to safe end welds) impractical. The proposed alternative differentiates between ID and OD scanning surfaces, requires that they be conducted separately, and requires that flaws be concealed from the candidate. This is consistent with the recent revision to Supplement 2.

Items 7 and 8 - The proposed alternatives to Paragraph 2.2(b) and 2.2(c) state:

"... containing a flaw to be sized **may** be identified to the candidate."

Technical Basis - The current Code requires that the regions of each specimen containing a flaw to be length sized shall be identified to the candidate. The candidate shall determine the length of the flaw in each region (Note, that length and depth sizing use the term "regions" while detection uses the term "grading units" - the two terms define different concepts and are not intended to be equal or interchangeable). To ensure security of the samples, the proposed alternative modifies the first "shall" to a "may" to allow the test administrator the option of not identifying specifically where a flaw is located. This is consistent with the recent revision to Supplement 2.

Items 9 and 10 - The proposed alternative to Paragraph 2.3(a) and 2.3(b) state:

"... regions of each specimen containing a flaw to be sized **may** be identified to the candidate."

Technical Basis - The current Code requires that a large number of flaws be sized at a specific location. The proposed alternative changes the "shall" to a "may" which modifies this from a specific area to a more generalized region to ensure security of samples. This is consistent with the recent revision to Supplement 2. It also incorporates terminology from length sizing for additional clarity.

NINE MILE POINT UNIT 2
SECOND INSERVICE INSPECTION INTERVAL
RELIEF REQUEST ISI-24B

Item 11 - The proposed alternative modifies the acceptance criteria of Table VIII-S2-1 as follows:

10
TABLE VIII-~~S2-1~~
PERFORMANCE DEMONSTRATION DETECTION TEST
ACCEPTANCE CRITERIA

Detection Test Acceptance Criteria		False Call Test Acceptance Criteria	
No. of Flawed Grading Units	Minimum Detection Criteria	No. of Unflawed Grading Units	Maximum Number of False Calls
~~5~~	~~5~~	~~10~~	~~0~~
~~6~~	~~6~~	~~12~~	~~1~~
~~7~~	~~6~~	~~14~~	~~1~~
~~8~~	~~7~~	~~16~~	~~2~~
~~9~~	~~7~~	~~18~~	~~2~~
10	8	~~20~~ 15	~~3~~ 2
11	9	~~22~~ 17	~~3~~ 3
12	9	~~24~~ 18	~~3~~ 3
13	10	~~26~~ 20	~~4~~ 3
14	10	~~28~~ 21	~~5~~ 3
15	11	~~30~~ 23	~~5~~ 3
16	12	~~32~~ 24	~~6~~ 4
17	12	~~34~~ 26	~~6~~ 4
18	13	~~36~~ 27	~~7~~ 4
19	13	~~38~~ 29	~~7~~ 4
20	14	~~40~~ 30	~~8~~ 5

Technical Basis - The proposed alternative is identified as new Table VIII-S10-1 above. It was modified to reflect the reduced number of unflawed grading units and allowable false calls. As a part of ongoing Code activities, Pacific Northwest National Laboratory has reviewed the statistical significance of these revisions and offered the revised Table VIII-S10-1.

~~Item 12 - The proposed alternative to Paragraph 3.2(b) states:~~

~~"Examination procedures, equipment, and personnel are qualified for depth sizing when The RMS error of the flaw depth measurements, as compared to the true flaw depths, is less than or equal to 0.125 in."~~

~~Technical Basis - The industry is in the process of qualifying personnel to Supplement 10; however, as of March 14, 2003, Nine Mile Point Nuclear Station was informed that personnel qualifying to the Supplement 10 procedures have not been successful in achieving the 0.125 inch RMS criteria for depth sizing. Industry personnel have only been capable of achieving an accuracy of 0.155 in. RMS.~~

NINE MILE POINT UNIT 2
SECOND INSERVICE INSPECTION INTERVAL
RELIEF REQUEST ISI-24B

E. ALTERNATIVE EXAMINATIONS

As an alternate to the requirements of ASME Section XI, 1995 Edition, 1996 Addenda, Appendix VIII, Supplement 10, NMPNS proposes to use the PDI Program alternative as described in the Enclosure.

~~NMPNS also proposes that if a flaw is detected during the performance of an ultrasonic examination, the flaw will be sized using the depth sizing of a 0.155 inch RMS value determined during the PDI performance demonstration. In addition NMPNS proposes to take into account the increase in allowable depth sizing error, by adding the difference between the ASME Code required 0.125 inch RMS error and the demonstrated 0.155 inch RMS error to measurements acquired from actual flaw sizing. Specifically, 0.030 inches will be added to the measured flaw size when performing fracture mechanics calculations.~~

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	List of Applicable Dissimilar Metal Welds
Enclosure	Comparison of the ASME Code, Section XI, Supplement 10 current requirements to the proposed changes.

NINE MILE POINT UNIT 2
SECOND INSERVICE INSPECTION INTERVAL
RELIEF REQUEST ISI-24B

Attachment 1
List of Applicable Dissimilar Metal Welds

System	Weld Identification	Weld Description
ISC - Reactor Vessel Instrument	2ISC-102CDA-FW001	NOZ SOC WELD @ N14B
ISC - Reactor Vessel Instrument	2ISC-102CDA-FW005	NOZ SOC WELD @ N14C
ISC - Reactor Vessel Instrument	2ISC-104CDA-FW001	NOZ SOC WELD @ N13B
ISC - Reactor Vessel Instrument	2ISC-105CDA-FW001	NOZ SOC WELD @ N14A
ISC - Reactor Vessel Instrument	2ISC-105CDA-FW007	NOZ SOC WELD @ N14D
ISC - Reactor Vessel Instrument	2ISC-107CDA-FW001	NOZ SOC WELD @ N13A
ISC - Reactor Vessel Instrument	2ISC-208CDA-FW001	NOZ SOC WELD @ N12B
ISC - Reactor Vessel Instrument	2ISC-210CDA-FW001	NOZ SOC WELD @ N12C
ISC - Reactor Vessel Instrument	2ISC-215CDA-FW001	NOZ SOC WELD @ N12D
ISC - Reactor Vessel Instrument	2ISC-217CDA-FW001	NOZ SOC WELD @ N12A
RCS - Reactor Recirculation	2RPV-KB01	NOZ/SE @ N1A Az 000 RECIRC OUTLET
RCS - Reactor Recirculation	2RPV-KB02	NOZ/SE @ N1B Az 180 RECIRC OUTLET
RCS - Reactor Recirculation	2RPV-KB03	NOZ/SE @ N2A Az 030 RECIRC INLET
RCS - Reactor Recirculation	2RPV-KB04	NOZ/SE @ N2B Az 060 RECIRC INLET
RCS - Reactor Recirculation	2RPV-KB05	NOZ/SE @ N2C Az 090 RECIRC INLET
RCS - Reactor Recirculation	2RPV-KB06	NOZ/SE @ N2D Az 120 RECIRC INLET
RCS - Reactor Recirculation	2RPV-KB07	NOZ/SE @ N2E Az 150 RECIRC INLET
RCS - Reactor Recirculation	2RPV-KB08	NOZ/SE @ N2F Az 210 RECIRC INLET
RCS - Reactor Recirculation	2RPV-KB09	NOZ/SE @ N2G Az 240 RECIRC INLET
RCS - Reactor Recirculation	2RPV-KB10	NOZ/SE @ N2H Az 270 RECIRC INLET
RCS - Reactor Recirculation	2RPV-KB11	NOZ/SE @ N2J Az 300 RECIRC INLET
RCS - Reactor Recirculation	2RPV-KB12	NOZ/SE @ N2K Az 330 RECIRC INLET
FWS - Feedwater	2RPV-KB17	NOZ/SE @ N4A Az 030 FEEDWATER
FWS - Feedwater	2RPV-KB18	NOZ/SE @ N4B Az 090 FEEDWATER
FWS - Feedwater	2RPV-KB19	NOZ/SE @ N4C Az 150 FEEDWATER
FWS - Feedwater	2RPV-KB21	NOZ/SE @ N4E Az 270 FEEDWATER
FWS - Feedwater	2RPV-KB22	NOZ/SE @ N4F Az 330 FEEDWATER
CLS - Low Pressure Core Spray	2RPV-KB23	NOZ/SE @ N5 Az 120 LOW PRESS CS
RHS - Residual Heat Removal	2RPV-KB24	NOZ/SE @ N6A Az 045 RHR-LPCI
RHS - Residual Heat Removal	2RPV-KB25	NOZ/SE @ N6B Az 135 RHR-LPCI
RHS - Residual Heat Removal	2RPV-KB26	NOZ/SE @ N6C Az 315 RHR-LPCI
ISC- Reactor Vessel Instrument	2RPV-KB29	NOZ/SE @ N9A Az 105 JET PUMP INSTR
ISC- Reactor Vessel Instrument	2RPV-KB30	NOZ/SE @ N9B Az 285 JET PUMP INSTR
CHS - High Pressure Core Spray	2RPV-KB32	NOZ/SE @ N16 Az 240 HIGH PRESS CS
ISC - Reactor Vessel Instrument	2RPV-KB34	NOZ/SE @ N11 BOTTOM HEAD
CLS - Low Pressure Core Spray	2RPV-KC23	SE/SEEX @ N5 Az 120 LOW PRESS CS
RHS Residual Heat Removal	2RPV-KC24	SE/SEEX @ N6A Az 045 RHR-LPCI
RHS Residual Heat Removal	2RPV-KC25	SE/SEEX @ N6B Az 135 RHR-LPCI
RHS Residual Heat Removal	2RPV-KC26	SE/SEEX @ N6C Az 315 RHR-LPCI
ISC- Reactor Vessel Instrument	2RPV-KC29	SE/PENSEAL N9A Az 105 JETPMP INSTR
ISC- Reactor Vessel Instrument	2RPV-KC30	SE/PENSEAL N9B Az 285 JETPMP INSTR
CHS - High Pressure Core Spray	2RPV-KC32	SE/SEEX @ N16 Az 240 HIGH PRESS CS