

Mr. John H. Mueller  
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Nine Mile Point Nuclear Station  
Operations Building, Second Floor  
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Lycoming, NY 13093

August 17, 2000

SUBJECT: NINE MILE POINT NUCLEAR STATION, UNIT NOS. 1 AND 2 - RELIEF FROM  
THE REQUIREMENTS OF 10 CFR 50.55a RELATED TO CONTAINMENT  
INSPECTION (TAC NOS. MA7116, MA7117, AND MA7118)

Dear Mr. Mueller:

By letter dated October 28, 1999, Niagara Mohawk Power Corporation (NMPC) requested relief to use provisions of the 1998 Edition of Subsections IWE and IWL of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) for performing inservice inspections of the Nine Mile Point Nuclear Station, Unit Nos. 1 and 2, containments as an alternative to the 1992 Edition with 1992 Addenda of the Code. By letters dated January 13, April 7, and May 30, 2000, NMPC responded to the staff's requests for additional information.

The NRC staff, with assistance from the Idaho National Engineering and Environmental Laboratory (INEEL), has completed review of the subject relief request. Based on its review of the NMPC's submittals, the staff finds that the use of the 1998 Edition of the Code will provide an acceptable level of quality and safety for ensuring the structural integrity of Nine Mile Point Units 1 and 2 containments. Therefore, the use of the proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i). The enclosed staff safety evaluation, with INEEL's technical letter report as attachment, provides technical details of this approval.

This completes all the staff's actions on NMPC's submittals cited above. Please contact the project manager, Mr. Peter Tam (301-415-1451, electronic mail at [pst@nrc.gov](mailto:pst@nrc.gov)) if you have any questions.

Sincerely,

**/RA/**

Marsha Gamberoni, Chief, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-220 and 50-410

Enclosure: Safety Evaluation  
w/attachment

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO CONTAINMENT INSPECTION  
AMERICAN SOCIETY OF MECHANICAL ENGINEERS BOILER AND  
PRESSURE VESSEL CODE (ASME CODE)  
NIAGARA MOHAWK POWER CORPORATION  
NINE MILE POINT NUCLEAR STATION, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-220 AND 50-410

1.0 INTRODUCTION

Title 10 of the Code of Federal Regulations (10 CFR), Section 50.55a(g)(6)(ii)(B), requires containment inspections per the requirements of Subsections IWE and IWL of the 1992 Edition up to and including the 1992 Addenda of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), as modified by 10 CFR 50.55a(b)(2)(ix) and 10 CFR 50.55a(b)(2)(x). Licensees of all operating nuclear power plants are required to complete their first period inspections by September 9, 2001.

By letter dated October 28, 1999 (Reference 1), supplemented by letter dated January 13, 2000 (Reference 2), Niagara Mohawk Power Corporation (NMPC), the licensee for Nine Mile Point Units 1 and 2, submitted a request seeking relief from the requirements of the 1992 Edition and Addenda of the ASME Code, Section XI, Subsections IWE and IWL. As an alternative, NMPC proposed to use the 1998 Edition of the ASME Code, Section XI, Subsections IWE and IWL pursuant to 10 CFR 50.55a(a)(3)(i). The 1998 Edition has not yet been incorporated by reference into 10 CFR 50.55a. NMPC provided a table comparing the requirements of the 1998 Edition with the 1992 Edition and Addenda. The staff's evaluation below addresses the acceptability of NMPC's alternative proposal.

2.0 EVALUATION

The NRC staff contracted with Idaho National Engineering and Environmental Laboratory (INEEL) for assistance to evaluate the technical acceptability of the subject relief request. The review resulted in two requests for additional information (RAIs, dated March 24 and May 2, 2000). NMPC responded by letters dated April 7 and May 30, 2000 (References 3 and 4).

INEEL's evaluation included a review and comparison of Subsections IWE and IWL requirements in the 1992 Edition and Addenda and 1998 Edition, and an analysis of the changes and/or implications of the Code changes. INEEL's technical letter report (TLR)

Enclosure

(Attachment to this safety evaluation) describes NMPC's bases for requesting relief, and discusses how the alternative provides an acceptable level of quality and safety as it relates to the inspection of the Nine Mile Point, Unit Nos. 1 and 2, containments. Appendix A of the TLR is a table of comparison for Subsection IWE, and Appendix B is a table of comparison for Subsection IWL. The five columns of the tables provide the following information:

- Col. 1. Paragraph: The paragraph (sometimes includes articles and subarticles) corresponds to the 1992 Edition and Addenda of Subsections IWE and IWL of the ASME Code, Section XI.
- Col. 2. Changes between the 1992 Edition and Addenda and 1998 Edition.
- Col. 3. NMPC's statement of significance and/or basis for use as an alternative examination.
- Col. 4. NMPC's comments: Includes the additional information provided by NMPC in response to the staff's RAIs.
- Col. 5. INEEL's recommended disposition/comments: INEEL's disposition is principally related to the acceptance of the requirements of the 1998 Edition of the Code in terms of quality and safety related to the containment inspection.

The Table in Appendix C of the TLR provides a summary of NMPC's commitments that supplement the 1998 Code requirements.

Based on the review of the comparative requirements, the staff identified several significant Code changes that required additional information from NMPC. These changes are discussed below:

1. IWE-2300: The 1992 Edition and Addenda (Table-2500-1) invokes the use of IWA-2200 and IWA-2300 for visual, surface, and volumetric examination methods, and for qualification of personnel. IWE-2300 (1998) requires the owner (i.e., licensee) to define requirements for visual examination of containment surfaces, and for qualifying the personnel performing visual examinations. Additionally, IWE-2320 requires the owner to designate a responsible individual (RI) who will be responsible for activities related to the containment surface visual examinations and personnel qualification. In response to the RAIs, the licensee provided (References 3 and 4) the following information:
  - a. General Visual Examination criteria will be developed from existing VT-3 procedures that are used to examine ASME Class 1, 2, and 3 components.
  - b. Pressure-retaining bolting examination criteria will be based on acceptance criteria of IWE 3510.3 (1998 Edition) and criteria developed by NMPC.
  - c. Moisture barriers are examined for tears, cracks, or damage that permit moisture to intrude as required by E1.3 of Table IWE-2500-1 of the 1998 Edition of the Code.
  - d. Detailed Visual Examination criteria will be developed from VT-1 procedures.
  - e. The containment visual examination procedure qualification requirement for lighting and illumination will be similar to, and developed from, the procedures used for VT-1 and VT-3 examinations of ASME Class 1, 2, and 3 components.

- f. For IWE examinations where remote visual examination systems are to be used, those systems will be demonstrated to have a resolution capability at least equivalent to that attainable by direct visual examination. Containment visual examination procedures will be demonstrated to the authorized nuclear inservice inspector for capability to detect flaws and degradation levels defined within the procedure, and the containment visual examination program will be developed from the guidelines of SNT-TC-1A and ANSI N45.2.6. Certified personnel will have demonstrated skill, demonstrated knowledge, documented training, and documented experience required to properly perform the duties of a specific job.
- g. For IWE/IWL areas that are determined to be suspect, a detailed visual examination will be performed.

The staff concludes that the incorporation of these provisions in NMPC's containment inservice inspection (ISI) procedures provides reasonable assurance that NMPC-defined visual examination methods and personnel qualification procedures are adequate.

- 2. IWE-2500: The requirement to examine paint or coating prior to removal was deleted in the 1998 Code Edition. The staff has no objection to this deletion. However, the staff is concerned that, in the absence of any examination for detecting flaws or degradation in the containment base metal, the recoating may be applied to a degraded containment surface. In response to the RAI related to the subject, NMPC provided the following information (Reference 3):

"At NMP1 and NMP2, general visual examination of accessible surfaces, including coated surfaces, is performed using acceptance criteria that includes blistering, chalking, checking, chipping, cracking, de-lamination, discoloration, and undercutting, which could indicate degradation to the pressure boundary integrity. If coating is removed to perform visual examinations, the coatings will be reapplied under the appropriate plant coatings requirements. The licensee has also added steps to the maintenance rule manual to notify the containment ISI program owner when degradation of the containment liner or coating is observed. This will assure that examinations of the containment pressure boundary are performed prior to removal of coatings by mechanical methods that could remove evidence of surface degradation and prior to re-application of the coating."

The staff finds that the implementation of the above process will ensure that the base metal degradation will be identified, and appropriate action will be taken, prior to re-coating of the base metal of NMP1 and NMP2 containments.

- 3. IWE 3510.1 IWE 3511.1 (1998): The owner is required to define the acceptance criteria for visual examination of containment surfaces in performing Category E-A and Category E-C examinations. However, the basic requirements for these examinations are provided in IWE-2310 as augmented by NMPC, and described in "1." above.

The staff finds that complying with the 1998 Edition of the Code augmented by the specific requirements in NMPC's containment inspection procedure will provide reasonable assurance that significant flaws and degradations of the containment pressure boundary components will be adequately identified during Category E-A and Category E-C examinations.

4. In Paragraph IWE-3511.3 of the 1998 Code, examination of Class CC metallic liners has been excluded from the acceptance criterion, which requires disposition of areas where material loss exceeds 10% of the nominal wall thickness. Therefore, the 1998 Code is not acceptable for Class CC metallic liners without augmentation by the licensee. For NMP2, the licensee proposed the following:

“For Examination Category E-C, Containment Surfaces Requiring Augmented Examination, ultrasonic examinations of metallic liners of Class CC pressure retaining components that detect material loss in a local area exceeding 10% of the nominal wall thickness, or material loss in a local area projected to exceed 10% of the nominal wall thickness prior to the next examination, shall be accepted by engineering evaluation or corrected by repair/replacement activities. Supplemental examinations shall be performed when specified as a result of the engineering evaluation.”

Therefore, the staff concludes that the proposed acceptance criterion for wall thinning will ensure that the integrity of the liner plate will be maintained and, thus, will provide an acceptable level of quality and safety.

5. Examination Category E-D, Seals, Gaskets, and Moisture Barriers, and Examination Category E-G, Pressure Retaining Bolting, have been eliminated from the 1998 Code. The examination of pressure-retaining bolting and moisture barriers is now included in Examination Category E-A, footnote (1)(d) and Item E1.30, respectively. The NRC staff has determined that verification of leak-tight integrity through Appendix J testing provides an adequate method to verify the pressure integrity of bolted connections, seals, and gaskets.

Regarding the examination of the condition of the bolting, in the earlier reviews (i.e., Comanche Peak, and Callaway) the NRC staff accepted the bolting examination requirements of the 1998 Edition of Subsection IWE of the Code, with some additional commitments by the licensees. Accordingly, subsequent reviews indicated a need for the staff to develop guidance that could be consistently applied and that would provide reasonable assurance regarding the quality and safety of the pressure retaining bolted connections. The staff has used the following interim position at other nuclear plants, until a final position is established in the regulations.

“All accessible bolted connections shall be visually examined each inspection period per the requirements of the 1998 Edition of IWE, Table IWE-2500-1, Category E-A which corresponds to an examination of all bolted connections three times per inspection interval. Licensees shall perform a general visual examination (VT-3 or equivalent) on the exposed portions of the connection. Bolted connections need not be disassembled solely for the performance of VT-3 examinations. If the general visual examination indicates possible areas of degradation or damage, a detailed visual examination (VT-1 or equivalent) is required. If potentially degraded bolting is indicated, the bolted connection shall be disassembled to facilitate the detailed examination. Furthermore, if a bolted connection is disassembled at the time of inspection, all accessible surface areas of the connection shall be visually examined (VT-3 or VT-1 if necessary). If a disassembly of connection is required at times other than scheduled inspections, and not visually examined by a VT-3 or VT-1 qualified individual before reassembly, written

maintenance procedures shall be followed to ensure that the integrity of reassembled bolted connections are maintained. The written procedures shall include acceptance criteria for the continued use of all part of the connection including bolts, studs, nuts, bushings, washers, and threads in base material and flange ligaments between fastener holes.”

In References 3 and 4, the licensee provided a detailed procedure for examination of the pressure retaining bolted connections. The procedure, as discussed in the TLR, essentially meets the above position. However, NMPC proposed to have the IWE Responsible Engineer decide the extent and need for disassembly based on his/her engineering evaluation of the defects or flaws found during the general visual or detailed visual examinations.

Considering that the examinations will be performed by a certified visual NDE Level II or III examiner, and that the acceptance criteria will meet the performance requirements of IWE 3510.3 (1998 Edition), the staff finds NMPC’s proposal regarding the examination of the pressure retaining bolted connections to be acceptable.

6. IWL-2510 Examination of Concrete: The 1992 Edition and Addenda requires the use of visual examination procedures VT-3C and VT-1C. In the 1998 Edition, these procedures have been changed to “general visual” and “detailed visual” examinations. The 1998 Code requires that the owner define the qualification requirements for personnel performing examinations of concrete and tendon anchorage hardware, wire, and strands, and that the owner define the requirements for visual examination of tendon anchorage hardware, wire, and strands. The IWL examinations are required for NMP2 containment. Since it is a reinforced concrete containment, the requirements for tendon examination is not pertinent to NMP2 containment.

In Reference 2, NMPC states: “Since the Code is not explicit, NMPC visual examination personnel are qualified to a program meeting SNT-TC-1A (1984). Personnel are certified to a corresponding level as a VT-1 and/or VT-3 examiner. This is the same process used for certification of ISI visual examination personnel. It is NMPC’s position that VT-3 qualified personnel are certified to perform the General examination and VT-1 personnel will perform the Detailed examination required by Subsections IWE and IWL. Additionally, personnel performing examinations required by IWL have received additional training such as that offered by the Electric Power Research Institute (EPRI) NDE Center or their training can be substantiated and documented in the training record that the individual has prior experience in performing concrete inspection. Developing a parallel program for qualification of examination personnel places an undue hardship on NMPC in administering a redundant process without offering any commensurate increase in the level of quality or safety.”

For concrete examinations in accordance with IWL, the licensee has certified the VT-3 and VT-1 examination personnel to also be proficient in examining concrete, in lieu of certifying the separate VT-3C and VT-1C examination personnel as required by the 1992 Edition and 1992 Addenda of the Code. The staff finds that the licensee’s proposed procedure for qualifying the concrete examination personnel provides an equivalent level of quality and safety to that required by the 1992 Edition and 1992 Addenda of the Code. Moreover, in Reference 3, NMPC has provided a table (Table 2)

indicating detailed acceptance criteria for IWL examinations. The acceptance criteria are based on the second tier criteria contained in American Concrete Institute report ACI 349.3R-96.

Based on this information, the staff concludes that NMPC has developed adequate procedures for examination of concrete components required by 1998 Edition of Subsection IWL of the Code.

### 3.0 CONCLUSION

Based on its review of the licensee's submittal and responses to the staff's requests for additional information (RAIs), the staff finds that the use of the 1998 Edition of the Code, as supplemented by the licensee's commitments in the responses to the staff's RAIs (References 2, 3, and 4) will provide an acceptable level of quality and safety for ensuring the pressure boundary integrity of Nine Mile Point Nuclear Station, Unit Nos. 1 and 2, containments. Therefore, the staff authorizes the use of the proposed alternative pursuant to 10 CFR 50.55a(a)(3)(i).

### 4.0 REFERENCES

1. Letter, Niagara Mohawk Power Corporation to NRC, "Use of 1998 ASME Code for Containment Inspections," dated October 28, 1999.
2. Letter, Niagara Mohawk Power Corporation to NRC, "Use of 1998 ASME Code for Containment Inspections," dated January 13, 2000.
3. Letter, Niagara Mohawk Power Corporation to NRC, "Use of 1998 ASME Code for Containment Inspections," dated April 7, 2000.
4. Letter, Niagara Mohawk Power Corporation to NRC, "Use of 1998 ASME Code for Containment Inspections," dated May 30, 2000.

Principal Contributor: Hansraj Ashar

Date: August 17, 2000

**TECHNICAL LETTER REPORT**  
**ON THE FIRST 10-YEAR CONTAINMENT INSPECTION INTERVAL**  
**REQUESTS FOR RELIEF FOR**  
**NIAGARA MOHAWK**  
**NINE MILE POINT, UNITS 1 AND 2**  
**DOCKET NUMBERS: 50-220 AND 50-410**

1. INTRODUCTION

By letters dated October 28, 1999 and January 13, 2000, the licensee, Niagara Mohawk, submitted proposed alternatives to the IWE/IWL containment inspection requirements for Nine Mile Point, Units 1 and 2 for the first 10-year containment inservice inspection (ISI) interval. The licensee proposed to use the 1998 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, Subsections IWE and IWL, in lieu of the 1992 Edition with 1992 Addenda, as currently specified by the Regulation for containment inspections. The licensee provided additional information in letters dated April 7, 2000, and May 30, 2000, in response to an NRC request and conference calls held with the licensee on March 13, 2000, and May 15, 2000. The Idaho National Engineering and Environmental Laboratory (INEEL) staff's evaluation of the subject requests for relief is in the following section.

2. EVALUATION

The information provided by Niagara Mohawk in support of the requests for relief from Code requirements has been evaluated and the bases for disposition are documented below. The first 10-year containment inspection interval began September 9, 1996, for Nine Mile Point, Units 1 and 2. As stated in the October 28, 1999, submittal, NMP has proposed the same commitments that were made by TU Electric for Comanche Peak, Units 1 and 2.

2.1 Request for Relief RR-IWE/IWL-1 (Units 1 and 2), Proposed Alternative to Use ASME Section XI, 1998 Edition, Subsection IWE, for Examination of Class MC and Metal Liners of Class CC Components

Regulatory Requirement: 10 CFR 50.55a(g)(6)(ii)(B) requires that licensees implement the inservice examinations specified for the first period of the first inspection interval in Subsection IWE of the 1992 Edition with the 1992 Addenda of Section XI, Division 1, of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code).

Licensee's Proposed Alternative (as stated):

"In accordance with 10 CFR 50.55a(a)(3)(i), specific relief is requested for Nine Mile Point Unit 1 (NMP1/NMP2) from compliance with the 1992 Edition with the 1992 Addenda of Subsection IWE, ASME B&PV Code requirements on the basis that the proposed alternative will provide an acceptable level of quality and safety. NMP1 (and NMP2) proposes to use, as an alternative to the current requirements, the 1998 Edition of ASME Section XI, Subsection IWE."

ATTACHMENT

Licensee's Basis for Proposed Alternative (as stated):

“The 1998 Edition incorporates and provides clarification to the requirements of the 1992 Edition with the 1992 Addenda and provides a uniform set of requirements that eliminates the need for multiple relief requests. The use of the 1998 Edition of Section XI provides more practical requirements for the performance, training, qualification and scheduling of examinations”

“South Texas Comanche Peak Steam Electric Station (CPSES) submitted relief requests to use the 1998 Edition of the ASME Boiler and Pressure Vessel Code subsections IWE and IWL in lieu of the 10 CFR 50 mandated 1992 Edition with the 1992 Addenda. CPSES has been granted relief to use the 1998 Edition of the Code by NRC letter dated July 23, 1999. The Safety Evaluation attached to the NRC letter approved the use of the 1998 Code with additional clarifications and requirements. The following requirements were addressed by the Safety Evaluation and have been review for applicability to the Nine Mile Point Unit 1 and Unit 2 (NMP1 and NMP2) containment inspection programs.

- “General Visual Examination’ criteria will be developed from existing VT-3 procedures that are used to examine ASME Class 1, 2, and 3 components.
- “Pressure retaining bolting examination criteria will be developed from the VT-1 procedure used for Class 1 bolting.
- “Moisture barriers are examined for tears, cracks, or damage that permits moisture to intrude.
- “Detailed Visual Examination” criteria will be developed from VT-1 and VT-3 procedures.
- “The containment visual examination procedure qualification requirement for lighting and illumination will be similar to, and developed from, the procedures used for VT-1 and VT-3 examinations of ASME Class 1, 2, and 3 components.
- “For IWE examinations where remote visual examination systems are to be used, those systems will be demonstrated to have a resolution capability at least equivalent to that attainable by direct visual examination. Containment visual examination procedures will be demonstrated to the authorized nuclear inservice inspector for capability to detect flaws and degradation levels defined within the procedure, and the containment visual examination program will be developed from the guidelines of SNT-TC-1A and ANSI N45.2.6. Certified personnel will have ‘demonstrated skill, demonstrated knowledge, documented training, and documented experience required to properly perform the duties of a specific job.
- “The current maintenance rule program identifies the peeling and cracking of paint as a degradation mechanism. An additional paragraph will be

added to program procedures stating that when degradation exists on the containment liner the containment ISI program owner will be notified prior to repair activities and that repair/replacement of coatings falls under the jurisdiction of the ASME Code Section XI repair/replacement program. The repair/replacement responsible individual shall be notified prior to repair/replacement activities that include the removal and reapplication of coatings.

- "When required, augmented ultrasonic examinations will be performed on class MC components and to shell and metallic liners of class CC components. These augmented examinations will be performed and accepted to the requirements of the 1998 Edition of ASME Code Section XI, Subsections IWE.
- For IWE areas that are determined to be suspect, a detailed visual examination will be performed.

"Pending NRC approval, Niagara Mohawk Power Corporation will incorporate these requirements into the NMP1 and NMP2 containment inspection programs and use them to develop the procedures for visual examinations required by the ASME Code Section XI."

In the April 7, 2000, submittal, the licensee provided the following information:

"Acceptance Criteria:

"Acceptance criteria (Document Numbers NMP1-IWE-003 and NMP2-CISI-001) have been prepared to define the visual acceptance and recording criteria used for the IWE and IWL visual examinations. These documents provide criteria for defining acceptable conditions, conditions to be recorded for future monitoring, and conditions requiring Detailed visual examinations.

"For IWE, acceptance criteria were developed from the requirements for VT-1 and VT-3. Examples of acceptance criteria are given in Table 1.

| TABLE 1 (IWE EXAMINATION ACCEPTANCE CRITERIA)   |   |
|---|---|
| Condition   | Acceptance Criteria   |
| Nicks gouges with depth > 10% of the metal thickness shall require evaluation.  | Perform Detailed visual examination to determine the magnitude and extent of the suspect condition and record results.      |
| Arc strikes (all)   | Perform Detailed visual examination to determine the magnitude and extent of the suspect condition and record results.      |
| Metal cracking (all)  | Perform Detailed visual examination to determine the magnitude and extent of the suspect condition and record results.      |
| Rust (medium)<br>Note: Pitting may exist from original fabrication and construction and may be accepted provided there is no evidence of ongoing pitting activity and it does not exceed 10% of the base metal thickness. | Record the condition and any supplemental information necessary to identify the location of the area for future monitoring. |
| Rust (major)  | Perform Detailed visual examination to determine the magnitude and extent of the suspect condition and record results.      |

“Qualification Requirements

“The 1998 Edition of ASME Code Section XI invokes IWA-2000, Examination and Inspection, when defining the general requirements for the examinations to be performed and for the qualification of examination personnel. Niagara Mohawk Power Corporation (NMPC) proposes as an alternative to these requirements to continue to use the current programs in place for Inservice Inspection (ISI) for visual examination and personnel qualification. The 1998 Code, Subsections IWE and IWL introduce requirements for performing General and Detailed visual examinations, but do not provide specific guidance as to the conduct of the examinations or how personnel are to be qualified in the specific techniques. IWE-2310 does not provide specific or unique information for qualification of visual examination personnel. It is left to the Owner to define the criteria to be used. Since the Code is not explicit, NMPC visual examination personnel are qualified to a program meeting SNT-TC-1A (1984). Personnel are certified to a corresponding level as a VT-1 and/or VT-3 examiner. This is the same process used for certification of ISI visual examination personnel. It is NMPC's position that VT-3 qualified personnel are certified to perform the General examination and VT-1 personnel will perform the Detailed examination required by Subsections IWE and IWL. Additionally, personnel performing examinations required by IWL have received additional training such as that offered by the Electric Power Research Institute (EPRI) NDE Center or their training can be substantiated and documented in the training record that the individual has prior

experience in performing concrete inspection. Developing a parallel program for qualification of examination personnel places an undue hardship on NMPC in administering a redundant process without offering any commensurate increase in the level of quality or safety.

“General and Detailed visual examinations are performed using Nine Mile Point Units 1 and 2 procedure, NDEP 2.05, “ASME Section XI IWE/IWL Visual Examination.” This procedure was developed to an equivalent level of VT-1 and VT-3 for performing both direct and remote examinations using essentially the same criteria. The procedure was qualified in accordance with NMPC procedure QAP-SPC-9.01, “Nondestructive Examination Program” by General and Detailed examination personnel to the satisfaction of the Authorized Nuclear Inservice Inspector. The procedure meets the requirements of Article 9, ASME Section V and ACI 349.3R-96.

“Resolution and illumination requirements for performing direct and remote General and Detailed visual examinations and used by NMPC are equivalent to those specified for VT-1 and VT-3. Actual field demonstrations were conducted under conditions similar to those encountered by inspectors during the course of conducting normal examinations. Various flaw sizes were demonstrated to be detectable under varying illuminations to the satisfaction of the Authorized Nuclear Inservice Inspector.

“A General visual examination used for both IWE and IWL will be performed on accessible surfaces (including coated surfaces) of the containment pressure retaining boundary. The acceptance criteria used for the IWE and IWL visual examinations include criteria for the examination of coated surfaces. In summary, coated surface conditions (i.e., blistering, chalking, checking, chipping, cracking, delamination, discoloration, undercutting, etc.) which could be an indication of pressure boundary degradation will be evaluated. If coating is removed to perform visual examinations, the coatings will be reapplied under the appropriate plant coatings requirements. In addition, steps have been added to the maintenance rule manual to notify the Containment Inservice Inspection (CISI) program owner when degradation of the containment liner or coating is observed. This provides assurance that examinations of the containment pressure boundary are performed prior to removal of coatings by mechanical means (i.e., power tools) that could remove evidence of surface degradation and prior to reapplication of the coating as necessary.

“While it is true that Table IWE-2500-1 Examination Category E-G was removed in the 1998 Edition, the bolted connection requirements were rolled up under Examination Category E-A of the 1998 Edition. NMPC disagrees with the interpretation that the 1992 Edition required VT-1 examination of bolting when connections are disassembled, and that the 1998 Edition requires a General visual examination performed in place, with no requirement for visual examination when the connection is disassembled.

“NMPC has conducted a comparison between the 1992 Edition and the 1998 Edition of the ASME Code for bolted connections. The results of this comparison are provided in Table 3.

| TABLE 3 (COMPARISON OF ASME CODE 1992 EDITION AND 1998 EDITION) |  |   |   |
|---|--|---|---|
| AREAS COMPARED  | 1992 EDITION   | 1998 EDITION  | REMARKS/COMMENTS  |
| Exam. Category  | E-G Pressure Retaining Bolting   | E-A Containment Surfaces  | Exam. Category E-G was rolled up under Exam. Cat. E-A.  |
| Exam. Item  | E8.10 Bolted Connections Footnote 1  | E1.11 Accessible Surface Areas Footnote 1,2,3,5   | Essentially no difference, other than description.  |
| Exam. Requirements  | Surface  | IWE-2310  | 1998 Edition is more detailed, but essentially covers Surfaces.   |
| Exam. Method  | VT-1   | General Visual Footnote 7   | The General visual is based on the VT-3 exam requirements, and the detailed visual is based on the VT-1 exam. requirements. Essentially equivalent. |
| Acceptance Standards  | IWE-3515   | IWE-3510  | Essentially the same.   |
| Extent and Frequency  | 100% of each Bolted Connection Footnotes 2 and 4   | 100% During each Inspection Period  | 1998 Edition is more prescriptive, bolted connections examined three times in the interval versus one time per interval under the 1992 Edition.     |
| Deferral  | Permissible Footnote 3   | N/A Footnote 9  | 1998 Edition more prescriptive, no deferral.  |
| Footnote 1  | Examination shall include bolts, studs, nuts, bushings, washers, and threads in base material and flange ligaments between threaded stud holes | (d) pressure-retaining bolted connections, including bolts, studs, nuts, bushings, washers, and threads in base material and flange ligaments between fastener holes. | Same.   |

| TABLE 3 (COMPARISON OF ASME CODE 1992 EDITION AND 1998 EDITION) |  |   |  |
|---|--|---|--|
| AREAS COMPARED  | 1992 EDITION   | 1998 EDITION  | REMARKS/COMMENTS   |
| Footnote 2  | Examination of bushings, threads, and ligaments in base material of flanges is required only when the connection is disassembled | See (d) Bolted connections need not be disassembled for performance of examinations.  | It is understood that examination of bushings, threads, and ligaments in base material of flanges can only be performed when the connection is disassembled. Only those bolted connections disassembled during a scheduled exam will be performed. |
| Footnote 3  | Examination shall not be deferred when the connection is disassembled or when the bolting is removed                             | N/A   | Deferral is not applicable in the 1998 Edition, therefore, more prescriptive.  |
| Footnote 4  | All visible surfaces shall be examined. Bolting may remain in place under tension when disassembly is not otherwise required.    | See (d) Bolted connections need not be disassembled for performance of examinations, and bolting may remain in place under tension. | Essentially the same as 1998 Edition.  |

“Based on a comparison of the 1992 Edition versus the 1998 Edition of the ASME Code, NMPC has concluded that (1) both Editions of Section XI require a visual (VT-1 or General/Detailed) examination of bolted connections either in place under tension or when the connection is disassembled, and (2) both Editions are essentially the same (see Table 3 above for comparison). Therefore, the level of quality and safety between both Editions are equivalent, and in most cases the 1998 Edition is more prescriptive than the 1992 Edition.

“NMPC will perform General visual examinations of all bolted connections in each inspection period. The General visual examinations will be performed in accordance with an inspection period schedule. Each scheduled bolted connection, within each period, will be examined in place under tension, or when the bolted connection is disassembled. Visual examination of disassembled bolted connections at other than a scheduled period examination is not required. Therefore, in conclusion, only those bolted connections disassembled at the time of the scheduled period examinations will be examined.”

In the May 30, 2000, submittal, the licensee provided that following information regarding the examination of bolted connections:

“NMPC will follow the requirements of the ASME Boiler and Pressure Vessel Code, Section XI for the examination, evaluation, disposition and corrective actions relating to bolted connections. Summarized below are the steps required by ASME Section XI that NMPC has incorporated in its containment inspection programs for Nine Mile Point Units 1 and 2.

“**Step 1:** All accessible Bolted connections shall be examined once each inspection period, by the General Visual Examination (equivalent to a VT-3 examination) Method, (IWE-2310(b)), in accordance with Table IWE-2500-1, Examination Category E-A, of the 1998 Edition of Section XI. The General Visual examination of all accessible bolted connections is performed three (3) times per inspection interval.

“**Note:** Bolted connections scheduled for General visual examination within each inspection period may be examined either in place under tension, when the bolted connection is disassembled, or when the bolting is removed.

“**Step 2:** If the results of the General Visual examination (IWE-2310(b)), identify possible areas of degradation or damage, a Detailed Visual examination (IWE-2310(c), equivalent to a VT-1 examination), shall be performed on the area of degradation or damage to determine the extent of the degradation or damage.

“**Step 3:** The results of the General Visual examination (IWE-2310(b)) and/or Detailed Visual examination (IWE-2310(c)) shall be compared against the acceptance standards of IWE-3500 and/or NMPC’s defined acceptance criteria, by a certified Visual NDE Level II or III. In accordance with IWE-3122.1, a component whose examination results meet the acceptance standards of IWE-3500 and/or NMPC’s acceptance criteria shall be acceptable for continued service.

“**Step 4:** As required by IWE-3122.1, in the case of a component whose General Visual examination and/or Detailed Visual examination results exceed the acceptance standards of IWE-3500 and/or NMPC’s defined acceptance criteria, as determined by a certified Visual NDE Level II or III, the results of the examination (s) shall be submitted to the IWE Responsible Engineer (IWE-2320) for an Engineering Evaluation in accordance with IWE-3122.3.

“**Step 5:** As required by IWE-3122.1, a component whose results exceed the acceptance standards of IWE-3500 and/or NMPC’s defined acceptance criteria may be determined by an Engineering Evaluation (IWE-3122.3) to be acceptable for continued service without repair/replacement in accordance with IWE-3122.2.

“**Note:** Disassembly of bolted connections shall be conducted as required by the IWE Responsible Engineer to support the Engineering Evaluation.

“**Step 6:** As required by IWE-3122.1, a component whose examination results exceed the acceptance standards of IWE-3500 and/or NMPC’s defined acceptance criteria, and have been determined by an Engineering Evaluation

(IWE-3122.3) to be unacceptable for continued service, shall be repaired/replaced in accordance with IWE-3122.2.

**Note:** Disassembly of bolted connections shall be as required by the IWE Responsible Engineer's Evaluation.

**Step 7:** As required by IWE-3124, Repairs/Replacements shall comply with the requirements of IWA-4000.

**Step 8:** Reexamination following repair/replacement shall be in accordance with IWE-2310 (b) and/or (c), as applicable.

Evaluation: 10 CFR50.55a(g)(6)(ii)(B) requires that licensees implement the inservice examinations specified for the first period of the first inspection interval in Subsection IWE of the 1992 Edition with the 1992 Addenda by September 9, 2001. The licensee proposed to implement the 1998 Edition of Section XI, Subsection IWE in lieu of the 1992 Edition and Addenda. The licensee prepared and submitted a table comparing both Code Editions. Appendix A to this report contains a comparison table, including the licensee's statements regarding the significance of Code changes and their bases for use as an alternative examination. The table also includes INEEL comments on each change. The INEEL staff has reviewed the licensee's submittal and Subsection IWE of the 1998 Code, and compared it with the 1992 Addenda. Significant differences were noted in areas such as personnel qualification, visual examination methods, containment weld inspection, paint and coating inspection, bolting inspection, seals and gasket inspection, and the requirements for successive examinations. Each of these issues will be discussed below.

Article IWE-2100 has been added to the 1998 Edition to include requirements for visual examination and personnel qualification, while taking exception to certain requirements in Subsection IWA. Specifically, in accordance with IWE-2100, to IWA-2210, *Visual Examination*; IWA-2300, *Qualification of Nondestructive Personnel*; IWA-2500, *Extent of Examination*; and IWA-2600, *Weld Reference System* are not mandatory for Table IWE-2500 visual examinations. It is understandable to exclude the IWA-2500 and IWA-2600 requirements from the containment inspection program. However, excluding the visual examination requirements of IWA-2210 and the personnel qualification requirements of IWA-2300 may reduce the effectiveness of the Code.

#### Visual Examination Methods

IWE-2300 of the 1998 Edition has invoked *Owner-defined* visual examinations and supporting visual personnel qualification requirements for metallic containments. The INEEL staff notes that Section XI is intentionally organized to refer to the General Requirements of Article IWA to define the type of examinations to be performed (i.e., VT-1, VT-2, or VT-3) and the requirements to certify examination personnel for all visual examinations required by subsequent Subsections. Deferring these responsibilities to the individual Owners creates a potential for substantial inconsistencies with respect to ISI of containment structures. To ensure consistent application throughout the industry, it is necessary for each licensee to supplement the 1998 Code and provide specific details pertaining to visual examinations included in their Containment Inspection

Program(s). Licensee's Containment Inspection Programs are currently not required to be submitted for review by the regulatory authorities. For these reasons, the INEEL staff believes the 1998 Edition does not provide an acceptable level of quality and safety. To find the proposed alternative acceptable, the licensee must provide specific information supporting the implementation of visual examination methods.

For NMP1 and NMP2, the licensee has provided acceptance criteria for the General and Detailed visual examinations. The licensee provided information that describes a containment inspection program that meets the intent of 10 CFR 50.55a(g)(6)(ii)(B). The general and detailed visual examinations have been developed from VT-3 and VT-1 examinations for assessing containment integrity. Visual resolution and illumination requirements for performing direct and remote General and Detailed visual examinations are equivalent to those required for VT-1 and VT-3. The effectiveness of the procedures were verified using field conditions and various flaw sizes to demonstrate detectability under varying illuminations to the satisfaction of the Authorized Nuclear Inservice Inspector. Therefore, it is concluded that the licensee's proposed alternative provides an acceptable level of quality and safety.

#### Personnel Qualification

The 1992 Addenda has incorporated ANSI/ASNT CP-189 for the qualification of examination personnel. Subsection IWE, of the 1998 Edition, takes exception to the certification requirements of other Subsections of the Code and invokes plant-specific personnel certification requirements for visual examination. Subsection IWE (1998 Edition) deleted the VT-1 and VT-3 visual examination requirements and replaced them with General and Detailed visual examinations; subsequently NDE personnel may not be required to perform these examinations. The 1998 Edition relies on the *Responsible Individual* to direct the containment visual examinations. The INEEL staff believes that this approach has a substantial potential for inconsistency with respect to containment ISI. For this reason, the 1998 Edition does not provide an acceptable level of quality and safety and cannot be found acceptable without supplementary information from the licensee describing how the Containment Inspection Program meets the intent of the 1992 Edition for qualification of examination personnel. In the April 7, 2000, submittal, the licensee stated, in part:

“ . . . NMPC visual examination personnel are qualified to a program meeting SNT-TC-1A (1984). Personnel are certified to a corresponding level as a VT-1 and/or VT-3 examiner. This is the same process used for certification of ISI visual examination personnel. It is NMPC's position that VT-3 qualified personnel are certified to perform the General examination and VT-1 personnel will perform the Detailed examination required by Subsections IWE and IWL. Additionally, personnel performing examinations required by IWL have received additional training such as that offered by the Electric Power Research Institute (EPRI) NDE Center or their training can be substantiated and documented in the training record that the individual has prior experience in performing concrete inspection. ”

Based on the above commitments, the INEEL staff concludes that the licensee's containment inspection program meets the intent of 10 CFR 50.55a(g)(6)(ii)(B) for

examination personnel qualification requirements. Therefore, it is concluded that the licensee's proposed alternative provides an acceptable level of quality and safety in this area.

#### Successive Examinations

IWE-2420(c) (1992 Edition) requires areas containing flaws, areas of degradation, or repairs that were found acceptable by engineering evaluation, to be reexamined during the next three inspection periods before they are removed from the augmented examination requirements. This is consistent with Subsection IWB-2420 requirements. The 1998 Edition, IWE-2420, has removed repairs from the list of conditions requiring acceptance by evaluation, which is consistent with Class 1, 2, and 3 components. In addition, the later edition has reduced the observation time required before a suspect area can be removed from the augmented examination requirements. IWE-2420(c) (1998 Edition) requires reexamination, during the next inspection period, of areas containing flaws or areas of degradation that have been accepted for continued service by engineering evaluation. If the suspect area is unchanged during the next period examination, the area no longer requires augmented examination. This approach is consistent with the requirements for Class 2 components. However, even though an area is removed from augmented examination, it may be re-designated for augmented examination at any time during the interval if the Owner determines that conditions that cause degradation still exist. Therefore, it is concluded that this Code change provides an acceptable level of quality and safety.

#### Additional Examinations

The 1998 Code does not rely on sampling and requires 100% of containment surfaces. Therefore, elimination of this requirement is appropriate and acceptable.

#### Paint and Coatings

The IWE-2500(b) requirement to examine paint or coatings prior to removal has been eliminated from the 1998 Edition. Relief from this requirement has been found acceptable when adequate provisions exist in either the licensee's Containment Inspection, Repair/Replacement, Nuclear Coatings, or ISI Programs to examine the base metal for surface anomalies that could affect containment integrity prior to re-application of the coating. In addition, the base metal should be visually examined by qualified inspection personnel.

At NMP1 and NMP2, general visual examination of accessible surfaces, included coated surfaces, is performed using acceptance criteria that includes blistering, chalking, checking, chipping, cracking, delamination, discoloration, and undercutting, any which could indicate degradation to the pressure boundary integrity. If coating is removed to perform visual examinations, the coatings will be reapplied under the appropriate plant coatings requirements. The licensee has also added steps to the maintenance rule manual to notify the containment ISI program owner when degradation of the containment liner or coating is observed. This will assure that examinations of the containment pressure boundary are performed prior to removal of coatings by mechanical methods that could remove evidence of surface degradation and prior to re-

application of the coating. Therefore, the INEEL staff concludes that the licensee has included adequate provisions to ensure the integrity and compatibility of the paint, coatings, and liner plate, and that the licensee's proposed alternative provides an acceptable level of quality and safety.

### Weld Examinations

Subsection IWE, 1998 Edition, has been revised and no longer contains any specific weld examination requirements. This approach is supported by 10 CFR 50.55a(b)(2)(x)(C), which makes the examinations specified in Examination Category E-B, *Pressure Retaining Welds*, and Examination Category E-F, *Pressure Retaining Dissimilar Metal Welds*, optional. Therefore, weld examinations will be addressed during the General Visual Examination required by Examination Category E-A. Based on the optional nature of the Regulatory requirements for examination of containment welds, the elimination of any direct references to containment weld examinations in the Code should be considered to provide an acceptable level of quality and safety.

### Bolting, Seals, Gaskets, and Moisture Barriers

Examination Category E-D, *Seals, Gaskets, and Moisture Barriers*, and Examination Category E-G, *Pressure Retaining Bolting*, have been eliminated from the 1998 Code. The examination of pressure-retaining bolting and moisture barriers are now included in Examination Category E-A, footnote (1)(d) and Item E1.30, respectively. The NRC staff has determined that verification of leak-tight integrity through appropriate Appendix J testing also verifies the integrity of bolted connections, seals and gaskets. Regarding the condition of the bolting, the NRC staff has determined that all accessible bolted connections shall be visually examined each inspection period per the requirements of the 1998 Edition of IWE, Table IWE-2500-1, Category E-A which corresponds to an examination of all bolted connections three times per inspection interval. Licensees shall perform a general visual examination (VT-3 or equivalent) on the exposed portions of the connection. Bolted connections need not be disassembled solely for the performance of VT-3 examinations. If the general visual examination indicates possible areas of degradation or damage, a detailed visual examination (VT-1 or equivalent) is required. If potentially degraded bolting is indicated, the bolted connection shall be disassembled to facilitate the detailed examination. Furthermore, if a bolted connection is disassembled at the time of inspection, all accessible surface areas of the connection shall be visually examined (VT-3 or VT-1 if necessary). If a disassembled connection is not visually examined by a VT-3 or VT-1 qualified individual before reassembly, written maintenance procedures shall be followed to ensure that the integrity of reassembled bolted connections are maintained. The written procedures shall include acceptance criteria for the continued use of all part of the connection including bolts, studs, nuts, bushings, washers, and threads in base material an flange ligaments between fastener holes. The licensee's proposed alternative is as follows:

"NMPC will perform General visual examinations of all bolted connections in each inspection period. The General visual examinations will be performed in accordance with an inspection period schedule. Each scheduled bolted connection, within each period, will be examined in place under tension, or when the bolted connection is disassembled. Visual examination of disassembled

bolted connections at other than a scheduled period examination is not required. Therefore, in conclusion, only those bolted connections disassembled at the time of the scheduled period examinations will be examined.”

The licensee will perform a general visual examination of all surfaces, including bolted connections, once each inspection period. If areas of degradation or damage are identified, a detailed visual examination (equivalent to VT-1) shall be performed to determine the extent of the damage. Disassembly of bolted connections shall be conducted as required by the IWE Responsible Engineer to support the Engineering Evaluation. This approach is consistent with the NRC staff position on bolting. Therefore, the INEEL staff concludes that the proposed approach will ensure that the integrity of bolting is maintained and will provide an acceptable level of quality and safety.

#### Ultrasonic Examination

In Paragraph IWE-3511.3 of the 1998 Code, examination of Class CC metallic liners has been excluded from the 1992 acceptance criteria, which requires disposition of areas where material loss exceeds 10% of the nominal wall thickness. Therefore, the 1998 Code is not acceptable for Class CC metallic liners without augmentation by the licensee. For NMP2, ultrasonic examinations of metallic liners of Class CC pressure retaining components that detect material loss in a local area exceeding 10% of the nominal wall thickness, or material loss in a local area projected to exceed 10% of the nominal wall thickness prior to the next examination, shall be accepted by engineering evaluation or corrected by repair/replacement activities. This is equivalent to the requirements of the 1992 Addenda. For the NMP1 steel containment shell, the acceptance standard in the 1998 Edition is unchanged from the 1992 Code Edition/Addenda. Therefore, the INEEL staff concludes that the proposed acceptance criteria for wall thinning will ensure that the integrity of the liner plate is maintained and will provide an acceptable level of quality and safety.

In summary, the licensee has proposed to use the 1998 Edition of Section XI, Subsection IWE, in lieu of the 1992 Edition with the 1992 Addenda as required by 10 CFR 50.55a(g)(6)(ii)(B). Review and evaluation of Subsection IWE of the 1998 Code has exposed several areas that do not provide an equivalent level of quality and safety. Consequently, the 1998 Edition cannot be considered an acceptable alternative to the existing Regulatory requirements. However, the licensee provided specific information and committed to supplement the requirements of the 1998 Code. Based on the above evaluation, it is concluded that the use of Subsection IWE of the 1998 Code, as supplemented by the licensee, provides an acceptable level of quality and safety. Therefore, the INEEL staff recommends that the proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(i).

## 2.2 Request for Relief RR-IWE/IWL-2 (Unit 2), Proposed Alternative to Use ASME Section XI, 1998 Edition, Subsection IWL, for Examination of Class CC Concrete Components

Regulatory Requirement—10 CFR 50.55a(g)(6)(ii)(B) requires that licensees implement the inservice examinations specified for the first period of the first inspection interval in Subsection IWL of the 1992 Edition with the 1992 Addenda of Section XI, Division 1, of

the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code).

Licensee's Proposed Alternative (as stated):

"In accordance with 10 CFR 50.55a(a)(3)(i), specific relief is requested for Nine Mile Point Unit 2 (NMP2) from compliance with the 1992 Edition with the 1992 Addenda of Subsection IWL, ASME B&PV Code requirements on the basis that the proposed alternative will provide an acceptable level of quality and safety. NMP1(NMP2) proposes to use, as an alternative to the current requirements, the 1998 Edition of ASME Section XI, Subsection IWE."

Licensee's Basis for Proposed Alternative (as stated):

"The 1998 Edition incorporates and provides clarification to the requirements of the 1992 Edition with the 1992 Addenda and provides a uniform set of requirements that eliminates the need for multiple relief requests. The use of the 1998 Edition of Section XI provides more practical requirements for the performance, training, qualification and scheduling of examinations"

"South Texas Comanche Peak Steam Electric Station (CPSES) submitted relief requests to use the 1998 Edition of the ASME Boiler and Pressure Vessel Code subsections IWE and IWL in lieu of the 10 CFR 50 mandated 1992 Edition with the 1992 Addenda. CPSES has been granted relief to use the 1998 Edition of the Code by NRC letter dated July 23, 1999. The Safety Evaluation attached to the NRC letter approved the use of the 1998 Code with additional clarifications and requirements. The following requirements were addressed by the Safety Evaluation and have been review for applicability to the Nine Mile Point Unit 1 and Unit 2 (NMP2 and NMP2) containment inspection programs.

- "General Visual Examination' criteria will be developed from existing VT-3 procedures that are used to examine ASME Class 1, 2, and 3 components.
- "Detailed Visual Examination" criteria will be developed from VT-1 and VT-3 procedures.
- "The containment visual examination procedure qualification requirement for lighting and illumination will be similar to, and developed from, the procedures used for VT-1 and VT-3 examinations of ASME Class 1, 2, and 3 components.
- "For IWL examinations where remote visual examination systems are to be used, those systems will be demonstrated to have a resolution capability at least equivalent to that attainable by direct visual examination. Containment visual examination procedures will be demonstrated to the authorized nuclear inservice inspector for capability to detect flaws and degradation levels defined within the procedure, and the containment visual examination program will be developed from the guidelines of SNT-TC-1A and ANSI N45.2.6. Certified personnel will have 'demonstrated skill, demonstrated knowledge, documented training, and documented experience required to properly perform the duties of a specific job.'

- For IWL areas that are determined to be suspect, a detailed visual examination will be performed.

“Pending NRC approval, Niagara Mohawk Power Corporation will incorporate these requirements into the NMP1 and NMP2 containment inspection programs and use them to develop the procedures for visual examinations required by the ASME Code Section XI.”

In the April 7, 2000, submittal, the licensee provided the following information:  
 “Acceptance Criteria:

“For IWL, acceptance criteria were developed using the guidance in ACI standards 201.1-R92 and 349.3-R96. The acceptance criteria for concrete were based on the second tier criteria contained in ACI-349.3R-96. Also used were criteria from other utilities who have approved programs, and the EPRI draft white paper for concrete containment examinations. Examples are given in Table 2.

| TABLE 2 (IWL EXAMINATION ACCEPTANCE CRITERIA)  |  |
|--|--|
| Condition  | Acceptance Criteria  |
| Erosion/abrasion (significantly exposed or loose coarse aggregate (gravel) from the concrete surface).   | Perform Detailed visual examination to determine the magnitude and extent of the suspect condition and record results. |
| Popouts/voids > 2" in diameter or having equivalent surface area with any other indications of degradation, such as rust staining or exposed reinforcing steel.  | Perform Detailed visual examination to determine the magnitude and extent of the suspect condition and record results. |
| Scaling (>3/4" in depth) with any other indications of degradation, such as rust staining or exposed reinforcing steel.  | Perform Detailed visual examination to determine the magnitude and extent of the suspect condition and record results. |
| Spalling (>3/4" in depth or > 6" in surface dimension) with any other indications of degradation, such as rust staining or exposed reinforcing steel.  | Perform Detailed visual examination to determine the magnitude and extent of the suspect condition and record results. |
| Cracks >0.04" (other than localized widening at the surface of the concrete) with evidence of corrosion emerging from the crack, active changes in width or length (compared to baseline examinations), or other degradation mechanisms at the crack (e.g., bulging by corrosion buildup). | Perform Detailed visual examination to determine the magnitude and extent of the suspect condition and record results. |

#### “Qualification Requirements

“The 1998 Edition of ASME Code Section XI invokes IWA-2000, Examination and Inspection, when defining the general requirements for the examinations to be performed and for the qualification of examination personnel. Niagara Mohawk Power Corporation (NMPC) proposes as an alternative to these requirements to continue to use the current programs in place for Inservice Inspection (ISI) for visual examination and personnel qualification. The 1998 Code, Subsections IWE and IWL introduce requirements for performing General and Detailed visual examinations, but do not provide specific guidance as to the conduct of the examinations or how personnel are to be qualified in the specific techniques. IWE-2310 does not provide specific or unique information for qualification of visual examination personnel. It is left to the Owner to define the criteria to be used. Since the Code is not explicit, NMPC visual examination personnel are qualified to a program meeting SNT-TC-1A (1984). Personnel are certified to a corresponding level as a VT-1 and/or VT-3 examiner. This is the same process used for certification of ISI visual examination personnel. It is NMPC's position that VT-3 qualified personnel are certified to perform the General examination and VT-1 personnel will perform the Detailed examination required by Subsections IWE and IWL. Additionally, personnel performing examinations required by IWL have received additional training such as that offered by the Electric Power Research Institute (EPRI) NDE Center or their training can be substantiated and documented in the training record that the individual has prior experience in performing concrete inspection. Developing a parallel program for qualification of examination personnel places an undue hardship on NMPC in administering a redundant process without offering any commensurate increase in the level of quality or safety.

“General and Detailed visual examinations are performed using Nine Mile Point Units 1 and 2 procedure, NDEP 2.05, “ASME Section XI IWE/IWL Visual Examination.” This procedure was developed to an equivalent level of VT-1 and VT-3 for performing both direct and remote examinations using essentially the same criteria. The procedure was qualified in accordance with NMPC procedure QAP-SPC-9.01, “Nondestructive Examination Program” by General and Detailed examination personnel to the satisfaction of the Authorized Nuclear Inservice Inspector. The procedure meets the requirements of Article 9, ASME Section V and ACI 349.3R-96.”

Evaluation: 10 CFR50.55a(g)(6)(ii)(B) requires that licensees perform the inservice examinations that correspond to the number of years of operation which are specified in Subsection IWL of the 1992 Edition with the 1992 Addenda by September 9, 2001. The licensee is proposing to implement the 1998 Edition of Section XI, Subsection IWL in lieu of the 1992 Edition and Addenda. The licensee prepared and submitted a table comparing these requirements. The INEEL staff has reviewed the licensee's submittal and Subsection IWL of the 1998 Code and compared it with the 1992 Edition with the 1992 Addenda. Appendix B of this report contains the licensee's comparison table. It includes the licensee's statements regarding the significance of Code changes and their bases for use as an alternative examination. The table also includes INEEL comments

on each change. Significant differences were noted in the areas of personnel qualification and visual examination procedure qualification.

#### Visual Examination

The 1992 Edition with 1992 Addenda, Subsection IWL, used VT-1C and VT-3C to designate visual examinations to be performed on concrete containments. In addition, minimum illumination, maximum direct examination distance, and maximum procedure demonstration lower case character height are specified in IWA-2210. The licensee's proposed alternative (1998 Edition) takes exception to the IWA-2210 requirements for visual examination. Consequently, new Code examinations (General Visual and Detailed Visual) have been introduced. The definition of these new Code examinations has been relegated to individual licensees. The INEEL staff considers this change to be inconsistent with other Code visual examination prerequisites, and too generic in nature. Therefore, specific details pertaining to the Containment Inspection Program at NMP are required in order to establish an acceptable level of quality and safety in the proposed alternative.

For NMP2, the licensee has provided comprehensive acceptance criteria for the General and Detailed visual examinations, with procedures that meet the requirements of Article 9, ASME Section V and ACI 349.3R-96. The licensee provided information that describes a containment inspection program that meets the intent of 10 CFR 50.55a(g)(6)(ii)(B). General and Detailed visual examinations have been developed that are essentially equivalent to VT-3 and VT-1 examinations for assessing containment integrity. Therefore, it is concluded that the licensee's proposed alternative provides an acceptable level of quality and safety.

#### Personnel Qualification

The 1992 Addenda has incorporated ANSI/ASNT CP-189 for the qualification of examination personnel. Subsection IWL of the 1998 Edition, takes exception to the general certification requirements of the Code and invokes plant specific personnel certification requirements for visual examination. By deleting the VT-1C and VT-3C visual examinations, replacing them with the General and Detailed visual examinations, and excluding the personnel qualification requirements of IWA-2300, NDE personnel are not needed to perform containment visual examinations. Subsection IWL of the 1998 Edition relies on the Responsible Engineer to direct the containment visual examinations. The INEEL staff believes that this approach has the potential for inconsistency with respect to containment ISI. For this reason, the 1998 Edition does not provide an acceptable level of quality.

At NMP2, IWL visual examination personnel will be qualified in accordance with SNT-TC-1A (1984) and certified to a corresponding level as a VT-1 and/or VT-3 examiner using the same process that is used for the certification of ISI visual examination personnel. VT-3 qualified personnel will perform the General examination and VT-1 personnel will perform the Detailed examinations required by Subsection IWL. The INEEL staff concludes that the licensee's containment inspection program meets 10 CFR 50.55a(g)(6)(ii)(B) for examination personnel qualification requirements. Therefore, it is

concluded that the licensee's proposed alternative provides an acceptable level of quality and safety in this area.

Based on the above evaluation, it is concluded that the use of Subsection IWL of the 1998 Code, as supplemented by the licensee, provides an acceptable level of quality and safety. Therefore, it is recommended that the licensee's proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(i).

3. CONCLUSION

The INEEL staff evaluated the licensee's submittal for the first 10-year containment ISI interval at NMP1 and NMP2 and concludes that the licensee's proposed alternatives, including supplementing the 1998 Edition requirements in specific areas, provide an acceptable level of quality and safety. Therefore, it is recommended that the proposed alternatives contained in these requests be authorized pursuant to 10 CFR 50.55a(a)(3)(i).

**APPENDIX A**  
**NINE MILE POINT, UNITS 1 AND 2**  
**IWE COMPARISON TABLE**

**APPENDIX A -- NINE MILE POINT UNITS 1 AND 2 IWE COMPARISON TABLE**

| <b>Paragraph</b> | <b>Changes between IWE 1992 Edition/ 1992 Addenda and the 1998 Edition</b>  | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>   | <b>NMP Comments</b>  | <b>Comments</b>  |
|------------------|---|--|--|--|
| IWE-1100         | No Change   | n/a  | n/a  |  |
| IWE-1200         | No Change   | n/a  | n/a  |  |
| IWE-1210         | No Change   | n/a  | n/a  |  |
| IWE-1220         | Changed "containment" to "containment system"   | Non significant  | n/a  | Acceptable   |
| IWE-1230         | No Change   | n/a  | n/a  |  |
| IWE-1231         | Removed item 3)-"single welded butt joints from the weld side"- as a specific item required to remain accessible for the life of the plant. | These single welded butt joints were removed as a separately listed examination item and is now included within the item for the pressure retaining boundary as discussed in the changes to Table IWE-2500-1 below.<br>Note: Examination of welds is optional in 10 CFR 50.55a | Containment welds and dissimilar metal welds will be examined by General Visual examination to the same criteria as general containment surfaces. For non-coated containment surfaces these criteria were developed from VT-3 procedures that are used for examination of ASME Code Class 1, 2, and 3 components such as the reactor vessel interior, pump casings and valve bodies. This includes examination for cracking, discoloration, structural distortion, wear, pitting, corrosion, gouges, dents or other surface discontinuities. For coated containment surfaces the recording criteria was developed from the NMP coatings Program. This includes examining for flaking, blistering, peeling, discoloration or other signs of distress. | Examination of welds is optional in 10 CFR 50.55a – Acceptable |
|                  | Changed wording from "80% of the surface area" to "80% of the pressure retaining boundary" and stated exclusions from that 80%.             | The exclusions from 80% incorporate an existing Table IWE-2500-1 note and clarify that areas made inaccessible during construction are also excluded.  |  | Acceptable   |

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|------------------|--|--|--|--|
|                  | Reworded paragraph b).   | Change to b) is for clarity and is nonsignificant  |  | Acceptable   |
| IWE-1232         | ASME XI generic change from repair and/or replacement to repair/replacement activities.                                | Non significant  |  | Acceptable   |
|                  | Deleted paragraph (a)(3) addressing inaccessible welded joints   | Welded joints were removed as a separately listed examination item and are now included within the item for the pressure retaining boundary as discussed in the changes to Table IWE-2500-1 below.<br>NOTE: Examination of welds is optional in 10 CFR 50.55a. | NMP will examine welds as part of the surface examination See IWE-1231.                                | Examination of welds is optional in 10 CFR 50.55a – Acceptable |
| IWE-1240         | Added stiffeners and, by reference to IWE-2420, flaws accepted by evaluation as areas requiring augmented examination. | The additional areas subject to augmented examination further assure containment integrity   | NMP will examine stiffeners and flaws accepted by evaluation as areas requiring augmented examination. | Appears to be a conservative change.<br>Acceptable             |
| IWE-2000         | No Change  | n/a  | n/a  |  |

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|-----------|--|---|--|---|
| IWE-2100  | Added new Subarticle 2100 - "General" - to provide reference to IWA-2000 with exceptions from IWA-2210, -2300, -2500 and-2600.       | The additional general requirements invoked by reference to IWA-2000 where none were referenced previously further assure containment integrity. The exceptions provided are significant in that related requirements have been incorporated into IWE-2310, IWE-2320 and IWE-2330. These changes are discussed below. | See IWE-2310 and IWE-2330. As stated in the April 7, 2000, submittal:<br><br>NMPC visual examination personnel are qualified to a program meeting SNT-TC-1A (1984). Personnel are certified to a corresponding level as a VT-1 and/or VT-3 examiner. This is the same process used for certification of ISI visual examination personnel. It is NMPC's position that VT-3 qualified personnel are certified to perform the General examination and VT-1 personnel will perform the Detailed examination required by Subsections IWE and IWL. | <ul style="list-style-type: none"> <li>▶IWE examinations will not require the visual examinations identified in IWA-2210</li> <li>▶Per the 1998 Code, personnel will not have to be certified to CP-189 (IWA-2300)</li> <li>▶IWA-2500 excludes repair welds from the requirements of examination</li> <li>▶IWA-2600 requires that a weld reference system be established for surface or volumetric examinations. However, IWE-2500(c)(4) requires reproducible grid markings for augmented ultrasonic thickness measurement. Details in appropriate sections below</li> </ul> |
| IWE-2200  | Deleted paragraph c) which provided allowances for the use of shop or field examinations in lieu of on site preservice examinations. | The deletion of an allowance for an alternative examination ensures that proper pre-service examinations are performed and documented.  | N/a  | Appears to be a conservative change – Acceptable  |
|           | Deleted paragraph g) which required the condition of new coating to be documented in the preservice examination record.              | The deletion of the requirement to document the condition of "new" non-pressure retaining coatings in the pre-service examination record provides for more efficient program implementation without affecting component integrity.  | See IWE-2500.  | Addressed by maintenance rule program at NMP. See IWE-2500.   |
|           | ASME XI generic change from repair and or replacement to repair/replacement activities.  | Non significant   |  | Acceptable  |

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|------------------|---|---|---|--|
| IWE-2300         | Added new Subarticle -2300 - "Visual Examination, Personnel Qualification and Responsible Individual" | The paragraphs within this subarticle are considered significant and contain requirements that either did not previously exist or that were contained in other areas. Placing these requirements within Article IWE-2000 further ensures proper "Examination and Inspection" of areas important to containment integrity and provides consistency with Subsections IWB, IWC and IWD. The specific paragraphs added are discussed below. | <ol style="list-style-type: none"> <li>1. "General Visual Examination" criteria are developed from VT-3 procedures that are used to examine ASME Class 1, 2, and 3 components,</li> <li>2. Pressure retaining bolting recording criteria are developed from the VT-1 procedure used for Class 1 bolting,</li> <li>3. Moisture barriers are examined for tears, cracks, or damage that permits moisture to intrude,</li> <li>4. "Detailed Visual Examination" criteria are developed from VT-1 and VT-3 procedures, and</li> <li>5. The containment visual examination procedure qualification requirement for lighting and illumination are similar to, and developed from, the procedures used for VT-1 and VT-3 examinations of ASME Class 1, 2, and 3 components.</li> </ol> | Consistency with existing ISI visual examination requirements could provide for an efficient internal program. However, open-ended, owner defined visual examination requirements do not provide uniformity and consistency industry wide. 1998 Code is unacceptable and proposed alternative cannot be found acceptable without specific details from the licensee. The licensee has provided specific details – Acceptable |

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|---------------------|--|--|---|-----------------|
| IWE-2300<br>(con't) |  |  | <p>6. In applications where remote visual examination systems are to be used, those systems will be demonstrated to have a resolution capability at least equivalent to that attainable by direct visual examination.</p> <ul style="list-style-type: none"> <li>-Containment visual examination procedures will be demonstrated to the authorized nuclear inservice inspector for capability to detect flaws and degradation levels defined within the procedure, and</li> <li>-The containment visual examination program is developed from the guidelines of SNT-TC-1A and ANSI/ASME NQA-1. Certified personnel will have "demonstrated skill, demonstrated knowledge, documented training, and documented experience required to properly perform the duties of a specific job."</li> </ul> |                 |

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|------------------|--|--|--|--|
| IWE-2310         | <p>Added new paragraph -2310 - "Visual Examinations"- which states: a) the owner shall define requirements for visual examination of containment surfaces;</p> | <p>a) The VT-3 and VT-1 inspections of IWA have been replaced by Owner (Responsible Individual) defined general and detailed visual exams, respectively. The definition of critical examination items and acceptable conditions has not changed, such that any conditions adversely affecting quality or safety are not impacted by this change.</p> | <p>The general and detailed visual examinations are essentially equivalent to the VT-3 and VT-1 examinations in terms of assessing the structural integrity and potential for degradation to the containment system. The use of the general and detailed examination methods allows for the involvement of qualified engineering personnel with backgrounds in areas such as containment coatings, Maintenance Rule, Appendix J, containment design, materials engineering and containment degradation mechanisms. Procedures for inspection and qualification are reviewed by a NMP NDE Level III. Procedures must be demonstrated to the ANII for capability to detect flaws and degradation levels as defined in the inspection procedures.</p> | <p>Consistency with existing ISI visual examination requirements could provide for an efficient internal program. However, open-ended, owner defined visual examination requirements do not provide uniformity and consistency industry wide. 1998 Code is unacceptable and proposed alternative cannot be found acceptable without specific details from the licensee. The licensee has provided those details - Acceptable</p> |
|                  | <p>b) defines general visual examinations; and c) defines detailed visual examinations; and</p>  | <p>(a) Added requirements for the owner to define visual examination requirements provides for more efficient containment ISI program implementation by allowing examinations that may be more consistent with existing ISI, containment coating, maintenance rule and Appendix J programs;</p>  |  | <p>There are no acceptance criteria specified since the proposal maintains owner defined examination requirements. Don't agree with the philosophy of a new visual examination method for IWE examinations. 1998 Code is unacceptable. The licensee has provided specific acceptance criteria for general and detailed visual examinations – Acceptable</p>  |

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|------------------|---|--|--|---|
|                  |   | <p>(b) and (c) The VT general examination is performed to indicate the general condition of the containment. The VT detailed examination is performed to determine the magnitude and extent of any deterioration or distress. Referring to visual examinations by new VT general and VT detailed terms does not adversely affect the integrity of the containment components examined;</p> | <p>Containment visual examinations will be performed in accordance with procedures written specifically for the Containment ISI Program. Examiner qualification requirements for IWE will be VT-1 and VT-3 certification. Examiner qualification for IWL will be VT-1 and VT-3 with additional documented experience and/or training in concrete inspection. The containment visual examination procedure qualification requirements for lighting and resolution will be similar to, and developed from, the procedures used for VT-1 and VT-3 examinations of ASME Code Class 1, 2 and 3 components. As such containment visual examination procedures will be demonstrated to the ANII for capability to detect the flaws and degradation levels defined within the procedures. In applications where remote visual examination systems are to be used those systems will be demonstrated to have a resolution capability at least equivalent to that attainable by direct visual examination.</p> | <p>There are no acceptance criteria specified since the proposal maintains owner defined examination requirements. Don't agree with the philosophy of a new visual examination method for IWE examinations. 1998 Code is unacceptable. The licensee has provided specific acceptance criteria for general and detailed visual examinations – Acceptable</p> |
| IWE-2310 (con't) | <p>(d) and (e) Provide the requirements for the conditions of areas affected by repair/replacement activities, painted or coated areas, non coated areas, pressure retaining materials and moisture barriers.</p> | <p>d) and e) Previously these examination requirements did not exist within the Article IWE-2000 but rather only in the acceptance criteria of Article IWE-3000. Adding these specific attributes here ensure proper containment examinations.</p>   | <p>The containment visual examinations will utilize an established acceptance criteria, that if exceeded, will require review by the responsible individual for disposition in accordance with applicable site programs.</p>   | <p>Acceptable</p>   |

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|------------------|--|---|---------------------------|--|
| IWE-2320         | <p>Added new paragraph 2320 - "Responsible Individual"- which a) states the qualification requirements of the responsible individual and</p> <p>b) defines the responsibilities of the responsible individual for the development of plans and procedures; instruction, training and approval of visual examination personnel; performance or direction of visual examinations; evaluation of results and documenting results.</p> | <p>(a) The details for the responsible individual qualification requirements were previously contained in the acceptance standards of IWE-3510.1.</p> <p>(b) The added detailed responsibilities for the responsible individual ensure proper performance of those related activities. Having an individual possessing the qualifications of (a) and performing the responsibilities of (b) increases plant quality and safety by assuring the reliable detection of conditions adverse to containment integrity.</p> | See IWE-2310 and IWE-2330 | <p>Acceptable</p> <p>The duties identified must be performed regardless of who is assigned to do them. However, the 1998 philosophy gives the responsible individual complete control over the Program. Section XI consistency maintains that licensee containment programs meet the requirements of Subsection IWA.</p> |

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|-----------|--|--|--|---|
| IWE-2330  | <p>Added new paragraph 2330 - <i>Personnel Qualification</i> - which a) states that the owner is responsible for defining the qualification requirements for personnel performing visual examinations and</p> <p>b) provides minimum qualification requirements that were previously contained in the acceptance criteria of IWE-3510.1.</p> | <p>(a) Adding requirements for the owner to define personnel qualification requirements provides for more efficient containment ISI program implementation by permitting personnel performing containment examinations to be qualified to written practices that are more consistent to those used for other NDE personnel.</p> <p>(b) Providing these details in the qualification requirements paragraph focuses the containment visual qualification on areas important to containment integrity.</p> | <p>Personnel performing containment visual examinations will be qualified to the existing qualification program. The visual examination program is based on the guidelines of ASNT SNT-TC-1A for VT-1 and VT-3 with additional requirements for IWL (concrete) experience and/or training. The SNT-TC-1A Recommended Practice for ASME Code Class 1, 2 and 3 ISI examinations does not specifically address visual examinations. The required involvement of the Responsible Individual assures testing and qualification reviews will be performed such that personnel receiving containment visual examination certification will have a "demonstrated skill, demonstrated knowledge, documented training, and documented experience required to properly perform the duties of a specific job as required by SNT-TC-1A. Procedures for inspection and qualification are reviewed by a NMP NDE Level III. Procedures must be demonstrated to the ANII for capability to detect flaws and degradation levels as defined in the inspection procedures.</p> <p>Personnel performing augmented ultrasonic examinations of containment surfaces will be qualified in accordance with written practices meeting the requirements of ASNT SNT-TC-1A and ASME Section XI (Edition and Addenda as applicable to the NMP ISI Program</p> | <p>Personnel should be qualified in accordance with Subsection IWA. 1998 Code is unacceptable. The licensee provided specific details on personnel qualification - Acceptable</p> <p>1998 Code is unacceptable without licensee augmentation. 10 CFR 50.55a(b)(x)(B) requires the qualification of remote visual examinations. Licensee provided qualification requirements for direct and remote visual examinations – Acceptable.</p> |

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| IWE-2400   | <b>INSPECTION SCHEDULE</b>  |   |  |  |
| IWE-2410   | No Change   | n/a   | n/a  |  |
| IWE-2411   | No Change   | n/a   | n/a  | Acceptable   |
| IWE-2412   | Deleted a subparagraph discussing decreasing and extending inspection periods. Added a subparagraph detailing requirements for the scheduling of added welds or components. | The deleted subparagraph eliminates duplication with IWA-2400. The added requirements for the scheduling have added welds or components to ensure that a representative sampling of examinations is maintained.   | If items are added for any reason, the 1998 Edition of IWE-2412(b) provides requirements where none previously existed in the '92 Addenda of IWE. The administrative methodology for adding items to the IWE Program will be essentially the same as that for adding items to the ASME Code Class 1, 2 or 3 ISI Program.   | Acceptable   |
| IWE-2420   | Removed repaired areas as areas requiring re-examinations during the next successive inspection period, and   | Repaired areas that are likely to experience accelerated degradation and aging are already subject to augmented examinations per IWE-1241. Some repairs may be located in non augmented areas and may be necessary to correct physical damage caused by construction or craft activities. Not having to repeat examinations of these non augmented repaired areas provides for more efficient program implementation without adversely affecting component integrity. | Areas containing flaws or areas of degradation that have been accepted for continued service by engineering evaluation will be reexamined during the next inspection period. If the suspect area is unchanged during the next period examination, the area no longer requires augmented examination. This approach is consistent with the requirements for Class 2 components. In addition, even though an area is removed from augmented examination, it may be re-designated for augmented examination at any time during the interval if NMP determines that conditions that cause degradation still exist. | Changing duration of reexamination of areas that remain essentially unchanged from " <i>three consecutive inspection periods</i> " to " <i>the next successive inspection period</i> " is consistent with the requirements for Class 2 components -- Acceptable. |

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|------------------|--|--|--|--|
| IWE-2430         | Deleted the paragraph - "Additional Examinations" - which discussed adding examination items of the same category if flaws or areas of degradation are identified during an examination. | The changes to Table IWE-2500-1 eliminate several examination categories. The categories that remain all require 100% examination. Therefore no items are available for additional examinations.   | n/a  | The 1998 Code does not rely on sampling as 100% of the containment surface is already examined. Therefore, elimination of this requirement is appropriate -- Acceptable.   |
| IWE-2500         | Reworded the existing subparagraphs consistent with the previous paragraph changes and with Table IWE-2500-1 changes.  | The reworded subparagraphs add clarity and provide consistency within IWE.   |  | Acceptable   |
|                  | Deleted the requirement to examine paint or coatings prior to removal.   | Not having to perform ASME examinations of non pressure retaining coatings prior to removal provides for more efficient containment ISI program implementation without adversely affecting the integrity of the pressure retaining base metal being exposed. | The current maintenance rule program identifies the peeling and cracking of paint as a degradation mechanism. An additional paragraph will be added to program procedures stating that when degradation exists on the containment liner the containment ISI program owner will be notified prior to repair activities and that repair/replacement of coatings falls under the jurisdiction of the ASME Section XI repair/replacement program. The repair/replacement responsible individual shall be notified prior to repair/replacement activities that include the removal and reapplication of coatings. | 1998 Code is unacceptable. Elimination of the paint or coatings exam prior to removal has been found acceptable provided adequate provisions exist in the licensee's program to examine the base metal prior to re application of the coating. Licensee has addressed base metal examinations – Acceptable |
|                  | Replaced the requirement for one foot square grids in thickness measurements with a reference to Table IWE-2500-2.   | The new Table IWE-2500-2 provides more detailed requirements for thickness measurement gridding and is discussed below.  |  | The ultrasonic gridline approach is a sampling methodology similar to that of other portions of the Code and other erosion/corrosion monitoring programs utilized throughout the industry -- Acceptable.   |

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|   | Added a reference to IWE-5000 for pressure tests.   | The added reference to IWE-5000 provides direction for the performance of pressure test.  |   | Acceptable  |
| IWE-2600  | Deleted a sentence discussing compatibility of paint and coating systems and a requirement to examine the new paint.  | The removal of this sentence addressing "new" non pressure retaining paint and coatings provides for more efficient containment ISI program implementation without adversely affecting component integrity. | The compatibility of paint and coating systems with the existing system, and the examination of newly applied coatings, is covered in the NMP nuclear coatings program. | Covered by existing nuclear coatings program – Acceptable   |
| IWE-3000  | <b>ACCEPTANCE STANDARDS</b>   |   |   |   |
| IWE-3100  | No change   | Non significant   | n/a   | Consistent with IWB and IWC wording – Acceptable  |
| IWE-3110  | <b>PRESERVICE EXAMINATIONS</b>  |   |   |   |
| IWE-3111  | Replaced the reference to Table IWE-3410-1 with a reference to Subarticle IWE-3500. Removed reference to paragraph IWE-3115.  | Table IWE-3410-1 and paragraph IWE-3115 have been deleted and are discussed below. IWE-3500 adequately captures all of the information previously contained in the deleted table and paragraph.             | n/a   | Under the 1998 scheme, Table IWE-3410-1 probably isn't necessary because there are only two examination categories and the acceptance criteria are specified in Table IWE-2500-1 – Acceptable |
| IWE-3112  | Replaced the reference to Table IWE-3410-1 with a reference to Subarticle IWE-3500. ASME XI generic change from repair and or replacement to repair/replacement activities. | Non significant   | n/a   | Same as above.  |
| IWE-3114  | Replaced the reference to Table IWE-3410-1 with a reference to Subarticle IWE-3500. ASME XI generic change from repair and or replacement to repair/replacement activities. | Non significant   | n/a   | Same as above.  |

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|------------------|---|--|---------------------|--|
| IWE-3115         | Deleted subparagraph which addressed repair programs and evaluations being subject to review by authorities.  | Non significant - there were no submittal or retention requirements changed by the deletion of the subparagraph.   | n/a                 | The Regulations do not require the licensees to submit their containment inspection programs -- Acceptable |
| IWE-3120         | Removed the word nondestructive from the heading.   | Non significant  | n/a                 | Consistent with IWB and IWC -- Acceptable  |
| IWE-3121         | Removed the word nondestructive and deleted references to IWE-3124 and IWE-3125 for the acceptance of flaws for continued service.  | The removal of nondestructive is non significant. The referenced subparagraphs did not actually apply to the acceptance of flaws for continued service.  | n/a                 | Acceptable   |
| IWE-3122         | Replaced the references to Table IWE-2500-1 and to IWE-3000 with a reference to Subarticle IWE-3500. ASME XI generic change from repair and or replacement to repair/replacement activities. Reworded several sentences. Deleted sentence which addressed evaluations being subject to review by authorities. | Non significant - the changes are for clarity and to reconcile paragraph numbering. There were no submittal or retention requirements changed by the deletion of the sentence addressing evaluation reviews. | n/a                 | Consistent with IWB and IWC -- Acceptable  |
| IWE-3124         | Replaced the reference to Table IWE-3410-1 with a reference to Subarticle IWE-3500. ASME XI generic change from repair and or replacement to repair/replacement activities.   | Non significant  | n/a                 | Acceptable   |

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|------------------|--|--|--|-----------------|
| IWE-3125         | Deleted subparagraph which addressed repair programs and reexamination results being subject to review by authorities.   | Non significant - there were no submittal or retention requirements changed by the deletion of the subparagraph.   | For each flaw or area of degradation identified which exceeds acceptance standards, NMP will provide the following in the ISI Summary Report required by IWA-6000: (i) A description of each flaw or area, including the extent of degradation, and the condition that led to the degradation; (ii) The acceptability of each flaw or area and the need for additional examinations to verify that similar degradation does not exist in similar components, and; (iii) A description of necessary corrective actions. | Acceptable      |
| IWE-3130         | No Change  | n/a  | n/a  |                 |
| IWE-3200         | Added a statement to the end of the paragraph that states supplemental surface or volumetric examinations are required when specified by engineering evaluation. | The added statement clarifies requirements and eliminates potential duplication or contradiction of requirements in stating that the engineering evaluation requirements of IWE-3122 determine what and when supplemental examinations are required. | n/a  | Acceptable      |
| IWE-3410         | Replaced the reference to Table IWE-3410-1 with a reference to Subarticle IWE-3500.  | Non significant  | n/a  | Acceptable      |
| IWE-3430         | No Change  | n/a  | n/a  |                 |
| IWE-3500         | <b>ACCEPTANCE STANDARDS</b>  | n/a  |  |                 |

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| IWE-3510  | <p>Reconciled acceptance standards with the IWE-2300 changes discussed above and the Table IWE-2500-1 changes discussed below by:</p> <p>Adding the requirement in IWE-3510.1 that <i>The owner shall define acceptance criteria for visual examination of containment surfaces;</i></p> <p>Removing the wording for responsible individual and for personnel qualifications;</p> <p>Combined IWE-3510.2 and IWE-3510.3 and removed specific VT-1 and VT-3 examination attribute wording; and</p> | <p>Previously examination requirements were contained in the acceptance standards of IWE-3500. This section has been restructured by the addition of IWE-2300 as discussed above.</p> <p>This change directly corresponds to the addition of IWE-2310(a) discussed above.</p> <p>This change directly corresponds to the addition of IWE-2320 discussed above.</p> <p>These changes directly correspond to the addition of IWE-2310(e)(1) and (2) discussed above.</p> | See IWE-2310 | <p>Owner defined visual examination requirements do not provide uniformity and consistency industry wide. 1998 Code is unacceptable without specifics provided by licensee. Specifics have been provided by the licensee. – Acceptable</p> <p>Acceptable</p> |
|           | Incorporating IWE-3511;3513,3514 and 3515 with changes into IWE-3510.   | These changes correspond to the changes in the examination categories of Table IWE-2500-1 as discussed below and to the removal of examination requirements from the acceptance standards paragraphs per the addition of IWE-2310(e)(3) and (4) as discussed above.  |              | Acceptable   |

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|-----------|--|--|---|---|
|           | By the incorporation of 3515 the acceptance standards for bolting were changed from referencing material specs and torque or tension limits to conditions affecting leak tight or structural integrity.  | The resulting acceptance standards for bolting provide for more practical containment ISI program implementation without adversely affecting containment leak tight or structural integrity.   |   | The examination of bolting, seals and gaskets to determine their ability to maintain containment leak tight integrity as a separate inspection is considered unnecessary. The Appendix J, Type A test is considered sufficient for determining the leak-tight integrity of the penetration – Acceptable |
| IWE-3511  | Deleted subparagraph which addressed examination category E-B.   | Examination category E-B has been incorporated into examination category E-A per the changes to Table IWE-2500-1 discussed below.  | See IWE-1231  | Owner defined acceptance criteria do not provide consistency through out the industry. Therefore, the 1998 Code is unacceptable. NMP has provided those specifics. – Acceptable   |
| IWE-3512  | <p>Renumbered subparagraph to IWE-3511. Reconciled acceptance standards with the IWE-2300 changes discussed above and the Table IWE-2500-1 changes discussed below.</p> <p>Added the requirement that the owner shall define acceptance criteria for visual examination of containment surfaces.</p> | <p>The subparagraph was renumbered based on the deletion of previous IWE-3511 as discussed above. Previously examination requirements were contained in the acceptance standards of IWE-3500. This section has been restructured by the addition of IWE-2300 as discussed above.</p> <p>This change directly corresponds to the addition of IWE-2310(a) discussed above.</p> | For Examination Category E-C, Containment Surfaces Requiring Augmented Examination, ultrasonic examinations of metallic liners of Class CC pressure retaining components that detect material loss in a local area exceeding 10% of the nominal wall thickness, or material loss in a local area projected to exceed 10% of the nominal wall thickness prior to the next examination, shall be accepted by engineering evaluation or corrected by repair/replacement activities. Supplemental examinations shall be performed when specified as a result of the engineering evaluation. | Based on Regulatory requirements excluding containment welds, the elimination of any direct references to containment weld examinations in the Code – Acceptable  |

| <b>APPENDIX A -- NINE MILE POINT UNITS 1 AND 2 IWE COMPARISON TABLE</b> |   |   |                     |                 |
|---|---|---|---------------------|-----------------|
| <b>Paragraph</b>  | <b>Changes between IWE 1992 Edition/ 1992 Addenda and the 1998 Edition</b>  | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>  | <b>NMP Comments</b> | <b>Comments</b> |
|   | Combined 3512.2 and 3512.3 with changes into 3511.2 and removed specific VT-1 examination attribute wording; and<br><br>Reworded ultrasonic examination subparagraph. | These changes directly correspond to the addition of IWE-2310(e)(1) and (2) discussed above and eliminate potential duplication or contradiction of requirements.<br><br>This change is for clarity and is non-significant. |                     |                 |
| IWE-3513<br>IWE-3514<br>IWE-3515  | Deleted subparagraphs IWE-3513, IWE-3514, and IWE-3515 which addressed examination Categories E-D, E-F, and E-G respectively.   | Examination Categories E-D, E-F and E-G have been incorporated into Examination Category E-A per the changes to Table IWE-2500-1 discussed below.   | n/a                 |                 |
| IWE-4100  | No Change   | n/a   | n/a                 |                 |
| IWE-5200  | <b>SYSTEM TEST REQUIREMENTS</b>   |   |                     |                 |
| IWE-5210  | No Change   | n/a   | n/a                 |                 |
| IWE-5220  | ASME XI generic change from repair and or replacement to repair/replacement activities.   | Non significant   |                     | Acceptable      |
| IWE-5221  | ASME XI generic change from repair and or replacement to repair/replacement activities. Removed the quotation of 10 CFR 50 Appendix J paragraph IV.A.                 | Non significant - the requirement to meet the requirements of Appendix J paragraph referenced is not affected by removing the quoted App J paragraph.   | N/A                 |                 |
| IWE-5222  | ASME XI generic change from repair and or replacement to repair/replacement activities.   | Non significant   | n/a                 | Acceptable      |

| <b>APPENDIX A -- NINE MILE POINT UNITS 1 AND 2 IWE COMPARISON TABLE</b> |   |  |                     |   |
|---|---|--|---------------------|---|
| <b>Paragraph</b>  | <b>Changes between IWE 1992 Edition/ 1992 Addenda and the 1998 Edition</b>  | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>   | <b>NMP Comments</b> | <b>Comments</b>   |
| IWE-5240  | Replaced a reference to IWA 5240 with requirements to perform detailed visual examination of repair/replacement areas during pressure tests.                                    | The addition of specific IWE examination requirements during pressure testing in lieu of referencing IWA general requirements focuses requirements on issues specific to containment integrity and therefore provides added assurance of the integrity of repaired/replaced areas. |                     | Acceptable  |
| IWE-5250  | Changed Corrective Measures to Corrective Action in the heading. ASME XI generic change from repair and or replacement to repair/replacement activities. IWE-4000 now IWA-4000. | Non significant  | n/a                 | Acceptable  |
| IWE-7100  | No Change   | n/a  | n/a                 |   |
| <b>TABLE CHANGES</b>  |   |  |                     |   |
| Table IWE-2411-1  | No Change   | n/a  | n/a                 |   |
| Table IWE-2412-1  | Replaced the separate entries for 1 <sup>st</sup> and successive intervals with one entry for All intervals.  | Non significant - The previous requirements for the 1 <sup>st</sup> and successive intervals were identical. Therefore, combining the entries does not affect any requirements.  | n/a                 | Acceptable  |
| Table IWE-2500-1 Examination Category E-A                               | Revised all examination categories.<br><br>Item E1.11: Revised frequency of examination from "prior to each type A test" to "100%" during each period".                         | Removing the requirement to coordinate examinations with Type A tests allows for more efficient containment ISI program implementation without adversely affecting containment integrity.  | See IWE-2300        | Conservative change. Appendix J, Option A, requires periodic (one each period) Type A tests. Appendix J, Option B, is based on historical performance and requires periodic visual inspection for Type A tests – Acceptable |

**APPENDIX A -- NINE MILE POINT UNITS 1 AND 2 IWE COMPARISON TABLE**

| <b>Paragraph</b>   | <b>Changes between IWE 1992 Edition/ 1992 Addenda and the 1998 Edition</b>   | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>   | <b>NMP Comments</b> | <b>Comments</b>  |
|--|--|--|---------------------|--|
| Table IWE-2500-1<br><br>Examination Category E-A (con't) | Item E1.12: Redesignated item from "accessible surface areas" to "wetted surfaces of submerged areas". Replaced examination method VT-3 with general visual. | Replacing the accessible surface area designation (which is included in E1.11) with wetted surface areas (which were previously included in E1.12 footnote 4) does not eliminate or reduce any required examination areas. Requiring a general VT in lieu of a VT-3 eliminates the more detailed VT of areas with satisfactory general VT results. The performance of the general VT will identify any areas of deterioration or distress. Any areas identified will then be subject to a VT detailed examination to determine the magnitude and extent of those conditions. The general VT therefore, allows for more efficient containment ISI program implementation without adversely affecting containment integrity. |                     | The change to general visual removes the emphasis on containment welds. Acceptable with additional information provided by the licensee. |
|  | Item E1.20: Added BWR to item description. Replaced examination method VT-3 with general visual.   | BWR was added to clarify that this item only applies to BWR plants and change from VT-3 to general visual is as described above for Item E1.12.  |                     | The change to general visual removes the emphasis on containment welds. Acceptable with additional information provided by the licensee. |
|  | Item E1.30: Added item for moisture barriers with a general VT required each period.   | Moisture barriers were previously included in Examination Category E-D with a VT-3 required each interval. Examining moisture barriers more frequently will assure reliable detection of conditions adverse to containment quality   |                     | Acceptable   |
|  | All items no.'s - Replaced reference to IWE-3510 for examination requirements with IWE-2310.   | Non significant - Previously some examination requirements were contained in IWE-3500. They now exist in IWE-2300 as discussed above.  |                     | Acceptable   |

**APPENDIX A -- NINE MILE POINT UNITS 1 AND 2 IWE COMPARISON TABLE**

| <b>Paragraph</b>   | <b>Changes between IWE 1992 Edition/ 1992 Addenda and the 1998 Edition</b>  | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>   | <b>NMP Comments</b> | <b>Comments</b>   |
|--|---|--|---------------------|---|
| Table IWE-2500-1<br><br>Examination Category E-A (con't) | Notes – Revised to specifically include welds and bolting as part of the pressure retaining boundary requiring examination.                     | Welds and bolting were previously included in examination categories E-B, E-F and E-G. Including these items in the examination category for the containment pressure retaining boundary provides for more efficient program implementation. This change will not alter the level of quality or adversely affect the safety of the containment inspection program. |                     | Previous visual examination requirements included VT-1 and VT-3. 1998 Edition specifies general visual. This is a significant relaxation in Code requirements. 1998 Code is unacceptable without specifics provided by licensee. Acceptable with additional information provided by the licensee. |
| Table IWE-2500-1.<br>CAT. E-B                            | Deleted examination category which addressed pressure retaining welds.  | Pressure retaining welds are now included in Examination Category E-A as addressed above.  | See IWE-1231.       | 10 CFR 50.55a makes containment weld inspections optional – Acceptable  |
| Table IWE-2500-1<br><br>Examination Category E-C         | Item E4.11: Replaced examination method VT-1 with detailed visual.  | Referring to the visual examination by the VT detailed term does not adversely affect the integrity of the containment components examined. distress or deterioration which would be detected by a VT-1 are the same conditions that will be detected by a detailed visual exam, as defined in IWE 2300.   | See IWE-2310.       | Replaced VT-1 with detailed visual. 1998 Code is unacceptable without specifics provided by licensee. Acceptable with additional information provided by the licensee.  |
| Table IWE-2500-1<br><br>Examination Category E-C (con't) | Item E4.12: Added grid line intersections to description of parts examined. Changed examination method from volumetric to ultrasonic thickness. | The added wording clarifies inspection requirements and ensures repeatability in the location of subsequent thickness measurement points.  |                     | The recommended ultrasonic gridline sample requirements provide a more practical approach to augmented container examinations – Acceptable  |

**APPENDIX A -- NINE MILE POINT UNITS 1 AND 2 IWE COMPARISON TABLE**

| Paragraph                        | Changes between IWE 1992 Edition/ 1992 Addenda and the 1998 Edition  | Licensee's statement of significance and/or basis for use as an alternative examination   | NMP Comments   | Comments   |
|----------------------------------|--|---|--|--|
|                                  | All item no.'s - Added examination requirement paragraph number references. Updated acceptance standard references.  | Previously no references existed for examination requirements. These requirements have been added to IWE-2300 and -2500 as discussed above. Adding new references and updating paragraph numbers ensure proper requirements are applied to examinations.  |  | Acceptable   |
|                                  | Notes - Changed note 2 from requiring augmented examination until an area remains unchanged for three consecutive inspection periods to the next inspection period. Deleted note 3 which discussed inspection deferrals. | Three inspection periods cover a ten year interval. Performing augmented examinations for at least two periods while continuing general visual examinations each period provides for more efficient program implementation without adversely affecting component integrity. Deletion of note 3 is non-significant.  |  | Change from three consecutive periods to one period consistent with the requirements for Class 2 components – Acceptable |
| Table IWE-2500-1<br><br>CAT. E-D | Deleted examination category which addressed seals, gaskets and moisture barriers.   | Moisture barriers have been included in Examination Category E-A as addressed above. Seals and gaskets previously required examination once per an interval with effectively an acceptance criteria of leak tightness. Leak tight integrity is verified during each 10CFR50 App. J leak test. Removing these inspection items provides for more efficient program implementation without adversely affecting component integrity. | Moisture barriers will be examined by General Visual examination. Moisture barriers will be examined for tears, cracks or other damage that permits intrusion of moisture through the barrier. | Appendix J, Type A test considered sufficient for determining the leak-tight integrity. - Acceptable                     |
| Table IWE-2500-1<br>CAT. E-F     | Deleted examination category which addressed dissimilar metal welds.   | Dissimilar metal welds are now included in examination category E-A as addressed above.   | See IWE-1231.  | 10 CFR 50.55a makes containment weld inspections optional – Acceptable   |

**APPENDIX A -- NINE MILE POINT UNITS 1 AND 2 IWE COMPARISON TABLE**

| <b>Paragraph</b>             | <b>Changes between IWE 1992 Edition/ 1992 Addenda and the 1998 Edition</b>   | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>  | <b>NMP Comments</b>   | <b>Comments</b>   |
|------------------------------|--|---|---|---|
| Table IWE-2500-1<br>CAT. E-G | Deleted examination category which addressed pressure retaining bolting.   | Pressure retaining bolting is now included in Examination Category E-A as addressed above.  | Pressure retaining bolting will be examined by General Visual examination. The examination criteria will be developed from the VT-1 procedure that is used for ASME Code Class 1 bolting. | The INEEL assumes that criteria developed by the licensee includes examining for: nonaxial flaws greater than 1/4 inches in length; axial flaws greater than 1 inch in length; more than one deformed or sheared thread in the zone of thread engagement of bolts, studs or nuts; localized general corrosion that exceeds the thread root depth; bending, twisting or deformation of bolts or studs to the extent that assembly or disassembly is impaired; missing or loose bolts, studs, nuts or washers; fractured bolts, studs or nuts; degradation of protective coatings on bolting surfaces. Licensee's proposed alternative consistent with NRC staff position. Acceptable with additional information provided by the licensee. |
| Table IWE-2500-1<br>CAT. E-P | Deleted examination category which addressed 10CFR50 Appendix J testing for all pressure retaining components.   | Appendix J testing is mandated by plant technical specifications. Removing this duplicate requirement from IWE does not adversely affect component integrity.                             | n/a   | Acceptable  |
| Table IWE-2500-2             | Added new Table IWE-2500-2 - Ultrasonic Thickness Measurements For Augmented Examinations - which details gridding and thickness measurement requirements. | The new requirements provide for consistency and repeatability in obtaining thickness measurements and thus assure the reliable detection of conditions adverse to containment integrity. | n/a   | Acceptable  |
| Table IWE-3410-1             | Deleted table.   | Non significant - the contents of the previous table are adequately addressed in IWE-3500.  | n/a   | Acceptable  |

**APPENDIX B**  
**NINE MILE POINT, UNITS 1 AND 2**  
**IWE COMPARISON TABLE**

| <b>APPENDIX B -- NINE MILE POINT, UNITS 1 AND 2 IWL COMPARISON TABLE</b> |  |  |   |   |
|--|--|--|---|---|
| <b>Paragraph</b>   | <b>Changes between IWL 1992 Edition/ 1992 Addenda and the 1998 Edition</b>   | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>   | <b>NMP Comments</b>                               | <b>Disposition/Comments</b>   |
| IWL-1100   | ASME Section XI generic wording change from repair, replacement and or modification terms to repair/replacement activities.                                | Non significant  | none  | Acceptable  |
| IWL-1200   | No Change  | n/a  | n/a   |   |
| IWL-1210   | No Change  | n/a  | n/a   |   |
| IWL-1220   | No Change  | n/a  | n/a   |   |
| IWL-2100   | Changed "Inspection" to "General" in heading.  | Non significant  | none  | Acceptable  |
|  | (a) Provided reference to IWA-2000 with exceptions from IWA-2210 and - 2300 for visual examinations and for qualification of visual examination personnel. | (a) The additional general requirements invoked by reference to IWA-2000 where none were referenced previously further assure containment integrity. The exceptions from IWA-2210 and IWA-2300 are significant in that the related previous requirements have been changed and incorporated into IWL-2310. The IWL-2310 changes are addressed below. | See IWL-2310                                      | IWL examinations will not require the visual examinations identified in IWA-2100. Personnel will not have to be certified to CP-189 (IWA-2300). The 1998 Code unacceptable. Licensee has written practice meeting the requirements of SNT-TC-1A -- Acceptable |
|  | (b) Provided requirements for Authorized Nuclear Inservice Inspectors.   | Not addressed by licensee  | none  | Inspector responsibilities addressed in IWA - Acceptable  |
| IWL-2200   | No change  | n/a  | n/a   |   |
| IWL-2210   | No Change  | n/a  | n/a   |   |
| IWL-2220   | No Change  | n/a  | IWL-2220.2 is not applicable to NMP containments. |   |
| IWL-2230   | ASME Section XI generic change from repair and or replacement to repair/replacement activities.  | Non significant  | none  | Acceptable  |
| IWL-2300   | No change.   | n/a  | none  |   |

**APPENDIX B -- NINE MILE POINT, UNITS 1 AND 2 IWL COMPARISON TABLE**

| <b>Paragraph</b> | <b>Changes between IWL 1992 Edition/ 1992 Addenda and the 1998 Edition</b>   | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>   | <b>NMP Comments</b>  | <b>Disposition/Comments</b>   |
|------------------|--|--|--|---|
| IWL-2310         | (a) Replaced VT-1C and VT-3C visual examination terminology with new VT general and VT detailed examination terms. | <p>These changes are related to the IWL-2100 changes addressed above and are considered significant.</p> <p>(a) Containment examinations are intended to identify indications of significant conditions over large areas. The VT general examination is performed to indicate the general structural condition for determining concrete deterioration and distress. The VT detailed examination is performed to determine the magnitude and extent of the deterioration.</p> | <p>Containment visual examinations will be performed in accordance with procedures written specifically for the Containment ISI Program. Examiner qualification requirements for IWE will be VT-1 and VT-3 certification. Examiner qualification for IWL will be VT-1 and VT-3 with additional documented experience and/or training in concrete inspection. However, the containment visual examination procedure qualification requirements for lighting and resolution are similar to, and developed from, the procedures used for VT-1 and VT-3 examinations of ASME Code Class 1, 2 and 3 components. As such containment visual examination procedures will be demonstrated to the ANII for capability to detect the flaws and degradation levels defined within the procedures. In applications where remote visual examination systems are to be used, those systems will be demonstrated to have a resolution capability at least equivalent to that attainable by direct visual examination.</p> | <p>Open-ended, owner defined visual examination requirements do not provide uniformity and consistency industry wide. 1998 Code is unacceptable and proposed alternative cannot be found acceptable without specific details from the licensee. The 1998 Code is unacceptable Acceptable as supplemented by the licensee.</p> |

| <b>APPENDIX B -- NINE MILE POINT, UNITS 1 AND 2 IWL COMPARISON TABLE</b> |  |  |   |   |
|--|--|--|---|---|
| <b>Paragraph</b>   | <b>Changes between IWL 1992 Edition/ 1992 Addenda and the 1998 Edition</b>   | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>   | <b>NMP Comments</b>                             | <b>Disposition/Comments</b>   |
| IWL-2310<br>(con't)  | (b) Replaced reference to IWA-2210 for illumination levels, examination distances and resolution requirements with specific examination attributes.  | IWL-2310(c) defines the visual acuity requirements which will be accessed by the Responsible Engineer in the inspection plan. This is consistent with the rules in 10 CFR50.55a. |   | Specific illumination and resolution details from the licensee's program should be provided. The 1998 Code is unacceptable, Acceptable as supplemented by the licensee.   |
|  | (c) Replaced reference to IWA-2300 for concrete examination personnel qualification requirements with provisions for the owner to define the examination personnel qualification requirements. | The Responsible Engineer has accountability for personnel qualification, and all the requirements are contained within IWL.  |   | Consistency with existing ISI visual examination requirements could provide for an efficient internal program. However, open-ended, owner-defined visual examination requirements do not provide uniformity and consistency industry-wide. The 1998 Code is unacceptable. Acceptable as supplemented by the licensee. |
| IWL-2320   | Changed wording slightly.  | Non significant - clarifies wording.   | none  | Acceptable  |
|  | Made the ASME Section XI generic change from repair and or replacement to repair/replacement activities.   | Non significant  | none  | Acceptable  |
|  | Added a responsibility for the Responsible Engineer to review certain pressure test procedures.  | The added pressure test responsibilities for the Responsible Engineer ensures proper performance of pressure testing activities.   | none  | Acceptable  |
| IWL-2400   | No Change  | n/a  | n/a   |   |
| IWL-2410   | Added to (c) condition which allows for deferral of concrete visual exams to the next scheduled plant outage for inaccessible portions of concrete surface.                                    | Non significant  | none  | Acceptable  |
| IWL-2420   | No Change  | n/a  | IWL-2420 is not applicable to NMP containments. |   |

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| <b>Paragraph</b>                 | <b>Changes between IWL 1992 Edition/ 1992 Addenda and the 1998 Edition</b>   | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b> | <b>NMP Comments</b>                             | <b>Disposition/Comments</b> |
|----------------------------------|--|--|---|-----------------------------|
| IWL-2421                         | Changed wording for sites with more than one plant. Changed frequencies by adding "and every 10 years thereafter".   | Non significant - clarifies wording and accommodates plant life extensions.                    | IWL-2421 is not applicable to NMP containments. |                             |
| IWL-2500                         | No Change  | n/a  | n/a   |                             |
| IWL-2510<br><br>IWL-2510 (con't) | Changed heading.<br><br>Changed wording consistent with the changes to IWL-2310 addressed above.<br><br>Added two subparagraphs providing more detailed examination requirements for tendon anchorage areas. | Non significant.<br><br>Non significant.<br><br>Non significant.                               | IWL-2520 is not applicable to NMP containments. |                             |
| IWL-2520                         | No Change  | n/a  | IWL-2520 is not applicable to NMP containments. |                             |
| IWL-2521                         | No Change  | n/a  | IWL-2521 is not applicable to NMP containments. |                             |
| IWL-2522                         | Changed the heading and added a subparagraph to address tendon elongation.   | The added details ensure proper tendon examinations.   | IWL-2522 is not applicable to NMP containments. | Acceptable                  |
| IWL-2523                         | No Change  | n/a  | IWL-2523 is not applicable to NMP containments. |                             |
| IWL-2524                         | Eliminated the VT-1 exam and replaced it with the detailed visual exam described in IWL-2310 above.  | Non significant.   | IWL-2524 is not applicable to NMP containments. |                             |
| IWL-2525                         | Changed wording for sample analysis.   | Non significant.   | IWL-2525 is not applicable to NMP containments. | Acceptable                  |

**APPENDIX B -- NINE MILE POINT, UNITS 1 AND 2 IWL COMPARISON TABLE**

| <b>Paragraph</b> | <b>Changes between IWL 1992 Edition/ 1992 Addenda and the 1998 Edition</b>  | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b> | <b>NMP Comments</b>                             | <b>Disposition/Comments</b> |
|------------------|---|--|---|-----------------------------|
| IWL-2526         | Added a subparagraph addressing replacement of corrosion protection medium.   | The added details ensure tendon integrity. However, these changes do not apply to NMP.         | IWL-2526 is not applicable to NMP containments. | Acceptable                  |
| IWL-3100         | No Change   | n/a  | n/a   |                             |
| IWL-3110         | No Change   | n/a  | n/a   |                             |
| IWL-3111         | ASME Section XI generic change from repair and or replacement to replace/replacement activities.  | Non significant.   | n/a   | Acceptable                  |
| IWL-3112         | No Change   | n/a  | n/a   |                             |
| IWL-3113         | ASME Section XI generic change from repair and or replacement to replace/replacement activities.  | Non significant.   | n/a   | Acceptable                  |
| IWL-3120         | No change.  | Non significant.   | IWL-3120 is not applicable to NMP containments. |                             |
| IWL-3200         | No change.  | n/a  | n/a   |                             |
| IWL-3210         | Removed the word concrete from the heading.   | Non-significant.   | n/a   |                             |
| IWL-3211         | Added tendon end and anchorage areas to the scope of the subparagraph and added corrosion protection medium leakage and end cap deformation as acceptance criteria attributes.<br><br>ASME Section XI generic change from repair and/or replacement to repair/replacement activities. | n/a<br>Non-significant.  | IWL-3211 is not applicable to NMP containments. | Acceptable                  |
| IWL-3212         | No change.  | n/a  | n/a   |                             |
| IWL-3213         | ASME Section XI generic change from repair and/or replacement to repair/replacement activities.   | Non significant.   | n/a   |                             |

| <b>APPENDIX B -- NINE MILE POINT, UNITS 1 AND 2 IWL COMPARISON TABLE</b> |   |  |   |   |
|--|---|--|---|---|
| <b>Paragraph</b>   | <b>Changes between IWL 1992 Edition/ 1992 Addenda and the 1998 Edition</b>  | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>                   | <b>NMP Comments</b>                             | <b>Disposition/Comments</b>   |
| IWL-3220   | No Change   | n/a  | IWL-3220 is not applicable to NMP containments. |   |
| IWL-3221   | Added acceptance criteria attributes for tendon elongation, free water content and corrosion protection medium reduction. | The added details ensure proper tendon examinations.   | IWL-3221 is not applicable to NMP containments. |   |
| IWL-3222   | No Change   | n/a  | IWL-3222 is not applicable to NMP containments. |   |
| IWL-3223   | ASME Section XI generic change from repair and or replacement to replace/replacement activities.                          | Non significant.   | IWL-3223 is not applicable to NMP containments. |   |
| IWL-3300   | No Change   | n/a  | n/a   |   |
| IWL-3310   | Added applicability for other plants at the same site.  | Non significant.   | n/a   | Acceptable  |
|  | ASME Section XI generic change from repair and or replacement to replace/replacement activities.                          | Non significant.   | n/a   | Acceptable  |
| IWL-3320   | Deleted paragraph which addressed engineering evaluations being subject to review by authorities.                         | Non significant - there were no submittal or retention requirements changed by the deletion of the subparagraph. | n/a   | Acceptable. The Regulations do not require the licensees to submit their containment inspection programs. |
| IWL-4000   | ASME Section XI generic change from repair and or replacement to replace/replacement activities.                          | Non significant - all related repair and replacement requirements have been consolidated into IWL-4000.          | n/a   | Acceptable  |
| IWL-4100   | No Change   | n/a  | n/a   |   |

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| <b>Paragraph</b> | <b>Changes between IWL 1992 Edition/ 1992 Addenda and the 1998 Edition</b>  | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b> | <b>NMP Comments</b>                                | <b>Disposition/Comments</b> |
|------------------|---|--|--|-----------------------------|
| IWL-4110         | Exempted grease cups and installation screws from the scope.  | Non significant - the exempted items are non structural items.                                 | IWL-4110 (b) is not applicable to NMP containments | Acceptable                  |
|                  | ASME Section XI generic change from repair and or replacement to replace/replacement activities.  | Non significant.   | n/a  | Acceptable                  |
| IWL-4200         | ASME Section XI generic change from repair and/or replacement to replace/replacement activities.  | Non significant.   | n/a  | Acceptable                  |
|                  | Added a new paragraph -4210 to require Repair/Replacement Plans to be developed under the direction of a Responsible Engineer.  | The added requirements ensure proper repair/replacement plan development.                      | n/a  | Acceptable                  |
| IWL-4210         | Changed paragraph number to IWL-4220, removed the word repair from heading and changed referenced paragraph numbers consistent with the addition of a new paragraph IWL-4210 above. | Non significant  | n/a  | Acceptable                  |
|                  | Changed wording consistent with the changes to IWL-2310 addressed above.  | Non significant  | n/a  | Acceptable                  |
|                  | ASME Section XI generic change from repair and or replacement to replace/replacement activities.  | Non significant  | n/a  | Acceptable                  |
|                  | Changed repair material to new material in several places.  | Non significant  | n/a  | Acceptable                  |
| IWL-4220         | Changed paragraph number to IWL-4230.   | Non significant  | n/a  | Acceptable                  |
| IWL-4230         | Changed paragraph number to IWL-4240 and clarified by removing the word repair.   | Non significant.   | IWL-4230 is not applicable to NMP containments     | Acceptable                  |

**APPENDIX B -- NINE MILE POINT, UNITS 1 AND 2 IWL COMPARISON TABLE**

| <b>Paragraph</b> | <b>Changes between IWL 1992 Edition/ 1992 Addenda and the 1998 Edition</b>                                      | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>                 | <b>NMP Comments</b> | <b>Disposition/Comments</b> |
|------------------|---|--|---------------------|-----------------------------|
|                  | ASME Section XI generic change from repair and or replacement to replace/replacement activities.                | Non significant.   |                     | Acceptable                  |
|                  | Added detailed requirements for the contents of a repair/replacement plan.                                      | The added detailed requirements ensure proper repair/replacement plan development for post-tensioning systems. |                     | Acceptable                  |
| IWL-4300         | ASME Section XI generic change from repair and or replacement to replace/replacement activities.                | Non significant.   | N/a                 | Acceptable                  |
| IWL-5100         | ASME Section XI generic change from repair and or replacement to replace/replacement activities.                | Non significant.   | n/a                 | Acceptable                  |
| IWL-5200         | No Change   | n/a  | n/a                 |                             |
| IWL-5210         | ASME Section XI generic change from repair and or replacement to replace/replacement activities.                | Non significant.   |                     | Acceptable                  |
| IWL-5220         | No Change   | n/a  | n/a                 |                             |
| IWL-5230         | Changed wording by removing some specific IWE related requirements while maintaining the reference to IWE-5000. | Non significant - the removed wording was IWE specific and is contained in IWE-5000.                           | n/a                 | Acceptable                  |
| IWL-5240         | Deleted paragraph which addressed the scheduling of pressure tests.   | Non significant - the schedule of pressure tests are contained in IWE-5000 as referenced in IWL-5230.          | n/a                 | Acceptable                  |
| IWL-5250         | Changed wording regarding the role of the Responsible Engineer in pressure test activities.                     | The clarified role of the Responsible Engineer ensures proper pressure test procedures and examinations.       | n/a                 | Acceptable                  |
|                  | ASME Section XI generic change from repair and or replacement to replace/replacement activities.                | Non significant.   | n/a                 | Acceptable                  |

| <b>APPENDIX B -- NINE MILE POINT, UNITS 1 AND 2 IWL COMPARISON TABLE</b> |  |   |  |   |
|--|--|---|--|---|
| <b>Paragraph</b>   | <b>Changes between IWL 1992 Edition/ 1992 Addenda and the 1998 Edition</b>                       | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>          | <b>NMP Comments</b>  | <b>Disposition/Comments</b>   |
|  | Changed VT terminology consistent with the changes to IWL-2310 addressed above.                  | The VT terminology changes are discussed in IWL-2310 above.   | n/a  | Acceptable  |
| IWL-5260   | Changed heading from Corrective Measures to Correction Action.                                   | Non significant   | n/a  | Acceptable  |
|  | ASME Section XI generic change from repair and or replacement to replace/replacement activities. | Non significant   | n/a  | Acceptable  |
| IWL-5300   | ASME Section XI generic change from repair and or replacement to replace/replacement activities. | Non significant   | n/a  | Acceptable  |
| IWL-7000   | Deleted Article including IWL-7000, -7110, -7120 consistent with the IWL-4000 changes above.     | Non significant - all related repair and replacement requirements have been incorporated into IWL-4000. | n/a  | Acceptable  |
| Table IWL-2500-1   | Changed Item L1.11 from all areas to all accessible areas.                                       | Changing Item L1.11 provides for more practical examination implementation than previous requirements.  | In the 1992 Edition and Addenda, Item L1.12, Suspect Areas, requires VT-1C visual examination. In the 1998 Edition, this item requires general visual examination. This is an inadvertent change. The 1999 Addenda of the Code will correct it to be "detailed visual" examination. NMP will perform detailed visual examination of suspect areas as intended by the 1998 Edition of the Code. | Acceptable  |
|  | Changed VT exam method terminology consistent with the paragraph IWL-2310 changes above.         | The VT terminology changes are discussed in IWL-2310 above.   |  | Acceptable when details provided by the licensee. Acceptable as supplemented by the licensee. |

**APPENDIX B -- NINE MILE POINT, UNITS 1 AND 2 IWL COMPARISON TABLE**

| <b>Paragraph</b> | <b>Changes between IWL 1992 Edition/ 1992 Addenda and the 1998 Edition</b>  | <b>Licensee's statement of significance and/or basis for use as an alternative examination</b>    | <b>NMP Comments</b>                                     | <b>Disposition/Comments</b> |
|------------------|---|---|---|-----------------------------|
| Table IWL-2521-1 | Changed inspection periods to state every 5 <sup>th</sup> year in lieu of listing out each year and changed note 2 for having to meet acceptance criteria from "each of the earlier inspections" to "for the last 3 inspections". | Non significant - accommodates plant life extensions for tendon examinations.                     | Table IWL-2521-1 is not applicable to NMP containments. | Acceptable                  |
| Table IWL-2525-1 | Added optional test methods for corrosion protection medium analysis.   | Non significant - additional test method options provides for more practical test implementation. | Table IWL-2521-1 is not applicable to NMP containments. | Acceptable                  |

**APPENDIX C**  
**NINE MILE POINT SUPPLEMENTS TO 1998 CODE**

| <b>APPENDIX C<br/>NMP SUPPLEMENTAL INFORMATION TO THE 1998 CODE EDITION</b>   |   |                                       |
|---|---|---------------------------------------|
| <b>Initial 1998 Code Proposed Alternative</b>   | <b>Supplemented Proposed Alternative</b>  | <b>Recommendations/Comments</b>       |
| IWE-2310 - "Visual Examinations"- a) the owner shall define requirements for visual examination of containment surfaces.                      | Specific details provided by licensee as stated above.  | Authorize per 10 CFR 50.55a(a)(3)(i). |
| IWE-2330 - "Personnel Qualification" - a) the owner shall define the qualification requirements for personnel performing visual examinations. | NMPC visual examination personnel are qualified to a program meeting SNT-TC-1A (1984). Personnel are certified to a corresponding level as a VT-1 and/or VT-3 examiner. This is the same process used for certification of ISI visual examination personnel. It is NMPC's position that VT-3 qualified personnel are certified to perform the General examination and VT-1 personnel will perform the Detailed examination required by Subsections IWE and IWL.   | Authorize per 10 CFR 50.55a(a)(3)(i). |
| IWE-2500 - Deleted the requirement to examine paint or coatings prior to removal.   | Accessible surfaces (including coated surfaces) receive periodic visual examination. The acceptance criteria include criteria for the examination of coated surfaces. Coated surface conditions (i.e., blistering, chalking, checking, chipping, cracking, delamination, discoloration, undercutting, etc.) indicating pressure boundary degradation will be evaluated. If coating is removed to perform visual examinations, coatings will be reapplied under appropriate plant coatings requirements. Steps have been added to the maintenance rule manual to notify the Containment Inservice Inspection (CISI) program owner when degradation of the containment liner or coating is observed. This provides assurance that examinations of the containment pressure boundary are performed prior to removal of coatings by mechanical means (i.e., power tools) that could remove evidence of surface degradation and prior to reapplication of the coating. | Authorize per 10 CFR 50.55a(a)(3)(i). |
| IWE-3510.1 and IWE -3511.1 - The owner shall define acceptance criteria for visual examination of containment surfaces.                       | Provided in April 7, 2000, submittal  | Authorize per 10 CFR 50.55a(a)(3)(i). |
| Table IWE-2500-1 - Notes - Revised to include welds and bolting as part of the pressure retaining boundary requiring examination.             | See criteria defined in IWE-2310 above.   | Authorize per 10 CFR 50.55a(a)(3)(i). |
| Table IWE-2500-1, Examination Category E-C - Visible surfaces requiring an augmented examination receive a Detailed Visual Exam.              | Detailed Visual exam criteria developed from VT-1 and VT-3 procedures   | Authorize per 10 CFR 50.55a(a)(3)(i). |

**APPENDIX C  
NMP SUPPLEMENTAL INFORMATION TO THE 1998 CODE EDITION**

| <b>Initial 1998 Code Proposed Alternative</b>   | <b>Supplemented Proposed Alternative</b>  | <b>Recommendations/Comments</b>      |
|---|---|--------------------------------------|
| IWL-2310 - Replaced VT-1C and VT-3C visual examinations with General Visual and Detailed Visual Examinations and removed reference to visual examination procedure qualification. | Examiner qualification for IWL will be VT-1 and VT-3 with additional documented experience and/or training in concrete inspection. Acceptance criteria were developed from ACI standards 201.1-R92 and 349.3-R96. | Authorize per 10 CFR 50.55a(a)(3)(i) |