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PG&E Letter DCL-00-047

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

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Inservice Inspection Relief Requests for Containment

Dear Commissioners and Staff:

By Federal Register notice dated August 8, 1996, the U.S. Nuclear Regulatory Commission (NRC) amended 10 CFR 50.55a, Codes and Standards, to incorporate by reference Subsections IWE and IWL of the 1992 Edition and Addenda of Section XI to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. Subsections IWE and IWL provide the inservice inspection requirements for Class MC (metallic containments), respectively. The containments for Pacific Gas and Electric Company (PG&E) Units 1 and 2, are reinforced concrete designed in accordance with applicable subsections of the ASME Code, Section III, and American Concrete Institute ACI 318. The inside face of the containment is lined with steel plates which are welded to form a leak-tight barrier. The new rule of both Subsection IWE and IWL apply to the Diablo Canyon Power Plant containment structures.

Pursuant to 10 CFR 50.55a(g)(5)(iii), enclosed are Inservice Inspection (ISI) Relief Requests (RRs) #CNT-E1, #CNT-E2, #CNT-E3, #CNT-E4, #CNT-E5, and #CNT-L1 regarding containment examination requirements. These RRs were developed in conjunction with industry utilities participating in the "Electric Power Research Institute IWE/IWL Tailored Collaboration Project." These RRS are similar to the "standard" RRs developed regarding IWE and IWL, and are similar to those previously approved for Vogtle Electric Generating Plant (Docket Nos. 50-424 and 50-425, approved October 19, 1999).

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PG&E requests that the NRC assign a medium priority and approve these RRs prior to their potential need during containment structure examinations performed during the Unit 1 tenth refueling outage, which is currently scheduled to begin October 1, 2000.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence F. Womack". The signature is fluid and cursive, with the first name "Lawrence" and last name "Womack" clearly distinguishable.

Lawrence F. Womack

cc: Steven D. Bloom
Ellis W. Merschoff
David L. Proulx
State of California
Diablo Distribution

Enclosures

DDM/469/A0502111

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-E1

System/Component for Which Relief is Requested

This relief request applies to the following components which incorporate seals and gaskets as the containment pressure boundary:

- Electrical penetrations fitted with seal assemblies
- Air lock door seals, including door operating mechanism penetrations which are part of the containment pressure boundary
- Containment penetrations whose design incorporates resilient seals, gaskets, sealant compounds or flexible metal seal assemblies
- Doors with resilient seals or gaskets except for seal-welded doors

ASME Section XI Code Requirements for which Relief is Requested

Seals and gaskets of Class MC pressure retaining components, Examination Category E-D, Item Nos. E5.10 and E5.20 of Table IWE-2500-1, ASME B&PV Code, Section XI, 1992 Edition with 1992 Addenda, as amended by 10 CFR 50.55a.

Table IWE-2500-1 requires that seals and gaskets on airlocks, hatches, and other devices receive a VT-3 visual examination once each interval to ensure containment leak-tight integrity.

Code Requirement from Which Relief is Requested

Relief is requested from performing the Code-required VT-3 visual examination of the seals and gaskets on airlocks, hatches, and other devices including penetrations.

Basis for Relief Request

Practical VT-3 visual examination considerations of these seals and gaskets would require the joints to be disassembled, since many of the surfaces of seals and gaskets are normally inaccessible. The ASME Code Committee recognized that disassembly of the joints to perform visual examinations was not warranted, and the 1998 Edition of ASME Section XI removed the examination requirement. The proposed alternate examination (Appendix J, Option B) provides a periodic, non-intrusive test method which will ensure that the integrity of the seals and gaskets is being maintained.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-E1

Basis for Relief Request (continued)

As noted in 10 CFR 50 Appendix J, the purpose of the testing is to ensure that leakage of containment penetrations whose design incorporates resilient seals, gaskets, sealant compounds, and electrical penetrations fitted with seal assemblies remains below established limits. Damage to seals or gaskets, which could affect containment integrity, is best detected with this type of test and will be performed as follows:

- **Electrical Penetrations And Containment Penetrations Whose Design Incorporates Resilient Seals, Gaskets, Or Sealant Compounds:**

Those penetrations that are not disassembled during the 10-year interval will receive an Appendix J, Option B test at least once in the 10-year interval. For those penetrations that are disassembled or opened, an Appendix J test is required upon final assembly (prior to start-up). Additionally, if a seal (including O-rings) or gasket is replaced, it will be visually inspected by maintenance personnel before re-assembly or closure. These tests and inspections will assure the leak tightness of primary containment and provide an acceptable level of quality and safety.

- **Airlocks and the Containment Equipment Hatch:**

The personnel airlocks are opened as needed for routine operations access and during refueling outages. Prior to final closure, the accessible portions of gaskets and the door sealing faces are inspected for damage that could affect the leak tightness of the seal. If gasket replacement is necessary, the new gasket will be visually inspected by maintenance personnel before reassembly or closure. Door seals will be Appendix J tested in accordance with Technical Specification requirements within seven days of opening and once every 30 days during periods of frequent opening.

The Containment Equipment Hatch is normally removed during refueling outages. If gasket replacement is necessary, the new gasket will be visually inspected by maintenance personnel before reassembly or closure. Prior to establishing containment integrity following the refueling outage, the containment equipment hatch is leak rate tested in accordance with Appendix J.

These tests and inspections will assure the leak tightness of primary containment and provide an acceptable level of quality and safety.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-E1

Proposed Alternative

The leak-tightness of the seals and gaskets identified above will be tested in accordance with 10 CFR 50, Appendix J. If a seal or gasket becomes visually accessible, it will be visually inspected by maintenance personnel before reassembly or closure and 10 CFR 50, Appendix J leakage testing.

Justification for Granting of Relief

The integrity of the containment penetration seals and gaskets (including those of electrical penetrations) will continue to be verified during the Type B testing as required by 10 CFR 50, Appendix J. Proving the integrity of the seals and gaskets through Type B testing provides an acceptable alternative to the Code requirements. The alternative examinations are adequate to ensure the integrity of the subject seals and gaskets and will provide an acceptable level of quality and safety in accordance with 10 CFR 50.55a(a)(3)(i).

Implementation Schedule

The alternative examination will be performed in Units 1 and 2, as conditions warrant, beginning with the first inspection interval for ASME Section XI Code, Subsection IWE-classified components that commenced prior to the end of the first inspection period (September 8, 2001).

This is a new request based on the NRC Final Rule (10 CFR 50.55a), issued on August 8, 1996.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-E2

System/Component for Which Relief is Requested

Class MC metallic components.

ASME Section XI Code Requirements for which Relief is Requested

ASME Section XI, 1992 Edition, 1992 Addenda, IWE-2420(b) states: "When component examination results require evaluation of flaws, areas of degradation, or repairs in accordance with IWE-3000, and the component is found to be acceptable for continued service, the areas containing such flaws, degradation, or repairs shall be reexamined during the next inspection period listed in the schedule of the inspection program of IWE-2411 or IWE-2412, in accordance with Table IWE-2500-1, Examination Category E-C."

Code Requirement from Which Relief is Requested

Relief is requested from the reexamination requirement after repair during the next inspection period.

Basis for Relief Request

The purpose of a repair is to restore the component to an acceptable condition for continued service in accordance with the acceptance standards of IWE-3000. When making repairs, IWA-4150 requires the owner to conduct an evaluation of the suitability of the repair including consideration of the cause of failure.

Repairs are performed in accordance with IWA-4000, the intent of which is to use the construction code to restore the component to its original condition where practical. If a repair has restored the component to an acceptable condition, successive examinations are not warranted. If the repair was not suitable, then the repair does not meet code requirements and the component is not acceptable for continued service; further repair work would be necessary. No similar requirement is found for Class 1, 2, or 3 ASME Section XI repairs. Conducting successive examinations on components that have been repaired would result in hardship without a compensating level of quality and safety. In addition, if the repair area is subject to accelerated degradation, the repair would still require augmented examination in accordance with Table IWE-2500-1, Examination Category E-C.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-E2

Proposed Alternative

Repairs will be performed in accordance with IWA-4000, to restore the component to an acceptable condition. Successive examinations as required by IWE-2420(b) will not be performed; however, successive examinations will continue to be done on those flaws or areas of degradation which have been accepted for continued service by evaluation.

Justification for Granting of Relief

Repairing components to restore the component to an acceptable condition provides adequate assurance of the integrity of the repair. Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, in accordance with 10 CFR 50.55a(a)(3)(ii).

Implementation Schedule

The alternative examination will be performed in Units 1 and 2, as conditions warrant, beginning with the first inspection interval for ASME Section XI Code, Subsection IWE-classified components that commenced prior to the end of the first inspection period (September 8, 2001).

This is a new request based on the NRC Final Rule (10 CFR 50.55a) issued on August 8, 1996.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-E3

System/Component for Which Relief is Requested

Class MC (Metallic Containment) pressure-retaining bolting associated with the following components:

- Bolted flanges on containment airlocks
- Bolted flanges on small piping penetrations
- Bolted flanges on electrical penetrations

ASME Section XI Code Requirements for which Relief is Requested

ASME Section XI, 1992 Edition, 1992 Addenda, Table IWE-2500-1, Examination Category E-G, Pressure-retaining Bolting, item E8.20, requires bolt torque or tension testing on bolted connections that have not been disassembled and reassembled during the inspection interval.

Code Requirement from Which Relief is Requested

Relief is requested from performing the Code-required bolt torque or tension testing on Class MC pressure-retaining bolting.

Basis for Relief Request

ASME Section XI, 1992 Edition, 1992 Addenda requires bolt torque or tension testing on IWE bolted connections that have not been disassembled and reassembled during the inspection interval, but does not require similar tests on any other ASME Section XI Class 1, 2, or 3 bolted connections. This type of testing was removed from the 1998 ASME Section XI Code.

Bolted flanges on containment airlocks and bolted flanges on small piping penetrations each receive a 10 CFR Part 50, Appendix J, leak-rate test. The performance of the 10 CFR Part 50, Appendix J test itself proves that the bolt torque or tension remains adequate to provide a leak-rate that is within acceptable limits. The torque or tension value of bolts only becomes an issue if the leak-rate is excessive. Once a bolt is torqued or tensioned, it is not subject to dynamic loading that could cause it to experience significant change. Appendix J testing and visual inspection is adequate to demonstrate that the design function is met.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-E3

Proposed Alternative

The following examinations and tests required by Subsection IWE ensure the structural integrity and the leak-tightness of Class MC pressure-retaining bolting, and, therefore, no additional alternative examinations are proposed:

- (1) Accessible, exposed surfaces of bolted connections shall be visually examined (VT-1) in accordance with the requirements of Table IWE-2500-1, Examination Category E-G, Pressure-retaining Bolting, item no. E8.10, and
- (2) Bolted connections shall meet the pressure test requirements of Table IWE-2500-1, Examination Category E-P, All Pressure-retaining Components (10 CFR 50, Appendix J, leak-rate test).

Justification for Granting of Relief

The above examinations provide adequate assurance of the integrity of Class MC pressure-retaining bolting that is not improved by torque or tension testing. Therefore the proposed alternative provides an acceptable level of quality and safety in accordance with 10 CFR 50.55a(a)(3)(i).

Implementation Schedule

The alternative examination will be performed in Units 1 and 2, as conditions warrant, beginning with the first inspection interval for ASME Section XI Code, Subsection IWE-classified components that commenced prior to the end of the first inspection period (September 8, 2001).

This is a new request based on the NRC Final Rule (10 CFR 50.55a) issued on August 8, 1996.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-E4

System/Component for Which Relief is Requested

All Class MC (Metallic Component), Subarticle IWE-2200(g), preservice examination requirements of reapplied painted or coated containment.

ASME Section XI Code Requirements for which Relief is Requested

Subsection IWE-2600(b) of ASME Section XI, 1992 Edition, 1992 Addenda, requires that reapplied paint and coating systems shall be examined in accordance with IWE-2200(g). IWE-2200(g) requires that when paint or coatings are reapplied, the condition of the new paint or coating shall be documented in the preservice examination records.

Code Requirement from Which Relief is Requested

Relief is requested from the requirement to perform a preservice inspection of new paint or coatings.

Basis for Relief Request

The paint and coatings on the containment pressure boundary were not subject to Code rules when they were originally applied and are not subject to ASME Section XI rules for repair or replacement in accordance with IWA-4111(b)(5). The Diablo Canyon Power Plant (DCPP) coating program, which is applied and inspected in accordance with a quality assurance program which meets the requirements of 10 CFR 50, Appendix B, verifies the adequacy of applied coatings. Recording the condition of reapplied coating in the preservice record does not substantiate the containment structural integrity. However, PG&E acknowledges that the quality and integrity of coatings applied is relevant to the containment's functional integrity. This assurance is best accomplished by visually inspecting the coating, which is accomplished through the DCPP Qualified Coatings Program. Should deterioration of the coating in the reapplied area occur, the area would require additional evaluation regardless of the preservice record. Recording the condition of new paint or coating in the preservice records does not increase the level of quality and safety of the containment.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-E4

Basis for Relief Request (continued)

In NRC SECY 96-080, dated April 17, 1996, the Commission responded to Comment 3.2, which involves IWE-2200(g), by stating, "In the NRC's opinion, this does not mean that a visual examination must be performed with every application of paint or coating. A visual examination of the topcoat to determine the soundness and the condition of the topcoat should be sufficient."

The visual examination is currently accomplished through the DCPD Qualified Coatings Program.

Proposed Alternative

The reapplied paint and coatings on the containment vessel will be examined in accordance with the DCPD Qualified Coatings Program. If degradation of the coating is identified, additional measures will be applied to determine if the containment pressure boundary is affected. Although repairs to paint or coatings are not subject to the repair/replacement rules of ASME Section XI (ref. Code Interpretation XI-1-98-14), repairs to the primary containment boundary, if required, would be conducted in accordance with ASME Section XI Code rules.

Justification for Granting of Relief

Coating inspection programs at DCPD currently restore the coating to its original condition thereby providing adequate assurance of the integrity of the coating. Therefore the proposed alternative provides an acceptable level of quality and safety in accordance with 10 CFR 50.55a(a)(3)(i).

Implementation Schedule

The alternative examination will be performed in Units 1 and 2, as conditions warrant, beginning with the first inspection interval for ASME Section XI Code, Subsection IWE-classified components that commenced prior to the end of the first inspection period (September 8, 2001).

This is a new request based on the NRC Final Rule (10 CFR 50.55a) issued on August 8, 1996.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-E5

System/Component for Which Relief is Requested

All visual examinations of painted or coated containment components prior to removal of paint or coatings.

ASME Section XI Code Requirements for which Relief is Requested

Subarticle IWE-2500(b) of ASME Section XI, 1992 Edition, 1992 Addenda, requires that when paint or coatings are to be removed, the paint or coatings shall be visually examined in accordance with Table IWE-2500-1 prior to removal.

Code Requirement from Which Relief is Requested

Relief is requested from Subarticle IWE-2500(b), which requires that when paint or coatings are to be removed, the paint or coatings shall be visually examined in accordance with Table IWE-2500-1 prior to removal.

Basis for Relief Request

Paint and coatings are not part of the containment pressure boundary under current Code rules because they are not associated with the pressure-retaining function of the component. The interiors of containment are painted to prevent corrosion and to aid in contamination removal efforts. Paint and coatings on the containment pressure boundary were not subject to Code rules when they were originally applied and are not subject to ASME Section XI rules for repair or replacement in accordance with IWA-4111(b)(5). Deterioration of the paint or coating materials, e.g., flaking, scaling, etc., on containment would be an indicator of potential degradation of the containment pressure boundary. Additional measures would be employed to determine the nature and extent of any degradation, if present. The application of ASME Section XI rules for removal of paint or coatings when unrelated to an ASME Section XI repair or replacement activity, does not provide a compensating increase in the level of quality and safety.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-E5

Proposed Alternative

The paint and coatings on the containment vessel will be examined in accordance with the Diablo Canyon Power Plant (DCPP) Qualified Coatings Program. If degradation of the coating is identified, additional measures will be applied to determine if the containment pressure boundary is affected. Although repairs to paint or coatings are not subject to the repair/replacement rules of ASME Section XI based on the Code's response to Inquiry 97-22, repairs to the primary containment boundary, if required, would be conducted in accordance with ASME Section XI Code rules.

Justification for Granting of Relief

Coating inspection programs at DCPP currently restore the coating to its original condition thereby providing adequate assurance of the integrity of the coating. Therefore the proposed alternative provides an acceptable level of quality and safety in accordance with 10 CFR 50.55a(a)(3)(i).

Implementation Schedule

The alternative examination will be performed in Units 1 and 2, as conditions warrant, beginning with the first inspection interval for ASME Section XI Code, Subsection IWE-classified components that commenced prior to the end of the first inspection period (September 8, 2001).

This is a new request based on the NRC Final Rule (10 CFR 50.55a) issued on August 8, 1996.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-L1

System/Component for Which Relief is Requested

The exterior concrete portion of Diablo Canyon Power Plant (DCPP) Units 1 and 2 containment buildings.

ASME Section XI Code Requirements for which Relief is Requested

ASME Code, Section XI, 1992 Edition, 1992 Addenda, paragraph IWL-2310, "Visual Examination and Personnel Qualification," and IWA-2210, "Visual Examinations," require specific minimum illumination and maximum direct examination distance for all concrete surfaces and maximum procedure demonstration lower case character height. The concrete portion of the containment buildings at DCPP Units 1 and 2 are subject to the rules and requirements for inservice inspection of Class CC components, Examination Category L-A, Concrete, item L1.11, as applicable to IWL-2310, "Visual Examination and Personnel Qualification," and IWA-2210, "Visual Examinations."

Code Requirement from Which Relief is Requested

Relief is requested from the IWL-2310 requirement to use the minimum illumination, maximum direct examination distance, and maximum procedure demonstration lower case character height specified in IWA-2210 and Table IWA-2210-1 for VT-3 examinations, when performing visual examinations (VT-3C) of the concrete containment surface.

Basis for Relief Request

The VT-3 requirements specified in IWA-2210 and Table IWA-2210-1 were developed for the examination of components such as Class 1 pump and valve bodies, the Class 1 reactor pressure vessel interior, Class 3 welded attachments, and Class 1, 2, and 3 supports. VT-3 examinations are conducted to determine the general mechanical and structural condition of components and their supports by verifying parameters such as clearances, settings, and physical displacements. Additionally, VT-3 examinations are conducted to detect discontinuities and imperfections, such as loss of integrity at bolted or welded connections, loose or missing parts, debris, corrosion, wear, or erosion. For these Class 1, 2, and 3 components, small amounts of corrosion/erosion or small crack-like surface flaws may be detrimental to the structural integrity of the component.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-L1

Basis for Relief Request (continued)

The existing 1989 Code rules which do not incorporate this level of detail have proven fully adequate to detect such relevant conditions in Class 1, 2 and 3 components and continue to be universally implemented for these examinations. However, it was recognized by the industry and the NRC during the development of the implementing rules in 10 CFR 50.55a that IWA-2210 and Table IWA-2210-1 requirements were excessively stringent for the IWE-required examination of the metal portion of the containment. Therefore, the NRC changed the requirements to allow that "When performing remotely the visual examinations required by Subsection IWE, the maximum direct distance specified in Table IWA-2210-1 may be extended and the minimum illumination requirements specified in Table IWA-2210-1 may be decreased provided that the conditions or indications for which the visual examination is performed can be detected at the chosen distance and illumination."

PG&E has concluded that the use of the VT-3 requirements found in IWA-2210 and Table IWA-2210-1 when performing VT-3C examinations of the concrete surfaces is excessively stringent and should not be applied. This is based on the recognition that due to the nature of concrete, a concrete containment will have numerous, small "shrinkage-type" surface cracks or other imperfections that are not detrimental to the structural integrity of the containment. The application of IWA-2210 and Table IWA-2210-1 "minimum illumination requirements," "maximum direct visual examination distance requirements," and "maximum procedure demonstration lower case character height requirements," to attempt to identify these small "shrinkage-type cracks" or other imperfections is considered to be unnecessary and could result in a large number of manhours erecting scaffolding, using lifts, evaluating insignificant indications, etc.

Per the requirements of IWL-2320, the Registered Professional Engineer (RPE) is experienced in evaluating the inservice condition of structural concrete and is knowledgeable of the design and Construction Codes and other criteria used in design and construction of concrete containments. The RPE will use experience and training to determine the necessary examination distance and illumination to detect the conditions or indications for which the visual examination is performed. It is anticipated that most examinations will be conducted outside in daylight with or without optical aids such as binoculars. The procedures and equipment used will be demonstrated to the satisfaction of the Authorized Nuclear Inservice Inspector for the examination of concrete surfaces.

INSERVICE INSPECTION (ISI) RELIEF REQUEST #CNT-L1

Basis for Relief Request (continued)

The visual examinations will be performed in sufficient detail to identify areas of concrete deterioration and distress, such as defined in American Concrete Institute ACI 201.1.

Proposed Alternative

VT-3C examinations will be performed as required by IWL-2310 except that instead of using the minimum illumination, maximum direct examination distance, and maximum procedure demonstration lower case character height requirements specified in IWA-2210 and Table IWA-2210-1 for VT-3 examinations, the recommendations of the RPE for illumination and distance, as described above, will be implemented.

Justification for Granting of Relief

Section XI relies on the knowledge and experience of the RPE as a key element for an IWL visual inspection program. Examining the concrete surfaces using distances and illumination requirements, established by a knowledgeable RPE, would provide for detection of flaws of sufficient size to assure that the structural integrity of the concrete containment is being maintained. The proposed alternative provides an acceptable level of quality and safety in accordance with 10 CFR 50.55a(a)(3)(i).

Implementation Schedule

The alternative examination will be performed in Units 1 and 2, as conditions warrant, beginning with the first inspection interval for ASME Section XI Code, Subsection IWL-classified components that commenced prior to the end of the first inspection period (September 8, 2001).

This is a new request based on the NRC Final Rule (10 CFR 50.55a) issued on August 8, 1996.

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Subject: Inservice Inspection Relief Requests for Containment

Commitment #1 No new PCD commitments were identified.

Note: This submittal satisfies A0502111, requirement to submit containment relief requests. (also see reference AR A0474306)

Description: