



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 17, 2011

Mr. Michael J. Pacilio
President and Chief Nuclear Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION, UNIT NO. 1 – RELIEF REQUESTS (RRs) 4216, 4217, 4218, 4219, 4220, 4221, AND 4222 REGARDING EXAMINATION COVERAGE FOR THE SECOND 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL (TAC NOS. ME4183, ME4184, ME4185, ME4186, ME4187, ME4188 AND ME4189)

Dear Mr. Pacilio:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated July 1, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML101870190), as supplemented by letter dated February 1, 2011 (ADAMS Accession No. ML110320387), Exelon Generation Company, LLC (EGC, the licensee), submitted RRs 4216, 4217, 4218, 4219, 4220, 4221, and 4222 for the second 10-year ISI interval for the Clinton Power Station (CPS), Unit No. 1. The reliefs requested approval to use proposed alternatives to the 1989 Edition of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," with no addenda on the basis that compliance with the specified examination coverage requirements is impractical due to the CPS design.

The details of the NRC staff review is included in the enclosed safety evaluation. The NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in Title 10 of the *Code of Federal Regulations*, Section 50.55a(g)(6)(i).

Therefore, the NRC staff grants relief for the examinations of the components contained in the RRs for CPS for the second 10-year ISI.

Sincerely,

A handwritten signature in black ink, appearing to read "Jacob I. Zimmerman".

Jacob I. Zimmerman, Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
ON THE SECOND 10-YEAR INTERVAL INSPECTION PROGRAM
RELIEF REQUESTS 4216, 4217, 4218, 4219, 4220, 4221, AND 4222
EXELON GENERATION COMPANY, LLC
CLINTON POWER STATION, UNIT NO. 1
DOCKET NO. 50-461

1.0 INTRODUCTION

By letter to the U.S. Nuclear Regulatory Commission (NRC, the Commission) dated July 1, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML101870190), as supplemented by letter dated February 1, 2011 (ADAMS Accession No. ML110320387), Exelon Generation Company, LLC (EGC, the licensee), submitted relief requests (RRs) 4216, 4217, 4218, 4219, 4220, 4221, and 4222 for the second 10-year Inservice Inspection (ISI) Interval for the Clinton Power Station (CPS), Unit No. 1. The reliefs requested approval to use proposed alternatives to the 1989 Edition of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," with no addenda on the basis that compliance with the specified examination coverage requirements is impractical due to the CPS design.

The RR's were requested for the residual heat removal (RHR) pump 'A' casing weld (RHR-A-2), the reactor pressure vessel (RPV) head-to-flange weld (CH-C-2), the RPV shell-to-flange weld (RVP-C5), 20 RPV nozzle-to-shell welds, 10 percent of the peripheral RPV control rod drive housing (CRDH) pressure retaining welds, the piping integrally welded attachments (1-MS-B-1) and (1-MS-D-10), and the reactor core isolation cooling (RCIC) pump (RCIC-1A-(1-4)) integrally welded attachment. All of these welds fall under the requirements of the 1989 Edition of the ASME Code with no addenda. The second 10-year ISI Interval for CPS ended on June 30, 2010.

2.0 REGULATORY EVALUATION

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(g)(4), ASME Code Class 1, 2 and 3, components (including supports) must meet the requirements, except for the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that the ISI of components and system pressure tests conducted during the first 10-year intervals and subsequent intervals to comply with the requirements in the latest edition and addenda of Section XI of the ASME Code, which was incorporated by reference in 10 CFR 50.55a(b), 12-months prior to the start of the 120-month interval. The ASME Code of record for CPS is the 1989 Edition of the ASME Code, Section XI, with no addenda. Accordingly, the ASME Code

Enclosure

Case N-460, approved unconditionally in Regulatory Guide 1.147, Revision 16, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," allows that "a reduction

in examination coverage for any Class 1 or Class 2 weld may be acceptable provided that the reduction in coverage for that weld is less than 10%."

Section 50.55a(g)(6)(i) of 10 CFR states that "the Commission will evaluate determinations under paragraphs (g)(5) of this section that code requirements are impractical. The Commission may grant such relief and may impose such alternative requirements as it determines is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility."

3.0 TECHNICAL EVALUATION

The NRC staff has evaluated the information provided by EGC in support of the request for relief from, or alternative to, the ASME Code requirements and the bases for disposition are documented below.

A number of the subject welds had received examination relief from the NRC staff for the first 10-year ISI interval, specifically, those called out in RRs 4216, 4217, 4218, 4219, and 4222. As a group, these subject welds were examined with at least equal, and mostly greater, degree of coverage in the second 10-year ISI interval than in the first 10-year ISI interval. The licensee indicated in the letter dated February 1, 2011, that all examinations had already been performed for the second 10-year ISI interval.

3.1 Relief Request (RR)-4216: Residual Heat Removal (RHR) Pump "A" Casing Weld (RHR-A-2)

3.1.1 ASME Code Requirement

ASME Code, Section XI, Table IWC-2500-1, Item No. C6.10, component examinations require a surface examination of the pump casing welds. The extent of the examination is "100% welds in all components." ASME Code Case N-460 states that 90 percent coverage is adequate to meet the ASME Code requirement.

3.1.2 System/Component for which Relief is Requested

The licensee requested relief from examining the required 100 percent inspection coverage of the ASME Code requirements of the RHR pump "A" (RHR-A-2) casing weld.

3.1.3 Licensee's Basis for Relief Request

The licensee stated that:

A permanently installed instrument line interferes with the surface examination of this weld. To perform a full Code required examination of this weld, the instrument line would have to be cut out to gain access.

3.1.4 Licensee's Proposed Alternative Examination

The licensee stated that:

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from performing the required examination on 100% of the examination area. [...] CPS proposes to perform the surface examination of the accessible area to the maximum extent feasible without removing the permanently installed instrument line, which would be approximately 87% of the required examination area.

3.1.5 NRC Staff Evaluation

The ASME Code requirement for the RHR pump "A" casing weld (RHR-A-2) requires a surface examination of "100% welds in all components." The ASME Code Case N-460 requires a 90 percent coverage of the examination area. The licensee achieved an approximate coverage of 87 percent of the examination area with no indications. EGC documented the examination obstruction in several diagrams and pictures provided in the submittal and supplemental information response, making clear the impediment to reaching the required surface examination coverage.

The NRC staff concurs that removal of the obstructing instrument line would be impractical and that ultrasonic (UT) examination cannot be used to satisfy the ASME Code requirements. The NRC staff noted that a nearly identical RR was approved for this weld during the first 10-year ISI interval. The NRC staff concludes that, if significant service-induced degradation had occurred, there is reasonable assurance that evidence of degradation would have been detected by examinations performed by the licensee within the examined area. Accordingly, the NRC staff grants relief from further action in examining the RHR pump "A" casing weld (RHR-A-2) for the CPS second 10-year ISI interval.

3.2 Relief Request (RR)-4217: Reactor Pressure Vessel (RPV) Head-to-Flange Weld (CH-C2)

3.2.1 ASME Code Requirement

ASME Code, Section XI, Table IWB-2500-1, Item No. B1.40, component examinations require a volumetric and surface examination of the head-to-flange weld. The extent of the examination is "100% of the weld length." ASME Code Case N-460 states that 90 percent coverage is adequate to meet the ASME Code requirement.

3.2.2 System/Component for which Relief is Requested

The licensee requested relief from examining the required 100 percent inspection coverage of the ASME Code requirements of the RPV head-to-flange weld (CH-C-2).

3.2.3 Licensee's Basis for Relief Request

The licensee stated:

CPS evaluated to determine if remote auto UT system could be utilized to increase the examination volume. It was concluded that due to the size of the auto UT equipment the examination volume would have been less. [...] It should be noted that during the initial plant construction, the entire weld was radiographed and the results were acceptable. The weld was also ultrasonically examined in accordance with the Preservice Inspection Plan, and the results of that examination were also acceptable.

3.2.4 Licensee's Proposed Alternative Examination

The licensee stated:

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from performing the required examination on 100% of the examination area. [...] CPS proposes to perform the UT examination from the RPV head side only and perform UT examination on this weld to the maximum extent feasible.

The licensee further stated that the examination as performed achieved a 53.8 percent coverage from 0 to 120 degrees, a 79.5 percent coverage from 120 to 240 degrees, and a 84.0 percent coverage from 240 to 360 degrees.

3.2.5 NRC Staff Evaluation

The ASME Code requirement for the subject weld requires a volumetric examination of "100% of the weld length." The subject weld was examined in three segments and the licensee achieved an approximate coverage of 72 percent of the weld length. The NRC staff questioned why the coverage for the subject weld varied so much between the first and subsequent segments. The licensee documented through supplemental information that the low coverage in the 0 to 120 degrees scan (53.8 percent) was due to the procedures and equipment and techniques capabilities in place during the 2002 inspection. The other two-thirds of the subject weld were inspected in 2006 and 2010 with superior results (79.5 percent and 84.0 percent, respectively) due to advancement in both procedures and equipment. Despite the low 2002 coverage, the NRC staff considers that the examination is a significant and representative percentage of the total weld volume and therefore provides reasonable assurance that any service-induced degradation would have been detected by examinations performed to date.

Additionally, the licensee documented the impediment to examination in several diagrams provided in the submittal and supplemental information response, convincingly illustrating the problematic geometry of the subject weld. The NRC staff concurs with the licensee's conclusion that modifying the RPV head-to-flange weld to increase the examination coverage is impractical. The NRC staff noted that a nearly identical RR was approved for this weld during the first 10-year ISI interval. Accordingly, the NRC staff grants relief from further action in examining the RPV head-to-flange weld (CH-C-2) for the CPS second 10-year ISI interval.

3.3 Relief Request (RR)-4218: Reactor Pressure Vessel (RPV) Shell-to-Flange Weld (RPV-C5)

3.3.1 ASME Code Requirement

ASME Code, Section XI, Table IWB-2500-1, Item No. B1.30, component examinations require a volumetric examination of the RPV shell-to-flange weld. The extent of the examination is "100% of the weld length." ASME Code Case N-460 states that 90 percent coverage is adequate to meet the ASME Code requirement.

3.3.2 System/Component for which Relief is Requested

The licensee requested relief from examining the required 100 percent inspection coverage of the ASME Code requirements of the RPV shell-to-flange weld (RPV-C5).

3.3.3 Licensee's Basis for Relief Request

The licensee stated:

CPS evaluated to determine if a remote UT system could be used to increase the examination volume. It was concluded that due to the size of the UT equipment, the examination volume would have been less. [...] CPS has performed UT examination on this weld to the maximum extent feasible. It should be noted that during initial plant construction, the entire weld was radiographed and the results were acceptable. The weld was also ultrasonically examined in accordance with the Preservice Inspection Plan, and the results of the examination were also acceptable.

3.3.4 Licensee's Proposed Alternative Examination

The licensee stated:

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from performing the required examination on essentially 100% of the examination area. [...] The RPV Shell Flange configuration/geometry does not allow UT examination from the flange side. CPS proposes to perform the UT examination from the RPV shell side only and perform UT examination on this weld to the maximum extent feasible.

The licensee further stated that the examination as performed achieved a 52 percent coverage from 0 to 180 degrees, and 75 percent coverage from 180 to 360 degrees.

3.3.5 NRC Staff Evaluation

The ASME Code requirement for the subject weld requires a volumetric examination of "100% of the weld length." The licensee achieved an approximate coverage of 64 percent of the weld length. The subject weld was examined in two segments, and the NRC staff questioned why the coverage for the subject weld varied so much between the segments. The licensee documented through supplemental information that the low coverage in the 0 to 180 degrees

scan (52 percent) was due to the procedures and equipment and technical capabilities in place during the 2002 inspection. The other half of the subject weld was inspected in 2010 with superior results due to advancements in both procedures and equipment (75 percent coverage). Despite the low 2002 coverage, the NRC staff considers that the examination is a significant and representative percentage of the total weld volume and therefore provides reasonable assurance that any service-induced degradation would have been detected by examinations performed to date.

Additionally, the licensee documented the impediment to examination in several diagrams, provided in the submittal and supplemental information response, convincingly illustrating the problematic geometry of the subject weld. The NRC staff concurs with the licensee's conclusion that modifying the RPV shell-to-flange weld to increase coverage is impractical. The NRC staff noted that a nearly identical RR was approved for this weld during the first 10-year ISI interval. Accordingly, the NRC staff grants relief from further action in examining the RPV shell-to-flange weld (RPV-C5) for the CPS second 10-year ISI interval.

3.4 Relief Request (RR)-4219: Reactor Pressure Vessel (RPV) Nozzle-to-Shell Welds

3.4.1 ASME Code Requirement

ASME Code, Section XI, Table IWB-2500-1, Item No. B3.90, component examinations require a volumetric examination of the nozzle-to-shell welds. The extent of the examination is "all nozzles." ASME Code Case N-460 effectively states that 90 percent coverage is adequate to meet the ASME Code requirement.

3.4.2 System/Component for which Relief is Requested

The licensee requested relief from meeting the required volumetric inspection coverage of the following RPV nozzle-to-shell welds, B3.90 components: N1B, N2B, N2C, N2D, N2E, N2F, N2G, N3A, N3C, N4A, N4B, N4C, N4D, N5A, N6B, N7, N8, N9A, N10, and N16.

3.4.3 Licensee's Basis for Relief Request

The licensee stated:

Code requirement is impractical for the subject components due to nozzle configuration and therefore portions of the Code required examinations volume can not be completely examined with ultrasonic techniques. The curvature of the blend radius of nozzle prevents ultrasonic scanning of the weld from the nozzle side. [...] Remote auto ultrasonic examinations were performed to the maximum extent practical with no reportable indications.

3.4.4 Licensee's Proposed Alternative Examination

The licensee stated:

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from performing the required examination on essentially 100% of the examination area. [...] Performance of ultrasonic

examination of the welds to the maximum extent feasible is sufficient for confirming weld integrity and therefore, provides an acceptable level of quality and safety.

The licensee also stated that the examinations performed using remote UT achieved the following coverage:

Component Number	Exam	Code Coverage Achieved (%)
N1B	UT	82.7
N2B	UT	81.1
N2C	UT	80.6
N2D	UT	80.7
N2E	UT	81.0
N2F	UT	65.3
N2G	UT	65.3
N3A	UT	59.0
N3C	UT	59.0
N4A	UT	65.6
N4B	UT	78.5
N4C	UT	78.5
N4D	UT	65.6
N5A	UT	56.5
N6B	UT	77.9
N7	UT	52.0
N8	UT	66.0
N9A	UT	55.7
N10	UT	84.9
N16	UT	68.1

3.4.5 NRC Staff Evaluation

The ASME Code requirement for the subject welds requires a volumetric examination of "all nozzles," translating to essentially 100 percent of each nozzle (90 percent with ASME Code Case N-460). This coverage was not achieved by the licensee in any of the nozzles. Half the nozzle examinations achieved roughly 80 percent coverage, while the other half achieved between 56 percent and 66 percent coverage. The NRC staff questioned why the coverage for the subject welds varied in this manner. The licensee documented through supplemental information that the lower coverage values were achieved with the procedures and equipment and techniques capabilities in place during the 2000 and 2002 inspections. The other half of the subject welds were inspected in 2006 and 2010 with superior results due to advancement in both procedures and equipment. A single outlier, the N8 weld, was examined in 2008 but coverage of only 66 percent was achieved due to curved geometry on one-half of the nozzle. In aggregate, the NRC staff considers that a significant percentage of the total weld volume was examined and that the likelihood that a pattern of degradation was present and unidentified in the weld areas is acceptably low.

Additionally, the licensee documented the impediment to examination in several diagrams, provided in the submittal and supplemental information response, convincingly illustrating the problematic geometry of the subject welds. The NRC staff concurs with the licensee's conclusion that modifying the RPV or nozzle configurations to increase coverage would be impractical. The NRC staff noted that a nearly identical RR was approved for this weld during the first 10-year ISI interval. Accordingly, the NRC staff grants relief from further action in examining the RPV nozzle-to-shell welds for the CPS second 10-year ISI interval.

3.5 Relief Request (RR)-4220: Control Rode Drive Housing (CRDH) 10 Percent of Peripheral Reactor Pressure Vessel (RPV) Pressure Retaining Welds

3.5.1 ASME Code Requirement

ASME Code, Section XI, Table IWB-2500-1, Item No. B14.10, component examinations require a surface or volumetric examination of 10 percent of the peripheral CRDH pressure retaining welds.

3.5.2 System/Component for which Relief is Requested

The licensee requested relief from examining the required 10 percent inspection coverage for the ASME Code requirements of the CRDH pressure retaining welds.

3.5.3 Licensee's Basis for Relief Request

The licensee stated:

There are two (2) welds on each CRDH, CRDH-2 (flange to pipe refer to lower weld) and CRDH-3 (pipe to pipe refers to upper weld). Upper welds are accessible and examined 100%. Lower welds are partially accessible and could be examined only 50%.

Limited access to all forty (40) lower welds on peripheral CRDH are due to inherent obstructions caused by surrounding cables, tubing, and permanent foundation beams, which are not practical to remove or replace.

3.5.4 Licensee's Proposed Alternative Examination

The licensee stated:

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from performing the required examination on 100% of the examination area. [...] Clinton Power Station is proposing to examine four welds completely 100% and 10 more welds partially, such that the aggregate total is greater than or equal to full examination coverage (i.e., 720 total percentage points). [...] Completely examining four (4) upper welds and partially examining on ten (10) lower welds (total of 900 percentage points) will essentially meet the Code requirements.

The licensee further stated that the examination as performed achieved a 100 percent coverage on four upper welds, and a 50 percent coverage on the 10 lower welds, for a total of 900 percentage points.

3.5.5 NRC Staff Evaluation

The ASME Code requirement for the subject welds requires a surface or volumetric examination of 10 percent of the peripheral CRDH pressure retaining welds, including functionally 100 percent of each CRDH upper and lower weld chosen for the sampling. The licensee achieved 100 percent coverage for all upper welds examined, but only 50 percent for lower welds. The licensee attempted to compensate by inspecting additional upper welds to achieve an overall weld coverage percentage greater than 10 percent of the CRDH pressure retaining weld volume.

The licensee demonstrated the difficulties inherent in conducting surface examinations of the peripheral CRDH welds, in particular, the lower welds. The NRC staff concurs that access to the lower welds is severely limited by obstructions. In addition, the NRC staff concurs with the licensee's conclusion that modifying these obstructions is impractical. The examination of extra upper weld material by CPS provides acceptable reassurance that any generic degradation mechanisms would have been detected in the examined surfaces. Accordingly, the NRC staff grants relief from further action in examining the CRDH pressure retaining welds for the CPS second 10-year ISI interval.

3.6 Relief Request (RR)-4221: Piping Integrally Welded Attachments (1-MS-B-11) and (1-MS-D-10)

3.6.1 ASME Code Requirement

ASME Code, Section XI, Table IWB-2500-1, Item No. B10.20, component examinations require a surface or volumetric examination "as applicable" for essentially 100 percent of the pump integrally welded attachments.

3.6.2 System/Component for which Relief is Requested

The licensee requested relief from examining the required 100 percent inspection coverage for the ASME Code requirements of the of the piping integrally welded attachments (1-MS-B-11) and (1-MS-D-10).

3.6.3 Licensee's Basis for Relief Request

The licensee stated:

This is a containment penetration fitting to the main steam Class 1 piping integrally welded attachment. Weld located outside the containment penetration is accessible and examined. However, weld located inside the containment penetration is not accessible and not examined. Code required surface examination coverage is impractical due to the component configuration and accessibility to the required examination surface. [...]

In order to examine the inaccessible weld Clinton Power Station (CPS) would have to cut out this containment penetration weld.

3.6.4 Licensee's Proposed Alternative Examination

The licensee stated:

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from performing the required examination on 100% of the examination area. [...] Based on the current UT procedures, mockups, and calibration standard, UT examination can not be demonstrated or qualified to the satisfaction of the ASME Code requirements to produce meaningful and reliable results.

The licensee further stated that the examination as performed achieved 50 percent coverage due to the obstruction.

3.6.5 NRC Staff Evaluation

The ASME Code requirement for the subject welds requires a volumetric examination of 100 percent of the subject welds. The licensee was able to examine the portion of the welds exterior to the containment penetration. The licensee provided a visual and textual synopsis of the difficulties inherent in conducting surface examinations of the subject welds. The obstruction of the weld volume located inside the containment penetration by the containment wall and associated structures is a clear hindrance to any examination due to lack of clearance inside containment penetrations.

The NRC staff concurs with the licensee's conclusion that cutting out the containment penetration weld to examine it is impractical. The NRC staff noted that a nearly identical RR was submitted and approved for a similar case. The NRC staff also concludes that, if significant service-induced degradation had occurred, there is reasonable assurance that evidence of degradation would have been detected by examinations performed by the licensee within the examined area. Accordingly, the NRC staff grants relief from further action in examining the piping integrally welded attachments welds (1-MS-B1) and (1-MS-D-10) for the CPS second 10-year ISI interval.

3.7 Relief Request (RR)-4222: Reactor Core Isolation Cooling (RCIC) Pump (RCIC-1A(1-4)) Integrally Welded Attachment

3.7.1 ASME Code Requirement

ASME Code, Section XI, Table IWC-2500-1, Item No. C3.30, component examinations require a surface examination of 100 percent of the "required areas" of pump integrally welded attachments.

3.7.2 System/Component for which Relief is Requested

The licensee requested relief from examining the required 100 percent inspection coverage for the ASME Code requirements of the RCIC pump (RCIC-1A(1-4)) integrally welded attachment.

3.7.3 Licensee's Basis for Relief Request

The licensee stated:

There are four (4) welds identical lugs (i.e., integral attachments) welded to the Reactor Core Isolation Cooling (RCIC) system which are utilized to mount the pump to its pedestal. Once the pump is installed, the lower side of the weld on either side of the four lugs is inaccessible for examination. [...]

In order to perform the examination on the lower side of the lugs, the pump would have to be removed from the pedestal. This would require disconnecting the welded piping from the pump, re-installing the pump on pedestal, reconnecting the piping by welding, and verifying that everything is installed properly and meets design requirements.

The licensee also stated that the significant welding work would result in unnecessary radiation exposure (estimated to be approximately 2 person-rem) of dose.

3.7.4 Licensee's Proposed Alternative Examination

The licensee stated:

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from performing the required examination on 100% of the examination area. [...] [CPS proposes to] perform the surface examination of the accessible area to the maximum extent feasible.

The licensee further stated that the examination as performed achieved 84 percent coverage.

3.7.5 NRC Staff Evaluation

The ASME Code requirement for the subject weld requires a surface examination of 100 percent of the 'required areas' of the subject weld (illustrated in Figure IWC-2500-5 of the ASME Code). The licensee achieved an approximate coverage of 84 percent. The licensee RR demonstrated the difficulties inherent in conducting surface examinations of the subject weld. The obstruction of the lower weld surface due to the pump installation is a clear hindrance to any examination.

The NRC staff noted that a nearly identical RR was approved for this weld during the first 10-year ISI interval. The NRC staff considers it unlikely that any degradation would be visible in the inaccessible lower portion of the weld and not in the examined portion and that therefore the examination provides reasonable assurance of the material integrity of the subject weld. Accordingly, the NRC staff grants relief from further action in examining the RCIC pump (RCIC-1A(1-4)) integrally welded attachment for the CPS second 10-year ISI interval.

4.0 CONCLUSION

Due to a variety of configurational issues at CPS, the ASME Code requirements with respect to the subject welds are impractical. The weld coverages achieved, provided reasonable assurance of the structural integrity of the subject welds. The NRC staff has determined that

granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger life, or property, or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed. Therefore, the licensee's requests for relief are granted pursuant to 10 CFR 50.55a(g)(6)(i) for the CPS second 10-year ISI interval.

All other ASME Code, Section XI, requirements for which relief was not specifically requested and approved in the subject request for relief remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: Dan Widrevitz

Date of issuance: June 17, 2011

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Mr. Michael J. Pacilio
President and Chief Nuclear Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION, UNIT NO. 1 – RELIEF REQUESTS (RRs) 4216, 4217, 4218, 4219, 4220, 4221, AND 4222 REGARDING EXAMINATION COVERAGE FOR THE SECOND 10-YEAR INSERVICE INSPECTION (ISI) INTERVAL (TAC NOS. ME4183, ME4184, ME4185, ME4186, ME4187, ME4188 AND ME4189)

Dear Mr. Pacilio:

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Therefore, the NRC staff grants relief for the examinations of the components contained in the RRs for CPS for the second 10-year ISI.

Sincerely,

/RA/

Jacob I. Zimmerman, Chief
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Docket No. 50-461

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Safety Evaluation

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