

RS-12-134

10 CFR 50.55a

August 23, 2012

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

Clinton Power Station, Unit 1  
Facility Operating License No. NPF-62  
NRC Docket No. 50-461

Subject: Relief Request Associated with the Third Inservice Inspection Interval

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(ii), Exelon Generation Company, LLC (EGC), hereby requests NRC approval of the attached relief request associated with the Third Inservice Inspection (ISI) Interval for Clinton Power Station, Unit 1 (CPS). The third interval of the CPS ISI program complies with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 2004 Edition.

Proposed Relief Request Number I3R-09 requests approval of an alternative to performance of VT-2 visual inspections for Combustible Gas Control system piping. Relief requests similar to I3R-09 have previously been approved for use at CPS.

EGC requests approval of this request by June 1, 2013, in order to allow completion of the exam prior to the end of the inspection period (i.e., June 30, 2013).

There are no regulatory commitments contained within this letter.

Should you have any questions concerning this letter, please contact Mr. Mitchel A. Mathews at (630) 657-2819.

Sincerely,



David M. Gullott  
Manager – Licensing  
Exelon Generation Company, LLC

Attachment: 10 CFR 50.55a Request Number I3R-09

**ATTACHMENT**  
**10 CFR 50.55a Request Number I3R-09**  
**Hardship or Unusual Difficulty Without a Compensating Increase**  
**In the Level of Quality and Safety (10 CFR 50.55a(a)(3)(ii))**  
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**1.0 ASME Code Components Affected:**

Code Class:	2
Component Number:	Multiple lines (see Note below)
Examination Category:	C-H
Item Number:	C7.10
Description:	Alternative to Performance of System Pressure Tests and VT-2 Visual Examination Requirements for the Inservice Inspection (ISI) Class 2 Combustible Gas Control (HG) piping to and from Hydrogen Recombiners 0HG01SA and 0HG01SB.

**Note:** A more detailed description of the system function and pressure testing boundary is identified below.

The Combustible Gas Control (HG) system maintains the hydrogen concentration in the Drywell and Containment below the ignition level. This relief request involves a portion of the HG system designed to control hydrogen generated during a Loss of Coolant Accident (LOCA) when the core is not degraded.

The ISI Class 2 HG system piping and components requiring inspection are listed below. These components and piping control and route flow from the containment to Hydrogen Recombiners 0HG01SA and 0HG01SB and back to the containment. All piping is seamless carbon steel, ASTM A106, Gr. B and/or ASME SA-106, Gr. B. The 2 inch and smaller diameter piping is schedule 80 thickness and the 2 1/2 inch diameter piping is schedule 40 thickness.

- Drawing M05-1063, sheet 1 - Lines associated with hydrogen recombiner 0HG01SA in flow path order starting inside the containment just prior to containment penetration 1MC-71 and ending inside containment just past containment penetration 1MC-72 are: 1HG01A-2 inch, 1HG07A-3/4 inch, 1HG01B-2 1/2 inch, 1HG11A-3/4 inch, 0HG03A-2 inch, 0HG03B-2 inch, 0HG04A-2 inch, 0HG04B-2 inch, 0HG02A-2 1/2 inch, 1HG12A-3/4 inch, 1HG02B-2 inch, and 1HG08A-3/4 inch.
- Drawing M05-1063, sheet 1 - Valves associated with hydrogen recombiner 0HG01SA in flow path order starting inside the containment just prior to containment penetration 1MC-71 and ending inside containment just past containment penetration 1MC-72 are: – 1HG012-2 inch, 1HG016-3/4 inch, 1HG001-2 inch, 1HG020-3/4 inch, 1HG002-2 inch, 2HG002-2 inch, 2HG003-2 inch, 1HG003-2 inch, 1HG021-3/4 inch, 1HG004-2 inch, 1HG017-3/4 inch, and 1HG013-2 inch.
- Drawing M05-1063, sheet 1 – Hydrogen Recombiner 0HG01SA.
- Drawings M05-1063, sheet 1 and M05-2063, sheet 1 - Lines associated with hydrogen recombiner 0HG01SB in flow path order starting inside the containment

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just prior to containment penetration 1MC-166 and ending inside containment just past containment penetration 1MC-62 are: 1HG03A-2 inch, 1HG09A-3/4 inch, 1HG03B-3 inch, 0HG01B-2 inch, 0HG01A-2 inch, 0HG02A-2 inch, 0HG02B-2 inch, 1HG04A-2 1/2 inch, 1HG04B-2 inch, and 1HG010A-3/4 inch.

- Drawings M05-1063, sheet 1 and M05-2063, sheet 1 - Valves associated with hydrogen recombiner 0HG01SB in flow path order starting inside the containment just prior to containment penetration 1MC-166 and ending inside containment just past containment penetration 1MC-62 are: 1HG014-2 inch, 1HG018-3/4 inch, 1HG005-2 inch, 1HG006-2 inch, 2HG006-2 inch, 2HG007-2 inch, 1HG007-2 inch, 1HG008-2 inch, 1HG019-3/4 inch, and 1HG015-2 inch.
- Drawing M05-2063, sheet 1 – Hydrogen Recombiner 0HG01SB.

**2.0 Applicable Code Edition and Addenda:**

The code of record for the third 10-year Interval for the Inservice Inspection Program at Clinton Power Station, Unit 1 (CPS) is the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, 2004 Edition, no Addenda.

**3.0 Applicable Code Requirement:**

Table IWC-2500-1, Examination Category C-H, Item Number C7.10, requires all ISI Class 2 pressure retaining components to be subjected to a system leakage test via a VT-2 visual examination in accordance with Paragraph IWC-5220. This pressure test is to be conducted once each inspection period. Paragraph IWA-5211(c) permits the use of a pneumatic test for Class 2 components as permitted by IWC-5000.

**4.0 Reason for Request:**

Pursuant to 10 CFR 50.55a(a)(3)(ii), relief is requested on the basis that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety.

Performance of the Code prescribed VT-2 visual examination of this piping would require applying a leak detection solution to the safety-related piping and components to locate evidence of leakage. Performing this examination would pose significant safety hazards, as most of this piping requires working at heights. Either a ladder, hi jacker, or scaffold will be needed to reach this piping, and all piping is insulated. Based upon field walkdowns, the piping associated with Hydrogen Recombiner 0HG01SA is conservatively estimated at 550 linear feet and the piping associated with Hydrogen Recombiner 0HG01SB is conservatively estimated at 1050 feet in length.

Examining the piping associated with 0HG01SB will also result in an estimated radiation exposure of 150 to 200 mrem. Performing this VT-2 examination would not be

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consistent with As Low As Reasonably Achievable (ALARA) radiation exposure practices.

Relief is requested from the performance of system leakage tests and VT-2 visual examination requirements specified in Table IWC-2500-1 for the ISI Class 2 HG piping, valves and components associated with Hydrogen Recombiners 0HG01SA and 0HG01SB at CPS.

**5.0 Proposed Alternative and Basis for Use:**

As an alternative to the examination requirements of Table IWC-2500-1, Exelon Generation Company, LLC (EGC) will perform leak rate tests on the ISI Class 2 HG piping associated with Hydrogen Recombiners 0HG01SA and 0HG01SB as required in surveillance procedure CPS 9861.02 Datasheet D041, Local Leak Rate Testing (LLRT) Data Sheet for 1MC071/1MC072 – H2 Recombiner 0HG01SA and Datasheet D033, LLRT Data Sheet for 1MC062/1MC166 – Hydrogen Recombiner 0HG01SB.

LLRT procedure CPS 9861.02 Datasheets D033 and D041 determine the leakage rate from the components and piping associated with this relief request as well as leakage through affected boundary valve internals and mechanical connections. These datasheets perform three separate leak rate tests (i.e., Test Sets A, B and C) on each hydrogen recombiner train. The test pressure for each test is maintained between 9.1 psig and 9.9 psig and the elapsed test (i.e., hold) time is a minimum of 15 minutes from stabilization of test pressure. Stabilization can be declared when the measured flow rate is stable for a period of approximately five minutes. According to the piping design tables, the maximum operating pressure of this piping is nine (9) psig and the maximum design pressure is 15 psig. Test Set 'A' tests the piping and components between the HG return header opening inside containment and containment isolation valve 1HG008 or 1HG004. Test Set 'B' tests the piping and components between the HG inlet header opening inside containment and containment isolation valve 1HG005 or 1HG001. Test Set 'C' tests all of the piping and components between the HG inlet header opening inside containment and the HG return header inside containment. Administrative limits have been established for each train to prompt further examinations and/or evaluations. Train 'B' has an administrative limit of 500 standard cubic centimeters per minute (sccm) and Train 'A' has an administrative limit 1000 sccm. Normal system flow is 50 standard cubic feet per minute (scfm).

The lines and components being addressed in this relief request are a possible secondary containment bypass pathway. As such, any leakage detected is included in the overall secondary containment bypass pathway limit of 28,882 sccm, or 0.08 of the maximum allowable containment atmospheric leak rate at the calculated peak accident pressure (La). The administrative limits established in LLRT procedure CPS 9861.02 Datasheets D033 and D041 were selected to ensure evaluation and trending of the test results is performed well before the overall secondary containment bypass pathway limit is challenged. If the administrative limit is exceeded by any of the three test sets, the ISI Pressure Test Program Manager or their Designee will be contacted to evaluate the test results and determine if the leakage is due to through-wall leakage in the pressure

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boundary. Troubleshooting will be performed to quantify all valve seat leakage and to perform VT-2 examinations of all mechanical joints associated with the train in question with a leak detection solution. Any leakage identified will be corrected and the test set run again. If troubleshooting determines that leakage above the administrative limit may be attributed to a through-wall pressure boundary leak, the ISI Pressure Test Program Manager or their Designee will perform a VT-2 examination of the entire piping run with a leak detection solution. If through-wall pressure boundary leakage from a safety related component is discovered, the component or piping will be repaired or replaced in accordance with the applicable ASME Code requirements. If evidence of safety-related pressure boundary leakage is not located, the examination will be considered acceptable for ISI Pressure Testing Program requirements for that ISI Period.

The leakage test performed as part of CPS 9861.02 Datasheets D033 and D041 identifies degradation of the ISI Class 2 HG piping and components associated with the Hydrogen Recombiners. The volume tested by these surveillances encompasses all piping and components requiring testing under ASME Section XI for these portions of the HG system. These surveillances are performed every ISI Inspection Period to comply with the frequency required in Table IWC-2500-1. The test pressure used is consistent with the pressure requirements of this table. Thus, as a minimum, the testing performed during this surveillance will provide the same level of quality and safety as the pressure testing and VT-2 visual examination requirements of Table IWC-2500-1.

In summary, relief is requested from the performance of the system pneumatic test and VT-2 visual examination requirements specified in Table IWC-2500-1 for the ISI Class 2 HG system piping and components identified in this request on the basis that compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

**6.0     Duration of Proposed Alternative:**

Relief is requested for the remainder of the Third Ten-Year Inspection Interval for CPS.

**7.0     Precedents:**

Similar relief requests have been approved for:

- CPS Third Inspection Interval Relief Request I3R-07, issued 11/21/2011 utilizes a similar approach to the one described in this request.
- CPS Third Inspection Interval Relief Request I3R-04, Rev. 0, issued 12/22/2012 uses a similar approach to the one described in this request.
- CPS Second ISI Interval Relief Request 4212, Revision 1 issued December 13, 2007 uses a similar approach to the one described in this request.
- LaSalle County Station Second Inspection Interval Relief Requests PR-08 and PR-10 were authorized per SER dated June 28, 2002.

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<b>Acceptance Criteria From Procedure CPS 9861.02 Datasheets D033 and D041</b> <b>(For Information Only)</b> <b>CPS - Unit 1</b>			
<b>Component</b>	<b>Leakage Criterion (sccm)</b>	<b>Pressure Drop Test Duration (minutes)</b>	<b>Comments</b>
HG piping and components associated with Hydrogen Recombiners 0HG01SA.	$\leq 1000$	$\geq 15$	
HG piping and components associated with Hydrogen Recombiners 0HG01SB.	$\leq 500$	$\geq 15$	