Exelon Generation Company, LLC
Braidwood Station
35100 South Rt 53, Suite 84
Braceville, IL 60407-9619
Tel. 815-417-2000

www.exeloncorp.com

Exelon Nuclear

10 CFR 50.55a

April 14, 2006
BW060038

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

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. 50-456 and 50-457

Subject: Inservice Inspection Program Relief Request I2R-47

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(ii), Exelon Generation Company, LLC (EGC), is requesting relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," on the basis that compliance with the specified requirements for pressure testing portions of the Process Sampling (PS) System piping associated with the Unit 1 and Unit 2 Post Accident Hydrogen Monitoring System would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Specifically, relief is requested to perform an alternative test consistent with the testing requirements of 10 CFR Part 50 Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," for certain portions of Braidwood Station PS System piping in lieu of the system functional test performed to identify through-wall leakages in the system (i.e., soap bubble test). The details of the request for relief are enclosed.

EGC requests approval of this request by April 2007 in order to support the second ten-year interval of the Inservice Inspection Interval for Braidwood Units 1 and 2. If there are any questions or comments, please contact Mr. Dale Ambler, Regulatory Assurance Manager, at (815) 417-2800.

Respectfully,

Keith J. Polson
Site Vice President
Braidwood Station

Attachments: 1. Braidwood Station Relief Request I2R-47
2. Piping & Instrument Diagrams: M-68, Sheet 7 (Unit 1) and M-140, Sheet 6 (Unit 2) – for information only

A047

Attachment 1

Braidwood Station

Relief Request I2R-47

10 CFR 50.55a REQUEST NUMBER I2R-47
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-Hardship or Unusual Difficulty without Compensating Increase in Level of Quality or Safety-
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ASME CODE COMPONENTS AFFECTED

Code Class:	2
Reference:	IWC-5200, "System Test Requirements"
Examination Category:	C-H
Item Number:	C7.30, C7.40, C7.70, and C7.80
Description:	Alternative Method for Pressure Testing Unit 1 and Unit 2 Post Accident Hydrogen Monitoring System Piping, Process Sampling (PS) System Piping
Component Numbers:	Section XI Class 2 Piping Outside of Containment Between Valves 1(2)PS228A(B) and 1(2)PS230A(B). [Reference Drawings M-68 Sheet 7 (Unit 1) and M-140 Sheet 6 (Unit 2)]

APPLICABLE CODE EDITION and ADDENDA

ASME Section XI 1989 Edition with No Addenda

APPLICABLE CODE REQUIREMENTS

American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, 1989 Edition with no Addenda, Table IWC-2500-1, Items C7.30/C7.40 (piping) and C7.70/C7.80 (valves) require that the specified piping be tested using the VT-2 examination method at a frequency of each inspection period and each inspection interval, respectively. The portion of the PS System containing the affected piping is not required to operate under normal plant operating conditions; therefore, as required by IWA-5210 and IWC-5221, a system functional test is required.

IWC-5210*(b)* states the contained fluid in the system shall serve as the pressurizing medium and where air is used, the test procedure shall permit the detection and location of through-wall leakages in components of the system tested.

REASON FOR REQUEST

The specified piping serves as the supply flow path from the containment to the Hydrogen Monitors via 1/4" tubing connections and the return flow path from the Hydrogen Monitors (via 1/4" tubing connections) back to the containment. The system medium is air. The system is comprised of two separate trains for each unit. The subject piping is 1/2" NPS (nominal pipe size) and/or 1/4" stainless steel piping/tubing (SA 312 TP 304 pipe along with SA 213 TP 304 or 316 tubing). The system design pressure is 60 psig. The approximate length of piping/tubing per train (supply and return piping combined) is 275' for 1A, 225' for 1B, 245' for 2A, and 185' for 2B. The

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nominal system operating pressure ranges across the system from vacuum on the suction piping to a maximum of 10 psig at the pump discharge, which decreases for the remainder of the piping. In the past, the piping was tested by pressurizing the volume and then performing a soap bubble or "snoop" test on all welds and piping. During the review of surveillance results in 2005, Braidwood Station determined a portion (approximately 50' of supply and return piping combined) of the piping on the 1A train is located in a pipe tunnel and is physically inaccessible for VT-2 testing due to the close proximity of adjacent piping and the pipe tunnel wall. Due to the interferences and congestion in the area, the examiner could not physically get close enough to the associated piping to apply the soap bubble solution that is necessary to meet the IWC-5210*(b)* examination requirement. The use of an ultrasonic sound gun was considered for the inaccessible piping, but the obstructions surrounding the area of interest significantly reduce the ability to detect and pinpoint a leak.

In addition to the limitations associated with the 1A train, for all trains there are significant portions of the piping outside the pipe tunnel located at upper elevations (approximately 30 feet above the floor) where the performance of the VT-2 examination using soap solution creates a personal safety hazard. In order to meet the Code requirements for the examination, the examiner had to perform a hand over hand walk down while using fall protection along with a retractable lanyard to get close enough to the piping to apply the soap bubble solution and perform the VT-2 examination required by Section XI. Due to the congestion from other piping in the area, scaffolding cannot be erected to provide access to the piping.

As stated previously, the subject piping is a maximum 1/2" NPS stainless steel pipe. The majority of the piping connections are socket welded with only the connections for the 1/4" diameter tubing having threaded connections. For piping 1" NPS and less, IWA-4700*(b)(5)* of the 1989 Edition of Section XI excludes hydrostatic testing (and VT-2 examination) of piping and components after welded replacement; Section XI Code would not require any pressure testing of replacement of piping and valves for this system.

PROPOSED ALTERNATIVE AND BASIS FOR USE

Pursuant to 10 CFR 50.55a(a)(3)(ii), relief is requested on the basis that the existing Code requirement would result in hardship or unusual difficulty without a compensating increase in quality or safety.

Braidwood Station proposes to use an alternate method of testing for system piping outside of containment [piping between valves 1(2)PS228A to 1(2)PS230A and 1(2)PS228B to 1(2)PS230B] for Section XI periodic and interval pressure testing.

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The Safety Related ASME Class 2 sections of piping and valves associated with the PS system at other containment penetrations in the system where the balance of the system is Non Safety Related (i.e., Penetration P-70) are tested in accordance with the requirements of 10 CFR Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," as allowed by ASME Code Case N-522, "Pressure Testing of Containment Penetration Piping, Section XI, Division 1." The proposed alternative is to apply the Appendix J testing method (which is already required for the containment isolation valves at Penetrations P-36 and P-45) on the remaining portion of the ASME Class 2 piping outside of Penetrations P-36 and P-45.

The remaining portion of Class 2 piping outside of the primary containment examination boundary will be examined by pressurizing the remainder of the system to at least the applicable peak accident pressure, which is higher than the system nominal operating pressure, and applying the Appendix J acceptance criteria for the solenoid valves associated with Penetrations P-36 and P-45 to the remainder of the system located outside of containment. The applicable acceptance criteria used for the Appendix J test surveillances (currently $\leq$ 10 standard cubic feet per hour) would be applied independently to the supply and return piping for each hydrogen monitor train, and subsequent corrective actions would be applied to the remainder of the system. This proposed method of testing is consistent with the requirements of Appendix J and will provide a leak detection method equivalent to the soap bubble solution along with the VT-2 examination method for the subject piping.

As with the Appendix J volumes, if test results indicate leakage above the criteria used on the containment penetrations, an Issue Report will be initiated in accordance with the Exelon Corrective Action Program and the appropriate corrective actions would be employed to identify the source of leakage. The source of leakage for the piping outside of containment would most likely be attributed to valve packing or threaded tubing connections, since the majority of the system is socket welded stainless steel piping with no known degradation mechanism or previous history of failure.

DURATION OF PROPOSED ALTERNATIVE

Relief is requested for the second ten-year interval of the Inservice Inspection Program for Braidwood Units 1 and 2.

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PRECEDENTS

Similar relief methodology was approved for LaSalle County Station Units 1 and 2 through letter from Anthony J. Mendiola to Oliver Kingsley. "LaSalle County Station - Request for Relief from ASME Code, Section XI (TAC NOS. MA8728 and MA8729)" dated October 6, 2000.

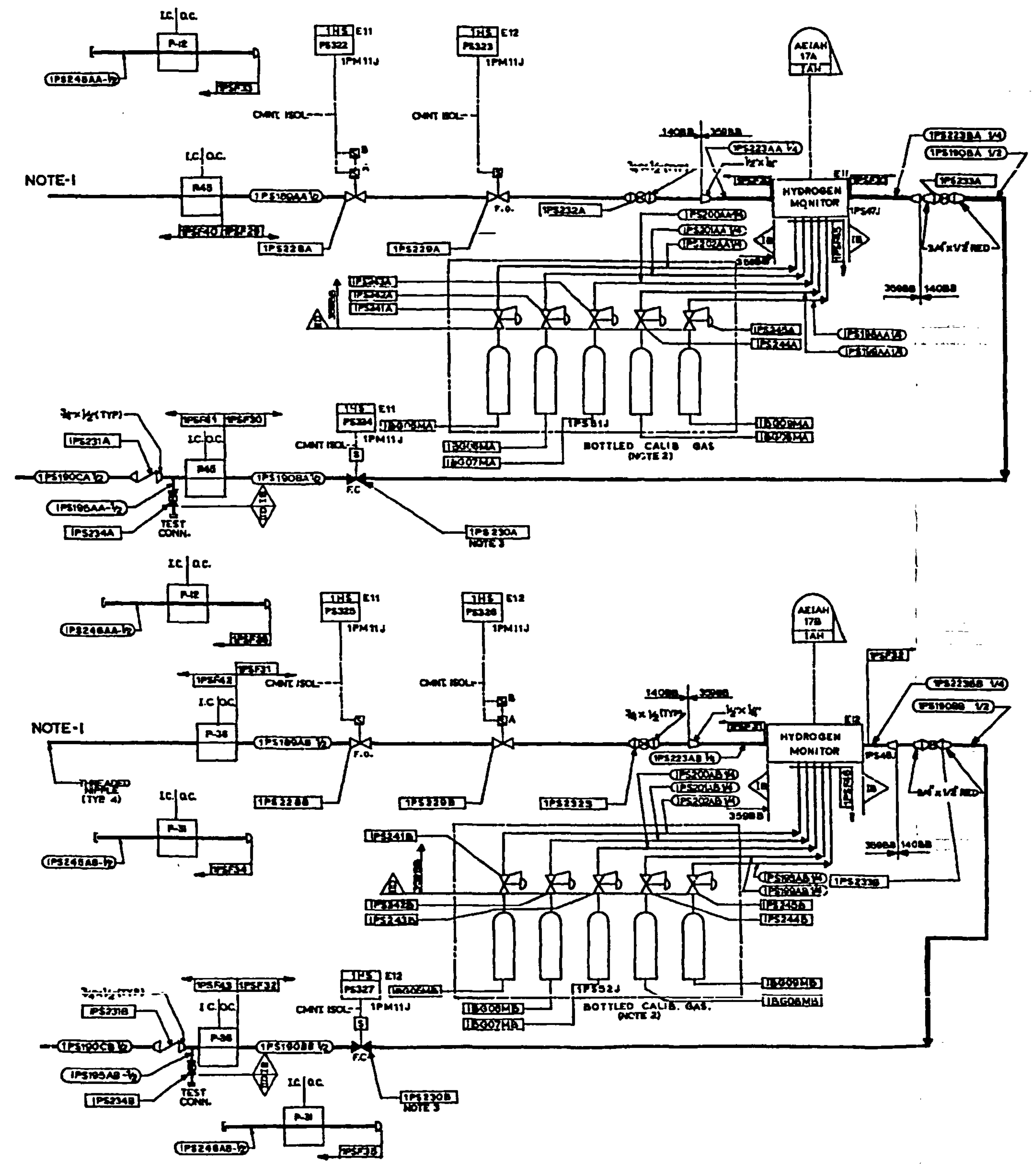
Attachment 2

Piping & Instrument Diagrams:

M-68, Sheet 7 (Unit 1)
and
M-140, Sheet 6 (Unit 2)

for information only

M-68 SH. 7



NOTES:

1. TRAIN 'A' SAMPLE SUCTION POINT LOCATED IN CONTAINMENT SUCH THAT IT IS APPROXIMATELY 180° OPPOSITE FROM THE TRAIN 'B' SAMPLE SUCTION POINT
2. BOTTLE CONTENTS AS FOLLOWS:

BOTTLE	GAS
1BG05MA/B	NITROGEN
1BG06MA/B	3 TO 4% H_2 IN N_2
1BG07MA/B	8 TO 9% H_2 IN N_2
1BG08MA/B	10 TO 11% H_2 IN N_2
1BG09MA/B	20 TO 28% H_2 IN N_2

3. VALVES 1PS230A & B TO BE INSTALLED WITH THE FLOW ARROW POINTING AWAY FROM CONTAINMENT.

NUCLEAR SAFETY RELATED ITEMS ARE SHOWN ON THIS DRAWING
(FOR SAFETY CLASSIFICATION SEE PIPING, EQUIPMENT, VALVE, OR INSTRUMENT LISTS.)

REV	DATE	DESCRIPTION	PREP.	REVW.	APPR.
V	04-11-07	FOR RECORD, DCR 990117 COLOR CODED [illegible] LAYERS ADDED	[illegible]	[illegible]	[illegible]
U	4-28-98	[illegible]	[illegible]	[illegible]	[illegible]

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Chicago, Illinois
Braidwood Station 20

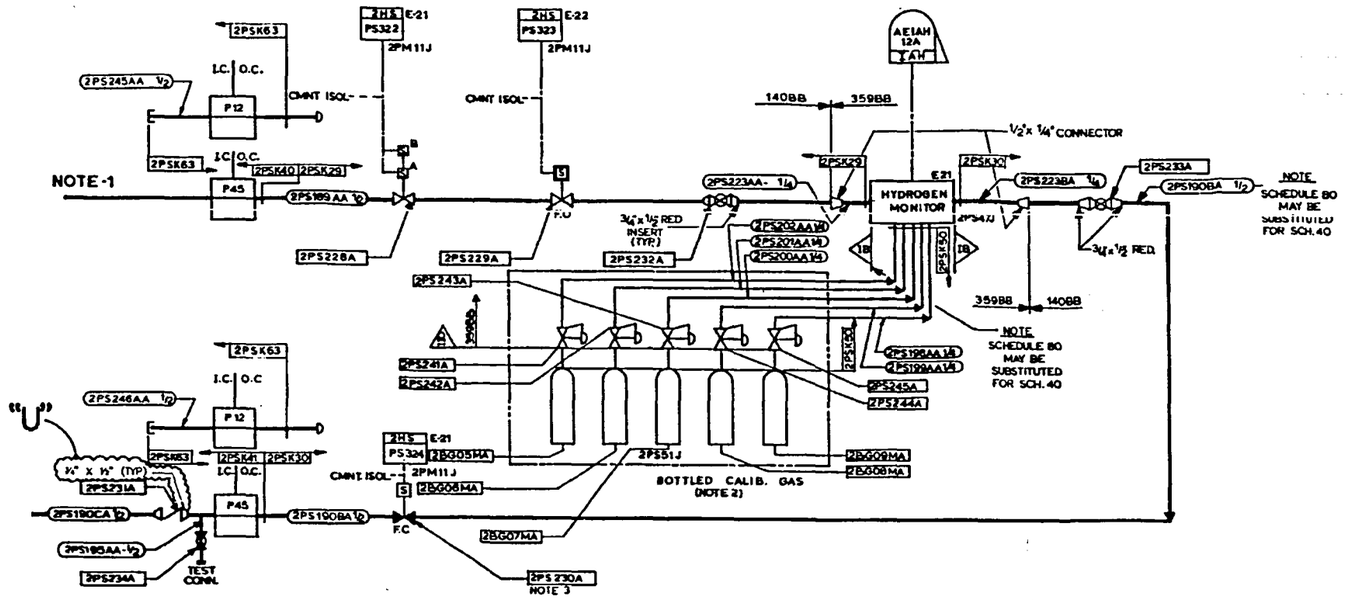
DIAGRAM OF PROCESS SAMPLING PS
POST ACCIDENT H_2
MONITORING SYSTEM
UNIT 1

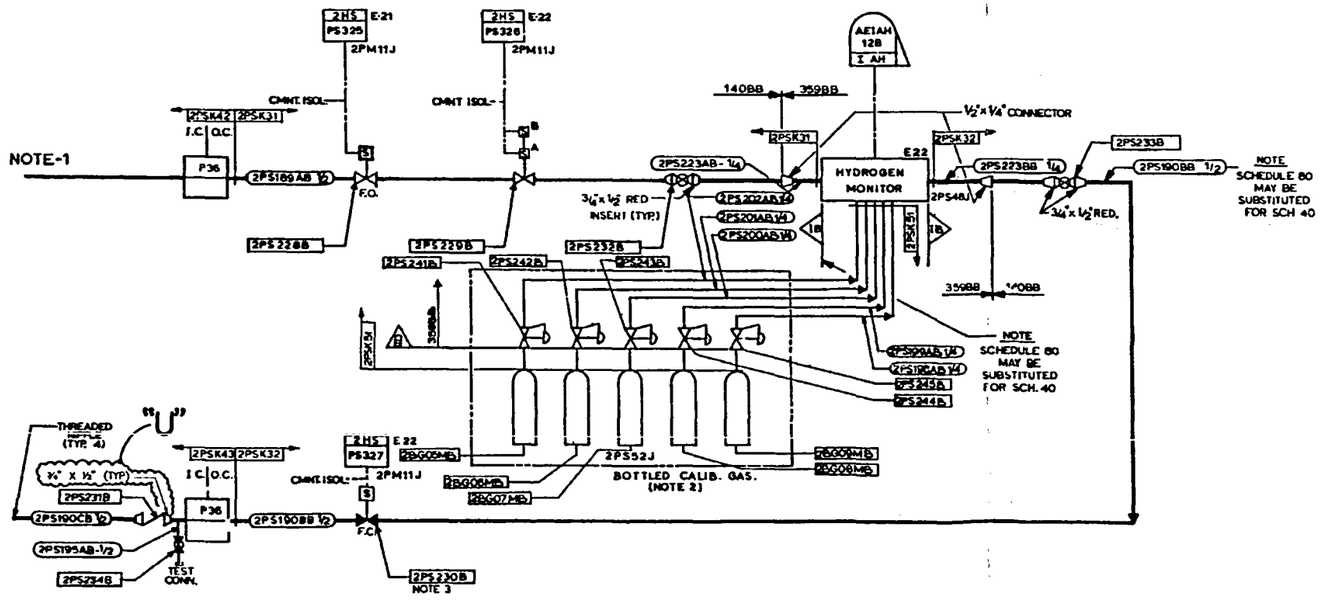
SCALE : NONE

M-68

SHEET NO. 7

M05





NOTES:

1. TRAIN 'A' SAMPLE SUCTION POINT LOCATED IN CONTAINMENT SUCH THAT IT IS APPROXIMATELY 180° OPPOSITE FROM THE TRAIN 'B' SAMPLE SUCTION POINT.
2. BOTTLE CONTENTS AS FOLLOWS:

BOTTLE	GAS
2BG05MA/B	NITROGEN
2BG06MA/B	3 TO 4% H_2 IN N_2
2BG07MA/B	8 TO 9% H_2 IN N_2
2BG08MA/B	10 TO 11% H_2 IN N_2
2BG09MA/B	20 TO 25% H_2 IN N_2

3. VALVES 2PS230A, B TO BE INSTALLED WITH FLOW ARROW POINTING AWAY FROM CONTAINMENT.

REV	DATE	DESCRIPTION	PREP	REVR	APPR
T	04/11/97	FOR RECORD, DCR 969117 COLOR CODED TS LAYERS ADDED	GLJ	TAK	DPC
U	08/05/98	FOR RECORD, DCR 980352 AS-BUILT	PY	DP	BJA
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An Exelon Company
Braidwood Station Unit 2

NUCLEAR SAFETY RELATED EQUIPMENT IS SHOWN ON THIS DRAWING

DIAGRAM OF PROCESS SAMPLING-PS POST ACCIDENT H_2 MONITORING SYSTEM UNIT 2

SCALE: NONE
DATE: 01/29/82
DRAWN BY: CSB2
CHK. BY: CSB2

M-140

SHEET NUMBER: 6 SIZE: F M05