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Exelon Nuclear

RS-03-083

April 11, 2003

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

Quad Cities Nuclear Power Station, Units 1 and 2
Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Additional Information Supporting the Request for Amendment to Technical Specification 5.5.12, "Primary Containment Leakage Rate Testing Program"

Reference: Letter from P. R. Simpson (Exelon Generation Company, LLC) to U. S. Nuclear Regulatory Commission, "Request for Amendment to Technical Specification 5.5.12, 'Primary Containment Leakage Rate Testing Program,'" dated February 27, 2003

In the referenced letter, Exelon Generation Company, LLC (EGC) requested an amendment to the facility operating licenses for Quad Cities Nuclear Power Station, Units 1 and 2. The proposed change revises Technical Specification (TS) 5.5.12, "Primary Containment Leakage Rate Testing Program," to reflect a one-time deferral of the primary containment Type A test to no later than July 22, 2009, for Unit 1, and no later than May 16, 2008, for Unit 2.

On March 19, 2003, the NRC requested additional information to complete its review of the license amendment request. Attachment 1 to this letter provides the requested information. Attachment 2 provides a sample of Containment Inservice Inspection (CISI) drawings that were developed for the CISI Program.

EGC has reviewed the information supporting a finding of no significant hazards consideration that was previously provided to the NRC in Attachment 2 of the referenced letter. The supplemental information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration.

If you have any questions or require additional information, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

A017

I declare under penalty of perjury that the foregoing is true and correct.

Respectfully,

April 11, 2003
Executed on

Patrick R. Simpson
Manager – Licensing
Mid-West Regional Operating Group

Attachments:

1. Response to Request for Additional Information
2. Containment Inservice Inspection Drawings

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - Quad Cities Nuclear Power Station
Office of Nuclear Facility Safety - Illinois Department of Nuclear Safety

ATTACHMENT 1
Response to Request for Additional Information

As the inservice inspection (ISI) requirements mandated by 10 CFR 50.55a and the leak rate testing requirements of Option B of Appendix J complement each other in ensuring the leak-tightness and structural integrity of the containment, the staff needs the following information to complete its review of the license amendment request.

NRC Request 1

Please provide the following information regarding the containment ISI program:

1. A summary of any significant degradation (e.g., liner corrosion in excess of 10% of the nominal thickness, or prestressing force trend that may not meet the minimum required prestress at the next scheduled tendon inspection) found during the recent examination of the containment and corrective actions taken.

2. Specific information and details regarding the scope of accessible and inaccessible areas. Drawings or sketches would be helpful.

3. Specific details (documentation and evaluation) on the indications found during the last examinations. Include the acceptance criteria used for accepting concrete and reinforcing bar degradation.

Response to Request 1

1. No significant degradation of containment for either Quad Cities Nuclear Power Station (QCNPS) unit has been identified since implementation of the Containment ISI (CISI) Program visual inspections in 1998. A summary of the CISI Program inspection results is provided under item three below.

2. As described in Reference 1, a comprehensive primary containment inspection is performed in accordance with the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Section XI, "Inservice Inspection," Subsection IWE, "Requirements for Class MC and Metallic Liners of Class CC Components of Light-Water Cooled Power Plants," and Subsection IWL, "Requirements of Class CC Concrete Components of Light-Water Cooled Power Plants."

   The QCNPS CISI Program consists of a CISI Basis Document, Program Plan, and CISI drawings.

   - The Basis Document defines the scope of accessible and inaccessible areas and components.
   - The Program Plan contains information such as the inspection schedules and program relief requests.
   - The CISI drawings provide information such as the type of components, their as-built details, and the associated penetrations. These drawings are controlled and maintained in the same manner as plant Piping & Instrument Diagrams (P&IDs).

Metal components included in the scope of the CISI Program were identified by evaluating identified metal components to the criteria of IWE-1100, and making a determination to include (or exclude) the component. For components included, a CISI drawing was developed to detail the specific areas or items subject to ASME Code Section XI examination (e.g., surfaces, bolting, seals, gaskets). In cases where the identified containment components interfaced with other ISI components included in the Subsection IWB, IWC, IWD, or IWF Program, jurisdictional boundary flags were included on the CISI drawings to indicate the jurisdictional boundary breaks. A component specific basis for accessibility or inaccessibility of metal components for inspection was established in accordance with ASME Code, Section XI, Subarticle IWE-1100, Subsubarticle IWE-1230.

Attachment 2 of this submittal contains a sample of CISI drawings that were developed for the CISI Program. A double crosshatch is used to denote those surface areas that are inaccessible from either side for examination. Although inaccessible surface areas are excluded from inspection requirements per IWE-1220(b), these areas would be representative of other locations that were inspected and would not be more susceptible to degradation that other accessible areas.

3. As described in Reference 1, for CISI inspections performed at QCNPS, various indications were observed, documented, evaluated, and determined to be acceptable. With the exception of the degraded drywell moisture barrier on Units 1 and 2, the observed indications continued to meet applicable acceptance criteria. Since implementing the CISI Program in 1998, the only indications noted during inspections that did not meet acceptance criteria were related to the Units 1 and 2 drywell moisture barriers. Specifically, the drywell moisture barriers experienced age-related degradation, and as required by 10 CFR 50.55a(b)(2)(ix)(D)(1) and IWA 6000, these indications were reported to the NRC in the ISI Summary Reports for outages Q1R16 and Q2R15 (i.e., References 2 and 3, respectively). The corrective actions for the degraded drywell moisture barrier included:

   - Removal of the defective drywell moisture barriers;
   - Visual inspection of metal containment surfaces covered by and adjacent to the moisture barriers (no degradation was noted);
   - Installation and visual inspection of new drywell moisture barriers (new drywell moisture barriers were found acceptable); and
   - Expansion of the inspection sample to include the personnel airlock and equipment hatch moisture barriers in accordance with IWE-2430 (personnel airlock and equipment hatch moisture barriers were found acceptable).

   ISI Summary Reports for the two most recent outages for Units 1 and 2 (i.e., Q1R17 and Q2R16) were provided to the NRC in References 4 and 5, respectively. No indications failed to meet acceptance criteria during the last containment visual examinations for each unit.

   The QCNPS CISI Program meets the requirements of the 1992 Edition with the 1992 Addenda of the ASME Code, Section XI, Subsections IWE and IWL, with specified modifications. QCNPS is not required to have acceptance criteria for concrete and reinforcing bar degradation since QCNPS has no components that meet the criteria of IWL-1100. Therefore, QCNPS is not required to perform examinations in accordance with Subsection IWL.

NRC Request 2

IWE-5200, and IWL-5000, requires an ILRT (pressure testing) after a major repair/replacement activity. In order for the staff to make a consistent assessment of the amendment request, the licensee is requested to provide information about any plans requiring major repair/replacement to the containment (e.g., cut a hole in the containment for reactor pressure vessel head replacement) during the requested ILRT interval extension period.

Response to Request 2

QCNPS is committed to the requirements of IWE-5200 from the 1992 Edition with the 1992 Addenda of the ASME Code, and as such, is required to perform a leakage test following a major modification or replacement of component(s). There are no major modifications or replacement of component(s) planned during the requested integrated leak rate test (ILRT) interval extension period. However, if major modification or replacement of component(s) were to occur during the extension period, performance of a leakage test would be required to satisfy the requirements of IWE-5200.

NRC Request 3

The Quad Cities' containments are maintained at a slight positive pressure during power operation. Primary containment pressure is normally monitored in the control room. Please provide information related to this positive pressure, such as average positive pressure maintained, and details of controls to monitor containment depressurization activities and trends (e.g., frequency, duration) for indication of changes to containment leakage.

Response

The drywell and suppression-chamber comprise the primary containment volume at QCNPS (Mark I containment design). During power operation, the primary containment atmosphere is inerted with nitrogen to mitigate concerns with hydrogen production following certain design basis accidents. Technical Specification (TS) 3.6.2.5, "Drywell-to-Suppression Chamber Differential Pressure," requires that containment drywell pressure be maintained at a positive pressure relative to containment suppression-chamber pressure (i.e., $\geq$ 1.0 psid differential pressure). The TS also require that drywell pressure be maintained $\leq$ 1.5 psig. The Containment Atmosphere Control System provides a supply of makeup nitrogen to automatically maintain primary containment pressure within the TS limits. This system automatically maintains containment drywell pressure between approximately 1.2-1.4 psig during power operation. Drywell and suppression-chamber pressure are continuously recorded in the control room. The control room operators monitor drywell pressure and drywell to suppression-chamber differential pressure via shiftly surveillances. Additionally, drywell high or low pressure is annunciated in the control room to alert the operators to off normal conditions.

References

1. Letter from P. R. Simpson (Exelon Generation Company, LLC) to U. S. Nuclear Regulatory Commission, "Request for Amendment to Technical Specification 5.5.12, 'Primary Containment Leakage Rate Testing Program,'" dated February 27, 2003

2. Letter from T. J. Tulon (Exelon Generation Company, LLC) to U. S. Nuclear Regulatory Commission, "90-Day post Outage ISI Letter," dated February 1, 2001

3. Letter from J. P. Dimmette, Jr. (Commonwealth Edison Company) to U. S. Nuclear Regulatory Commission, "90-Day Post Outage ISI Letter," dated April 28, 2000

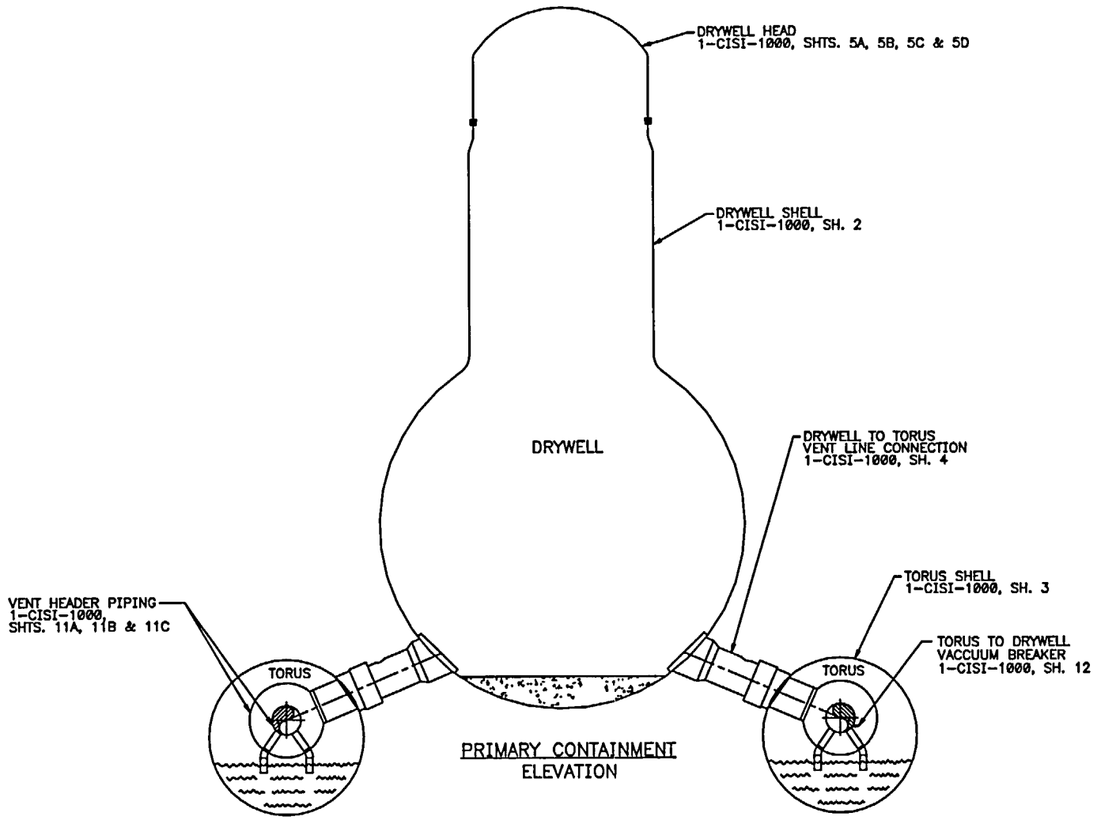
4. Letter from T. J. Tulon (Exelon Generation Company, LLC) to U. S. Nuclear Regulatory Commission, "90-Day Post Outage ISI Letter," dated February 24, 2003

5. Letter from T. Tulon (Exelon Generation Company, LLC) to U. S. Nuclear Regulatory Commission, "90-Day Post Outage ISI Letter," dated June 3, 2002

ATTACHMENT 2

Containment Inservice Inspection Drawings

1-CISI-1000 SHT.1



PRIMARY CONTAINMENT
ELEVATION

NOTES:
1. FOR IWE COMPONENT INFORMATION SEE DRAWING 1-CISI-1004 SERIES, 1005 SERIES, 1006 SERIES AND 1-CISI-1000, SH. 13.

REFERENCE DWG'S:
B-19

REV	DATE	DESCRIPTION	PREP.	REVR.	APPR.
A	10/13/98	FOR RECORD PER ASBT DCR 980084	BWA	SS	SAB
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--	--		--	--	--
--	--		--	--	--

ComEd
A Unicom Company
Chicago, Illinois
Quad Cities Station 4 Unit: 1

IWE COMPONENT
PRIMARY CONTAINMENT
GENERAL ARRANGEMENT

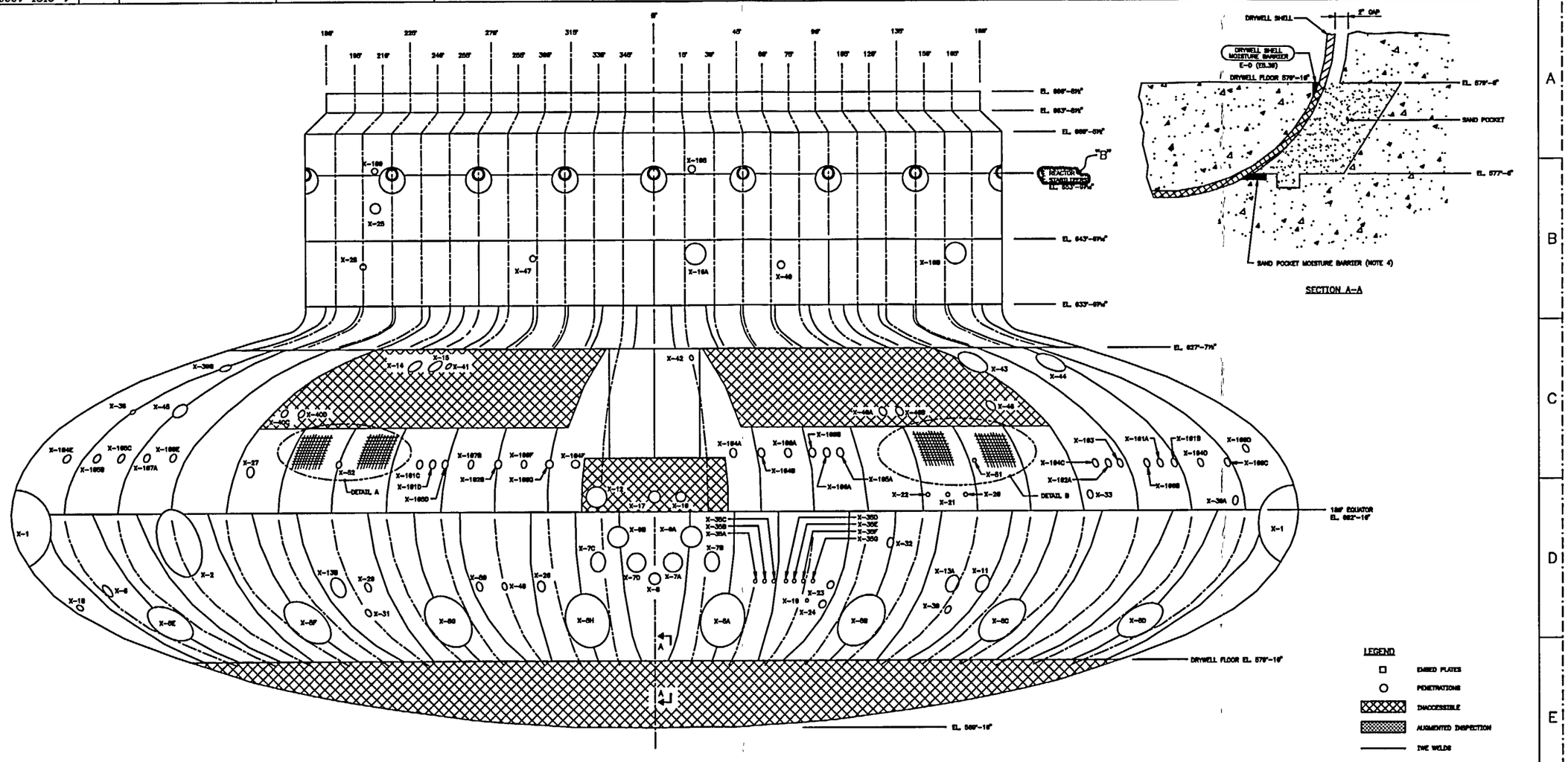
SCALE	:NONE
DATE	:07/23/98
DRAWN BY	:B. ANDERSON
ORG. BY	:C582

1-CISI-1000

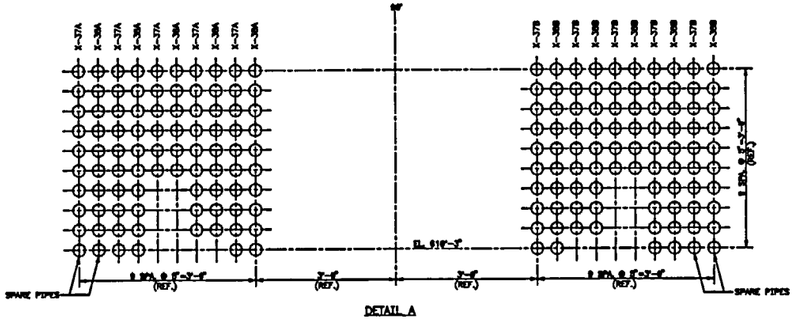
SHEET NUMBER: 1 | SIZE: C | M10

04 01 A 130C98 A D

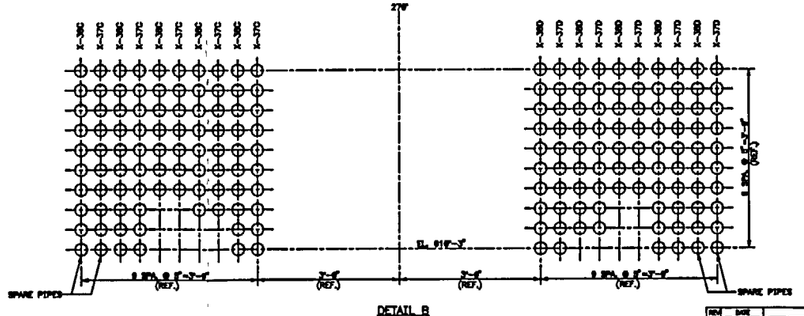
IWE COMPONENT PRIMARY CONTAINMENT GENERAL ARRANGEM□□



SECTION A-A



DETAIL A



DETAIL B

LEGEND

- EMBED PLATES
- PENETRATIONS
- INACCESSIBLE
- AUGMENTED INSPECTION
- IWE WELDS
- IWE COMPONENT IDENTIFIER
- FOR INFORMATION

NOTES:

1. FOR IWE COMPONENT INFORMATION SEE DWG'S 1-CISI-1000, SH. 13, 1-CISI-1004 SERIES, 1-CISI-1005 SERIES AND 1-CISI-1006 SERIES.
2. ALL ELEVATIONS ARE FOR REFERENCE ONLY.
3. BOLD LINES REPRESENT PLATE WELDS.
4. INACCESSIBLE AND EXEMPT FROM EXAMINATION PER IWE SECTION 1220B.

REFERENCE DWG'S:

B-22
B-24
B-305
CSI-2

REV	DATE	DESCRIPTION	PREP.	RSH'D	APPR.
B	03/17/00	PER RECORD PER ASME DCR 99R189	MDH	KTJ	SAB
A	---	---	---	---	---
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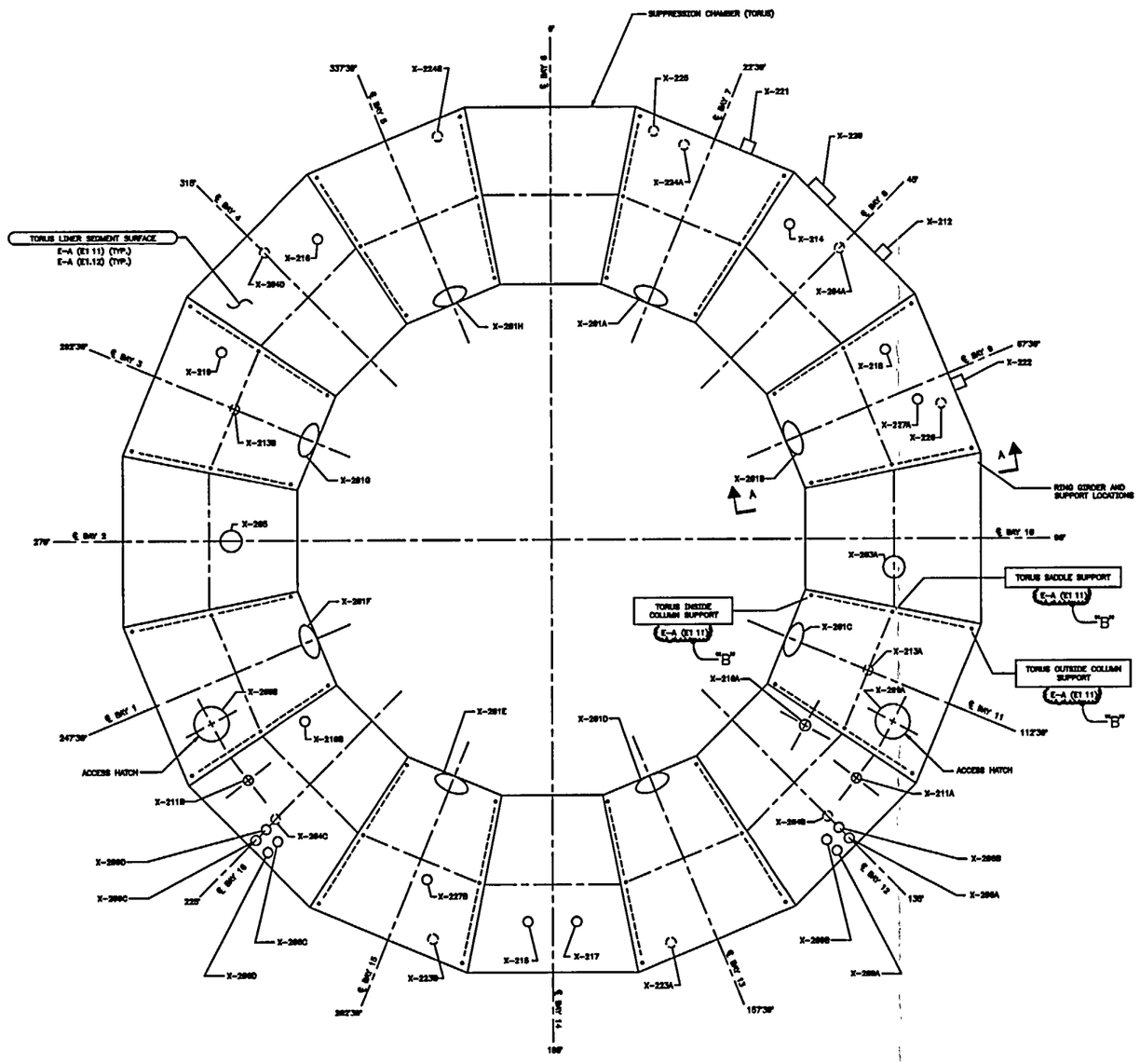
ComEd
Chicago, Illinois
Quad Cities Station 4 Unit: 1

IWE COMPONENT ROLLOUT CONTAINMENT SHELL (DRYWELL) 0° TO 360° AZIMUTH

SCALE	NONE
DATE	07/23/99
DRAWN BY	S. ANDERSON
CHK. BY	
	1-CISI-1000
SHEET NUMBER:	2
SIZE:	F
	M10

04 01 B 17MA00 A D

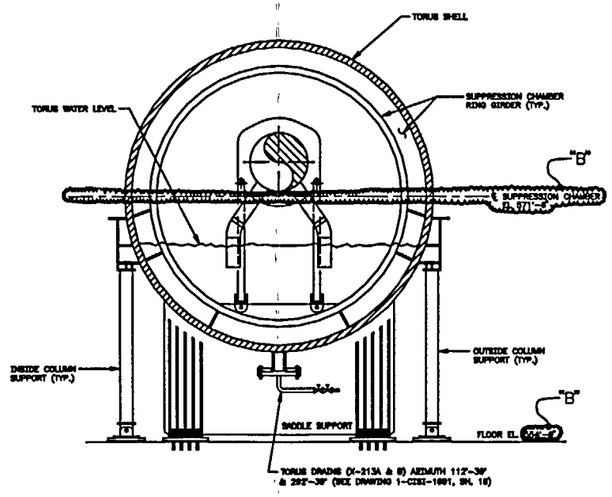


NOTES:

1. FOR THE COMPONENT INFORMATION SEE DRAWINGS 1-CISI-1004 SERIES, 1005 SERIES, 1006 SERIES AND 1-CISI-1008, SH. 13.
2. COMPONENT SUPPORTS SHOWN FOR INFORMATION ONLY FOR ACTUAL LOCATION AND CONFIGURATION SEE SUPPORT DETAIL DRAWINGS.

REFERENCE DWGS:

B-23
B-188
B-1307



SECTION A-A
TYPICAL TORUS SUPPORT CONFIGURATION
(TYP. 16 PLACES)

LEGEND

- EMBED PLATES
- INACCESSIBLE
- AUGMENTED INSPECTION
- IWE WELDS/BOUNDARY
- IWE COMPONENT IDENTIFIER
- COMPONENT SUPPORT
- FOR INFORMATION

REV	DATE	DESCRIPTION	PREP.	REVIEW	APPR.
B	03/17/00	FOR RECORD PER ASME DCR 99R188 & ASME DCR 99R332	MDH	KTJ	SAB
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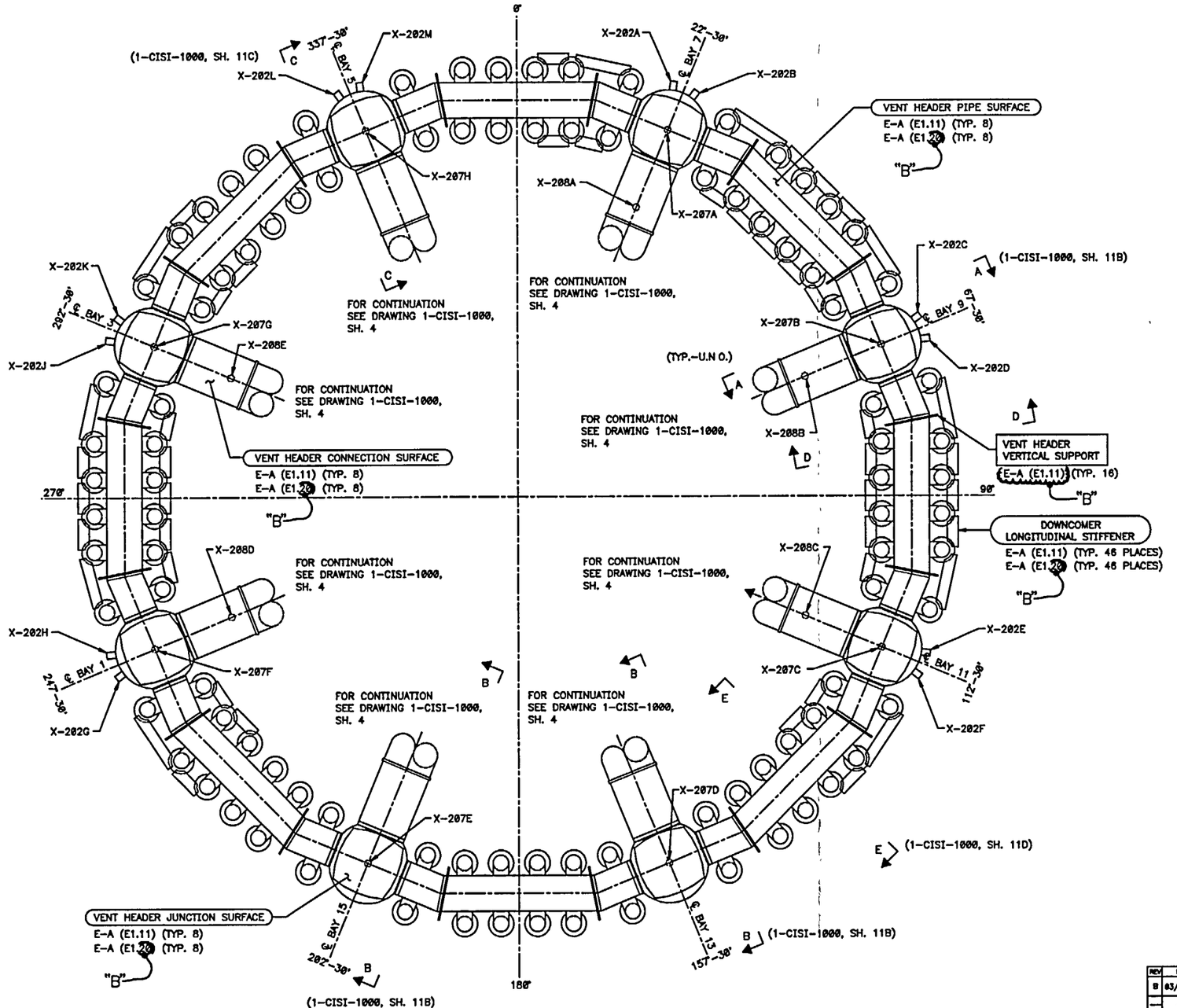
—	—		—	—	—
—	—		—	—	—
—	—		—	—	—

ComEd
Chicago, Illinois
Quad Cities Station 4 Unit: 1

NORTH

IWE COMPONENT DRAWING
CONTAINMENT SHELL (TORUS)
0° TO 360° AZIMUTH

SCALE	1:NONE
DATE	07/23/98
DRAWN BY	B. ANDERSON
ORG. BY	1088
	1-CISI-1000
SHEET NUMBER:	3
SIZE:	F
	M10



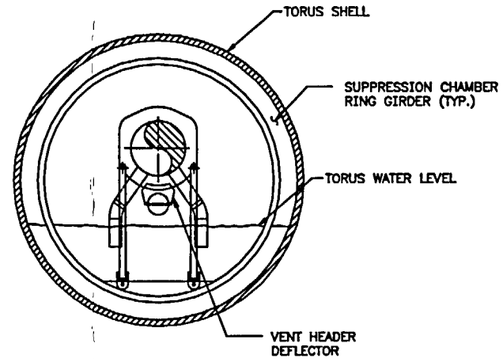
PLAN VIEW

NOTES:

1. FOR IWE COMPONENT INFORMATION SEE DRAWINGS 1-CISI-1006 SERIES AND 1-CISI-1000, SH. 13.
2. EXCLUDED FROM EXAMINATION PER CATEGORY E-A, NOTE 5.
3. COMPONENT SUPPORTS SHOWN FOR INFORMATION ONLY. FOR ACTUAL LOCATION AND CONFIGURATION SEE SUPPORT DETAIL DRAWINGS.

REFERENCE DWG'S:

B-19	B-225	B-1648
B-20	B-1635	CBI-206,211,213,214
B-220	B-1639	CBI-221



SECTION D-D
VENT HEADER VERTICAL SUPPORT CONFIGURATION
(DOWNCOMER SUPPORT BRACES NOT SHOWN FOR CLARITY)
(TYP. 16 PLACES)

LEGEND

- INACCESSIBLE
- AUGMENTED INSPECTION
- IWE WELDS/BOUNDARY
- IWE COMPONENT IDENTIFIER
- COMPONENT SUPPORT
- FOR INFORMATION

REV	DATE	DESCRIPTION	PREP	REVR.	APPR.
B	03/17/00	FOR RECORD PER ASBT DCR 990158	MDH	KTJ	SAB
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ComEd
Chicago, Illinois
Quad Cities Station 4 Unit: 1

IWE COMPONENT DRAWINGS
TORUS VENT SYSTEM
VENT HEADER CONNECTION

SCALE: NONE
DATE: 06/13/96
DRAWN BY: B. ANDERSON
ORG. ID: CC582

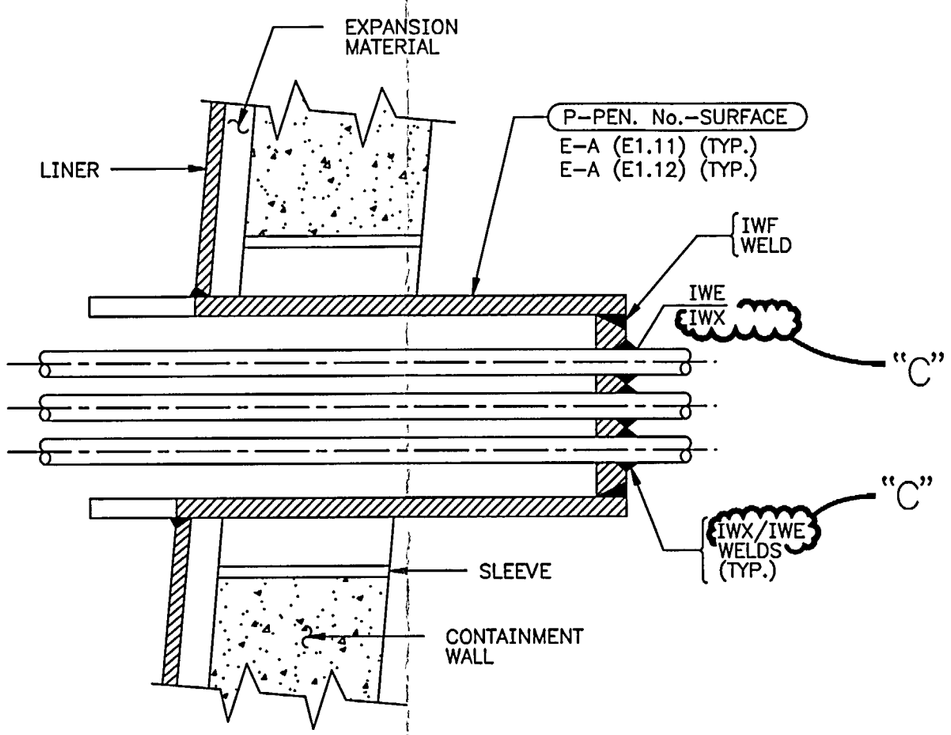
1-CISI-1000

SHEET NUMBER: 11A | SIZE: D | M10

04 01 B 17MA00 A D

INSIDE CONTAINMENT

OUTSIDE CONTAINMENT



NOTES:

1. FOR IWE COMPONENT INFORMATION SEE DRAWINGS 1-CISI-1004 SERIES.
2. REFER TO P&ID LISTED IN THE PIPING PENETRATION INFORMATION TABLE FOR IWE BOUNDARY.

LEGEND:

- ACCESSIBLE FROM AT LEAST ONE SIDE FOR VISUAL INSPECTION
- INACCESSIBLE FOR VISUAL INSPECTION
- IWE BOUNDARY
- FOR INFORMATION
- IWE COMPONENT IDENTIFIER
- IWX / IWX – CODE BOUNDARY BREAK

REV	DATE	DESCRIPTION	PREP.	REVR.	APPR.
C	08/09/01	FOR RECORD PER EC 31216 (ASBT DCR 990880)	MGS	KTJ	TJW
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Exelon SM Nuclear
Quad Cities Station 4 Unit: 1

IWE BOUNDARY DRAWINGS PIPING AND INSTRUMENT PENETRATION DETAILS CONFIGURATION NO.9

SCALE	:NONE
DATE	:08/14/98
DRAWN BY	:B. ANDERSON
ORG. BY	:C502

1-CISI-1001

SHEET NUMBER: 9 | SIZE: B | M10