Exelon Generation
4300 Winfield Road
Warrenville, IL 60555

www.exeloncorp.com

Exelon Nuclear

10 CFR 54

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

Dresden Nuclear Power Station, Units 2 and 3
Facility Operating License Nos. DPR–19 and DPR-25
NRC Docket No. 50-237 and 50-249

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 for the Review of the License Renewal Applications for Quad Cities Nuclear Power Station, Units 1 and 2 and Dresden Nuclear Power Station, Units 2 and 3

References:
(1) Letter from J. A. Benjamin (Exelon Generation Company, LLC) to U. S. NRC, "Application for Renewed Operating Licenses," dated January 3, 2003

(2) Letter from Tae Kim (USNRC) to John Skolds (Exelon Generation Company, LLC), "Request for Additional Information for the Review of the Dresden Nuclear Power Station, Units 2 and 3, and Quad Cities Nuclear Power Station, Unit 1 and 2, License Renewal Application," dated August 7, 2003

(3) Letter from Patrick Simpson (Exelon Generation Company, LLC) to U. S. NRC, "Additional Information for the Review of the License Renewal Applications for Quad Cities Nuclear Power Station, Units 1 and 2 and Dresden Nuclear Power Station, Units 2 and 3," dated October 3, 2003.

Exelon Generation Company, LLC (EGC) is submitting the additional information requested in Reference 2. This additional information provides a response to RAI 3.1-9, which was inadvertently left out of Reference 3, to support the NRC review of Reference 1.

AD97
AD98

Should you have any questions, please contact Al Fulvio at 610-765-5936.

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

Respectfully,

10/15/03
Executed on

Patrick R. Simpson
Manager – Licensing

Attachment: Response to Request for Additional Information

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station
NRC Senior Resident Inspector – Dresden Nuclear Power Station
Illinois Emergency Management Agency

Attachment

Response to Request for Additional Information

RAI 3.1-9

(a) In Section 3.1.1.1.5 of the LRA, the applicant states that thermal stratification, thermal cycling and thermal stripping, thermal transients, and flow accelerated corrosion are potential aging mechanisms for small-bore piping. The LRA also states that a review of the Dresden and Quad Cities Risk Informed Inservice Inspection (RI-ISI) Evaluations on degradation mechanism assessment demonstrated that only Dresden had a high failure potential on a small bore pipe due to thermal fatigue. The inspection will consist of an ultrasonic exam on one of the two-inch drain lines off the Dresden main steam header. These lines are Class 1 and within the scope of License Renewal. The staff has the following comments:

1. Identify all Class 1, small bore piping in all Units (Dresden, Units 2 and 3, and Quad Cities, Units 1 and 2). Include the pipe sizes, material and type of weld (i.e., butt or socket). If there are no UT-inspectable full penetration butt welds within scope, then socket welds that are replaced due to modifications should be destructively tested to confirm the effectiveness of the existing AMPs. This is consistent with NUREG-1801, Section XI.M32, which allows a plant-specific destructive examination of replaced piping in lieu of NDE that permits inspection of the inside surfaces of the piping.

2. As currently written, 10 CFR Part 54 does not allow the staff to accept the elimination of SSCs from aging management based on risk-informed arguments. Therefore, RI-ISI evaluations can be used to select susceptible SSCs locations, but can not eliminate SSCs from being inspected for a one-time inspection program. A sampling of butt welds from each unit should be developed, that is consistent with the ASME Code, and is sufficient to confirm the effectiveness of existing AMPs and/or to confirm that there is no need to manage aging-related degradation for the period of extended operation. Inspecting one weld, in one unit is not a sufficient sample size. Provide a sampling plan with a suitable sample size and an explanation of the selection process. This plan should also include a discussion regarding expansion of the inspection sample size and locations for follow up of unacceptable inspection findings as required by NUREG-1801, Section XI.M32. This plan is to be reviewed by the staff on a plant-specific basis, as required by NUREG-1801, Section XI.M32.

3. Section 3.1.1.1.5 of the LRA does not specify an inspection program for stress corrosion cracking (SCC) as an aging mechanism in small bore piping. What programs will be used to manage SCC in small bore piping?

(b) The applicant stated that, for this AMP, the one-time inspection program for small-bore Class 1 piping less than 4 inches will consist of an ultrasonic exam on one of the two-inch drain lines off the Dresden main steam header. These lines were identified as part of a review of the Dresden and Quad Cities Risk Informed Inservice Inspection (RISI) degradation mechanism assessments on Class 1 piping. The aging mechanisms cited by the report for these lines are thermal stratification, cycling, and stripping (TASCS), thermal transients (TT), and flow accelerated corrosion. Nuclear industry service experience, documented in several industry and NRC reports, has shown that the majority of reported piping leaks occur in small bore piping less then 4-inch NPS. A significant number of

these failures have been reported in reactor coolant system, main steam system, feedwater system, and auxiliary systems in BWR plants. Also, a large portion of the reported Class 1 small bore piping failures occurred in piping 1-inch NPS and less that were caused primarily by mechanical vibration, thermal fatigue/turbulent penetration, stress corrosion cracking, and erosion-corrosion aging mechanisms. Since Class 1 small bore piping 1-inch NPS and less are exempt from NDE examinations in ASME Section XI, these lines will typically receive only periodic VT-2 visual examination. In addition, many RI-ISI evaluations do not include Class 1 piping 1-inch NPS and less in their evaluation scope and specific degradation mechanism assessments are not performed for these lines. Therefore, it is not clear that the applicant's proposed one-time inspection program for small-bore piping will be representative of all Class 1 piping 1-inch NPS and less with full penetration butt welds (socket welds are excluded).

The applicant is requested to clarify whether the Dresden and Quad Cities Risk Informed Inservice Inspection (RI-ISI) degradation mechanism assessments included Class 1 piping 1-inch NPS and less with full penetration butt welds. Also describe how the proposed one-time inspection program will confirm that the aging mechanisms associated with the Class 1 small-bore piping 1-inch NPS and less with full penetration butt welds at Dresden and Quad Cites are either not occurring and/or there is no need to manage age-related degradation for the period of extended operation.

Response:

(a) 1. The following tables provide a listing of the ASME Class 1, NPS <4" piping for Dresden Units 2 & 3 and Quad Cities Units 1 & 2. As there are full penetration butt welds that can be UT-inspected at Dresden and Quad Cities, no destructive examinations will be performed of the socket welds.

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
D-2	Reactor Recirculation	2-020A-28" A	Stainless Steel	Butt	LR-DRE-M-26-2 (C-7) 3" Branch to Decon Conn. Only
D-2	Reactor Recirculation	2-020B-28" A	Stainless Steel	Butt	LR-DRE-M-26-2 (C-2) 3" Branch to Decon. Conn. Only
D-2	Reactor Recirculation	2-0203B-4" A	Stainless Steel	Butt	LR-DRE-M-26-2 (D-3) 4 x 3" and 3" flange only
D-2	Reactor Recirculation	2-0203A-4" A	Stainless Steel	Butt	LR-DRE-M-26-2 (D-5) 4 x 3" and 3" flange only
D-2	Nuclear Boiler Instrumentation	2-0304-2½" A	Stainless Steel	Butt	LR-DRE-M-26-1 (A-4/6) Also includes Test line tap
D-2	Standby Liquid Control	2-1102-1½" A and 2"	Stainless Steel	Butt and Socket	LR-DRE-M-26-1 (E-7) 2" section only at Nozzle N-12
D-2	Nuclear Boiler Instrumentation	2-0284-1" RV	Stainless Steel	Butt and Socket	LR-DRE-M-26-1 (B/D-4/6) From Nozzle N-13A Line contains 3" Dia. Condensing

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
					Chamber and Reservoir
D-2	Nuclear Boiler Instrumentation	2-0285-1" RV	Stainless Steel	Butt and Socket	LR-DRE-M-26-1 (B/D-6/7) From Nozzle N-13B Line contains 3" Dia. Condensing Chamber and Reservoir
D-2	Nuclear Boiler Instrumentation	1" Instrument Line from Nozzle N-16A	Stainless Steel	Butt and Socket	LR-DRE-M-26-1 (C-5)
D-2	Nuclear Boiler Instrumentation	1" Instrument Line from Nozzle N-16B	Stainless Steel	Butt and Socket	LR-DRE-M-26-1 (C-7)
D-2	Main Steam	2-3007-2" B	Carbon Steel	Butt and Socket	LR-DRE-M-12-1 (E-3/4) LR-DRE-M-12-2 (E-8)
D-2	Feedwater	2-32169-¾" C	Carbon Steel	Socket	LR-DRE-M-14 (E-3) Covers both lines
D-2	Feedwater	¾"	Carbon Steel	Socket	LR-DRE-M-14 (F-3) Covers both the test and hose connections.
D-2	Core Spray	2-1451-¾" A	Stainless Steel	Socket	LR-DRE-M-27 (C/D-3)
D-2	Core Spray	2-1452-¾" A	Stainless Steel	Socket	LR-DRE-M-27 (C/D-4)
D-2	Core Spray	2-1411-¾" ECCS	Carbon Steel	Socket	LR-DRE-M-27 (C-2)
D-2	Core Spray	2-1413-¾" ECCS	Carbon Steel	Socket	LR-DRE-M-27 (C-5)
D-2	Core Spray	¾" Bypass lines around 2-1402-9A/B	Stainless Steel	Socket	LR-DRE-M-27 (E-2, Detail A)
D-2	Isolation Condenser	2-1358-¾" A	Stainless Steel	Socket	LR-DRE-M-28 (C-10)
D-2	Isolation Condenser	2-1305-¾" A	Stainless Steel	Socket	LR-DRE-M-28 (C-9)
D-2	Isolation Condenser	Instr. Lines to DPIS 2-1349	Stainless Steel	Socket	LR-DRE-M-28 (E-8)
D-2	Isolation Condenser	Drain Line to Vlv. 2-1301-604	Stainless Steel	Socket	LR-DRE-M-28 (E-8)
D-2	Isolation Condenser	Vent Line to Vlv. 2-1301-601	Stainless Steel	Socket	LR-DRE-M-28 (E-7)
D-2	Reactor Water Clean-Up	2-12126-2" A	Stainless Steel	Socket	LR-DRE-M-30 (A-3)
D-2	Reactor Water Clean-Up	2-12116-½" A	Stainless Steel	Socket	LR-DRE-M-30 (A-3)
D-2	Reactor Water Clean-Up	2-1233-1" A	Stainless Steel	Socket	LR-DRE-M-30 (B-4)
D-2	Reactor Water Clean-Up	Drain line to Vlv. 2-1299-11	Stainless Steel	Socket	LR-DRE-M-30 (B-3)
D-2	Shutdown Cooling	Drain Lines A, B, & C to RBEDT (B)	Carbon Steel	Socket	LR-DRE-M-32 (A, C & E-9)

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
D-2	Shutdown Cooling	Vent Line to Vlv. 2-1001-47A (B)	Carbon Steel	Socket	LR-DRE-M-32 (C-9)
D-2	Shutdown Cooling	1" Line to Relief Vlv. 2-1099-29 (B)	Carbon Steel	Socket	LR-DRE-M-32 (C-9)
D-2	Shutdown Cooling	2-1020A-¾" B	Carbon Steel	Socket	LR-DRE-M-32 (B-9)
D-2	Shutdown Cooling	Line to Vlv. 2-1001-200 (B)	Carbon Steel	Socket	LR-DRE-M-32 (C-9)
D-2	Shutdown Cooling	Vent Line to Vlv. 2-1001-47B (B)	Carbon Steel	Socket	LR-DRE-M-32 (D-9)
D-2	Shutdown Cooling	2-1020B-¾" B	Carbon Steel	Socket	LR-DRE-M-32 (D-9)
D-2	Standby Liquid Control	2-1102-1½" A	Stainless Steel	Socket	LR-DRE-M-33 (D-3)
D-2	High Pressure Coolant Injection	2-2346-¾" B	Carbon Steel	Socket	LR-DRE-M-51 (D-1)
D-2	Control Rod Drive Hydraulic	2-0314-1"	Stainless Steel	Socket	LR-DRE-M-34-2 (D-10)
D-2	Control Rod Drive Hydraulic	2-0341-½"	Stainless Steel	Socket	LR-DRE-M-34-2 (D-9)
D-2	Control Rod Drive Hydraulic	2-0342-½"	Stainless Steel	Socket	LR-DRE-M-34-2 (D-10)
D-2	Control Rod Drive Hydraulic	2-0336-¾"	Stainless Steel	Socket	LR-DRE-M-34-2 (C/E-9)
D-2	Control Rod Drive Hydraulic	2-0317-½"	Stainless Steel	Socket	LR-DRE-M-34-2 (C/D-10)
D-2	High Pressure Coolant Injection	1" Instr. Lines to DPT 2-2352 to Vlv. 2-2301-26 and 27	Stainless Steel	Socket	LR-DRE-M-51 (D/C-1/2) Drawing shows this as a ¾" line
D-2	Reactor Recirculation	2 1" Lines to FT 2-261-6C	Stainless Steel	Socket	LR-DRE-M-26-2 (D-1/3)
D-2	Nuclear Boiler Instrumentation	8 - ¾" and 1" Instr. Lines from Nozzle N-20A	Stainless Steel	Socket	LR-DRE-M-26-1 (D-5)
D-2	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 6 (upper)	Stainless Steel	Socket	LR-DRE-M-26-1 (D-5)
D-2	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 1 (upper)	Stainless Steel	Socket	LR-DRE-M-26-1 (D-5)
D-2	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 1 (lower)	Stainless Steel	Socket	LR-DRE-M-26-1 (D-5)
D-2	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line	Stainless Steel	Socket	LR-DRE-M-26-1 (E-5)

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
		JP 6 (lower)			
D-2	Nuclear Boiler Instrumentation	8 - ¾" and 1" Instrument Lines from Nozzle N-20B	Stainless Steel	Socket	LR-DRE-M-26-1 (D-7)
D-2	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 16 (upper)	Stainless Steel	Socket	LR-DRE-M-26-1 (D-7)
D-2	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 11 (upper)	Stainless Steel	Socket	LR-DRE-M-26-1 (D-7)
D-2	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 11 (lower)	Stainless Steel	Socket	LR-DRE-M-26-1 (D-7)
D-2	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 16 (lower)	Stainless Steel	Socket	LR-DRE-M-26-1 (E-7)
D-2	Nuclear Boiler Instrumentation	1" Core Plate DP Lines	Stainless Steel	Socket	LR-DRE-M-26-1 (E-5)
D-2	Nuclear Boiler Instrumentation	2-0260-½" A	Stainless Steel	Socket	LR-DRE-M-26-1 (B-5)
D-2	Reactor Vessel Head Vent	2-0214-2" H	Stainless Steel	Socket	LR-DRE-M-26-1 (B-7) LR-DRE-M-12-1 (E-5)
D-2	Nuclear Boiler Instrumentation	2-0299A-½" A	Stainless Steel	Socket	LR-DRE-M-26-1 (C-5) LR-DRE-M-26-3 (F-8)
D-2	Nuclear Boiler Instrumentation	2-0299B-½" A	Stainless Steel	Socket	LR-DRE-M-26-1 (C-7) LR-DRE-M-26-3 (F-1)
D-2	Nuclear Boiler Instrumentation	2-0299A- ¾" A	Stainless Steel	Socket	LR-DRE-M-26-1 (E-5)
D-2	Nuclear Boiler Instrumentation	2-0299B- ¾" A	Stainless Steel	Socket	LR-DRE-M-26-1 (E-7)
D-2	Nuclear Boiler Instrumentation	2-0308- 3" A	Stainless Steel	Socket	LR-DRE-M-26-1 (E-7)
D-2	Low Pressure Coolant Injection	2-1537- ¾" A	Stainless Steel	Socket	LR-DRE-M-29-1 (B-4)
D-2	Low Pressure Coolant Injection	2-1538- ¾" A	Stainless Steel	Socket	LR-DRE-M-29-1 (B-6)
D-2	Low Pressure Coolant Injection	2-1519- ¾" A	Stainless Steel	Socket	LR-DRE-M-29-1 (B-3)
D-2	Low Pressure Coolant Injection	2-1506- ¾" A	Stainless Steel	Socket	LR-DRE-M-29-1 (B-7)
D-2	Nuclear Boiler Instrumentation	2-0296B-½" A	Stainless Steel	Socket	LR-DRE-M-26-3 (D/E-2-5)
D-2	Nuclear Boiler	4 – ¾" and 1"	Stainless Steel	Socket	LR-DRE-M-26-2 (F-5)

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
	Instrumentation	Instrument Lines through Penetration X-146			
D-2	Nuclear Boiler Instrumentation	4 – ¾" and 1" Instrument Lines through Penetration X-208	Stainless Steel	Socket	LR-DRE-M-26-2 (F-4)
D-2	Reactor Recirculation	10 – ¾" Decon Taps	Stainless Steel	Socket	LR-DRE-M-26-2 (E-4)
D-2	Reactor Recirculation	2-0390-¾" A	Stainless Steel	Socket	LR-DRE-M-26-2 (B-7)
D-2	Reactor Recirculation	2-02100A-¾" A	Stainless Steel	Socket	LR-DRE-M-26-2 (B-6)
D-2	Reactor Recirculation	2-0204A-2" L	Carbon Steel	Socket	LR-DRE-M-26-2 (B-6)
D-2	Reactor Recirculation	2-0225A-¾" L	Carbon Steel	Socket	LR-DRE-M-26-2 (D-6)
D-2	Reactor Recirculation	2-0231A-¾" A	Stainless Steel	Socket	LR-DRE-M-26-2 (D-5)
D-2	Reactor Recirculation	2-0228A-¾" L	Carbon Steel	Socket	LR-DRE-M-26-2 (C-5)
D-2	Reactor Recirculation	2" line around for valve 2-0202-9A	Stainless Steel	Socket	LR-DRE-M-26-2 (C-5)
D-2	Reactor Recirculation	2-0220A-¾" L	Carbon Steel	Socket	LR-DRE-M-26-2 (C-5)
D-2	Reactor Recirculation	2-02100B-¾" A	Stainless Steel and Carbon Steel	Socket	LR-DRE-M-26-2 (B/C-2)
D-2	Reactor Recirculation	2-02102-¾" A	Stainless Steel	Socket	LR-DRE-M-26-2 (E-2)
D-2	Reactor Recirculation	2-0233-¾" A	Stainless Steel	Socket	LR-DRE-M-26-2 (E-2)
D-2	Reactor Recirculation	2-0225B-¾" L	Carbon Steel	Socket	LR-DRE-M-26-2 (D-3)
D-2	Reactor Recirculation	2-0231B-¾" A	Stainless Steel	Socket	LR-DRE-M-26-2 (D-3)
D-2	Reactor Recirculation	1" Lines to DPT 2-261-5B	Stainless Steel	Socket	LR-DRE-M-26-2 (B-3)
D-2	Reactor Recirculation	2-0207-2" A	Stainless Steel	Socket	LR-DRE-M-26-2 (D/C-4)
D-2	Reactor Water Cleanup	2-1265-2" A	Stainless Steel	Socket	LR-DRE-M-26-2 (D/C-4) LR-DRE-M-30 (A-3)
D-2	Reactor Recirculation	2-0228B-¾" A	Stainless Steel	Socket	LR-DRE-M-26-2 (C-3)
D-2	Low Pressure Coolant	¾" Bypass lines around 2-1501-25	Stainless Steel	Socket	LR-DRE-M-29-2 (B-6, Detail A)

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
	Injection	A&B			
D-2	Reactor Recirculation	2-0220B-¾" A	Stainless Steel	Socket	LR-DRE-M-26-2 (C-3/4)
D-2	Nuclear Boiler Instrumentation	2-0299A-½" A	Stainless Steel	Socket	LR-DRE-M-26-3 (D-7)
D-2	Nuclear Boiler Instrumentation	2-0299B-½" A	Stainless Steel	Socket	LR-DRE-M-26-3 (D-3)
D-2	Reactor Vessel Head Vent	2-0214-2" B	Carbon Steel	Socket	LR-DRE-M-12-1 (D-4/5), LR-DRE-M-26-1 (B-6/7)
D-2	Nuclear Boiler Instrumentation	2-0392-½" A	Stainless Steel	Socket	LR-DRE-M-26-1 (B-5/6)
D-2	Nuclear Boiler Instrumentation	1" Line from Nozzle N-8 through the condensing chamber	Carbon Steel	Socket	LR-DRE-M-26-1 (A/B-5/6)
D-2	Reactor Vessel Head Vent	2-0215-2" A	Stainless Steel	Socket	LR-DRE-M-26-1 (A/B-6/7)
D-2	Reactor Recirculation	1" Lines to the DPT 2-261-5A	Stainless Steel	Socket	LR-DRE-M-26-2 (B-6/7)
D-2	Reactor Recirculation	1" Instrument Lines to FT 2-261-6A	Stainless Steel	Socket	LR-DRE-M-26-2 (D-6/8)
D-2	Nuclear Boiler Instrumentation	2-0296A-½" A	Stainless Steel	Socket	LR-DRE-M-26-3 (D/E-6-8)
D-2	Isolation Condenser	Instr. Lines to DPIS 2-1350	Stainless Steel	Socket	LR-DRE-M-28 (C-9/10)
D-2	Control Rod Drive Hydraulic	2-0338-1"	Stainless Steel	Socket	LR-DRE-M-34-2 (E/D-9/10)
D-2	Main Steam	2-3007A-1½" B	Carbon Steel	Socket	LR-DRE-M-12-1 (E-4)
D-2	Main Steam	2-3007B-1½" B	Carbon Steel	Socket	LR-DRE-M-12-1 (D-4)
D-2	Main Steam	2-3007C-1½" B	Carbon Steel	Socket	LR-DRE-M-12-1 (C-4)
D-2	Main Steam	2-3007D-1½" B	Carbon Steel	Socket	LR-DRE-M-12-1 (A-4)
D-2	Main Steam	2-3009- ¾" D	Carbon Steel	Socket	LR-DRE-M-12-1 (E-3)
D-2	Main Steam	1" Instr. Line From Flow Elem. 2-261-1A,B,C & D to DPIS 2-261-2	Stainless Steel	Socket	LR-DRE-M-12-1 (A/E-4) LR-DRE-M-12-2 (A/E-8)
D-2	Main Steam	1" MSIV Test connection to Valve 2-220-10A, B, C, and D	Carbon Steel	Socket	LR-DRE-M-12-2 (Detail B at F-6)

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
D-3	Nuclear Boiler Instrumentation	3-0304-2½" A	Stainless Steel	Butt	LR-DRE-M-357-1 (F-4/6) Also includes Test line tap.
D-3	Reactor	Decon Conn 3"	Stainless Steel	Butt	LR-DRE-M-357-2 (C-6)

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
	Recirculation	AM			
D-3	Reactor Recirculation	Decon Conn 3" AM	Stainless Steel	Butt	LR-DRE-M-357-2 (D-3)
D-3	Reactor Recirculation	Decon Connection 3" AM	Stainless Steel	Butt	LR-DRE-M-357-2 (D-4)
D-3	Reactor Recirculation	Decon Conn 3" AM	Stainless Steel	Butt	LR-DRE-M-357-2 (D-4)
D-3	Reactor Recirculation	Decon Connection 3" AM	Stainless Steel	Butt	LR-DRE-M-357-2 (D-4/5)
D-3	Standby Liquid Control	3-1102-1½" A and 2"	Stainless Steel	Butt and Socket	LR-DRE-M-357-1 (A-5) 2" section only at Nozzle N-12
D-3	Nuclear Boiler Instrumentation	3-0285-1" RV	Stainless Steel	Butt and Socket	LR-DRE-M-357-1 (D/E-2/4) From Nozzle N-13B Line contains 3" Dia. Condensing Chamber and Reservoir
D-3	Nuclear Boiler Instrumentation	3-0284-1" RV	Stainless Steel	Butt and Socket	LR-DRE-M-357-1 (D/E-5/7) From Nozzle N-13A Line contains 3" Dia. Condensing Chamber and Reservoir
D-3	Main Steam	3-3007-2" B	Carbon Steel	Butt and Socket	LR-DRE-M-345-1 (B/F-7/8) LR-DRE-M-345-2 (E-7/8)
D-3	Nuclear Boiler Instrumentation	1" Instrument Line from Nozzle N-16B	Stainless Steel	Butt and Socket	LR-DRE-M-357-1 (D-4)
D-3	Nuclear Boiler Instrumentation	1" Instrument Line from Nozzle N-16A	Stainless Steel	Butt and Socket	LR-DRE-M-357-1 (D-5)
D-3	Main Steam	3-3007D-1½" B	Carbon Steel	Socket	LR-DRE-M-245345-1 (E-7)
D-3	Main Steam	1" Instr. Line From Flow Elem. 3-261-1A,B,C & D to DPIS 2-261-2	Stainless Steel	Socket	LR-DRE-M-345-1 (B/F-6/8) LR-DRE-M-345-2 (B/E-8)
D-3	Main Steam	3-3007A-1½" B	Carbon Steel	Socket	LR-DRE-M-345-1 (B-7)
D-3	Main Steam	3-3009-¾" D	Carbon Steel	Socket	LR-DRE-M-345-1 (B-8)
D-3	Main Steam	3-3007B-1½" B	Carbon Steel	Socket	LR-DRE-M-345-1 (C-7)
D-3	Reactor Vessel Head Vent	3-0214-2" B	Carbon Steel	Socket	LR-DRE-M-345-1 (C-7) LR-DRE-M-357-1 (E-4)
D-3	Main Steam	3-3007C-1½" B	Carbon Steel	Socket	LR-DRE-M-345-1 (D-7)
D-3	Main Steam	1" MSIV Test connection to Valve 3-220-10A, B, C, and D	Carbon Steel	Socket	LR-DRE-M-345-2 (Detail B at F-5)
D-3	Feedwater	3-32169-¾" C	Carbon Steel	Socket	LR-DRE-M-347 (E-3) Covers both lines
D-3	Feedwater	¾"	Carbon Steel	Socket	LR-DRE-M-347 (F-3) Covers both the test and hose

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
					connections.
D-3	Reactor Vessel Head Vent	3-0214-2" H	Stainless Steel	Socket	LR-DRE-M-357 (E-4)
D-3	Nuclear Boiler Instrumentation	8 - ¾" and 1" Instrument Lines from Nozzle N-20A	Stainless Steel	Socket	LR-DRE-M-357-1 (B/C-5)
D-3	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 16 (lower)	Stainless Steel	Socket	LR-DRE-M-357-1 (B-4)
D-3	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 6 (lower)	Stainless Steel	Socket	LR-DRE-M-357-1 (B-5)
D-3	Nuclear Boiler Instrumentation	1" Core Plate DP Lines	Stainless Steel	Socket	LR-DRE-M-357-1 (B-5)
D-3	Nuclear Boiler Instrumentation	8 - ¾" and 1" Instrument Lines from Nozzle N-20B	Stainless Steel	Socket	LR-DRE-M-357-1 (C-4)
D-3	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 16 (upper)	Stainless Steel	Socket	LR-DRE-M-357-1 (C-4)
D-3	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 11 (upper)	Stainless Steel	Socket	LR-DRE-M-357-1 (C-4)
D-3	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 11 (lower)	Stainless Steel	Socket	LR-DRE-M-357-1 (C-4)
D-3	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 6 (upper)	Stainless Steel	Socket	LR-DRE-M-357-1 (C-5)
D-3	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 1 (upper)	Stainless Steel	Socket	LR-DRE-M-357-1 (C-5)
D-3	Nuclear Boiler Instrumentation	¾" and 1" Instrument Line JP 1 (lower)	Stainless Steel	Socket	LR-DRE-M-357-1 (C-5)
D-3	Nuclear Boiler Instrumentation	3-0299B-½" A	Stainless Steel	Socket	LR-DRE-M-357-1 (D-3) LR-DRE-M-357-3 (F-1)
D-3	Nuclear Boiler Instrumentation	3-0299A-½" A	Stainless Steel	Socket	LR-DRE-M-357-1 (D-5) LR-DRE-M-357-3 (F-8)
D-3	Nuclear Boiler Instrumentation	3-0260-½" A	Stainless Steel	Socket	LR-DRE-M-357-1 (E-5)
D-3	Nuclear Boiler Instrumentation	3-0392-½" A	Stainless Steel	Socket	LR-DRE-M-357-1 (E-5/6)
D-3	Nuclear Boiler Instrumentation	2-0408- 3" A	Stainless Steel	Socket	LR-DRE-M-357-1 (E-7)
D-3	Reactor Vessel	2-0215-2" A	Stainless Steel	Socket	LR-DRE-M-357-1 (F/E-4)

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
	Head Vent				
D-3	Nuclear Boiler Instrumentation	1" Line from Nozzle N-8 through the condensing chamber	Carbon Steel	Socket	LR-DRE-M-357-1 (F/E-5/6)
D-3	Reactor Recirculation	3-02100B-¾" A	Stainless Steel and Carbon Steel	Socket	LR-DRE-M-357-2 (B/C-2)
D-3	Reactor Recirculation	1" Lines to DPT 3-261-5B	Stainless Steel	Socket	LR-DRE-M-357-2 (B-3)
D-3	Reactor Recirculation	3-02100A-¾" A	Stainless Steel	Socket	LR-DRE-M-357-2 (B-6)
D-3	Reactor Recirculation	3-0204A-2" L	Carbon Steel	Socket	LR-DRE-M-357-2 (B-6)
D-3	Reactor Recirculation	1" Lines to the DPT 2-262-10C	Stainless Steel	Socket	LR-DRE-M-357-2 (B-6/7)
D-3	Reactor Recirculation	3-0390-¾" A	Stainless Steel	Socket	LR-DRE-M-357-2 (B-7)
D-3	Reactor Recirculation	2-0217A-¾" A	Stainless Steel	Socket	LR-DRE-M-357-2 (C-6)
D-3	Reactor Recirculation	3-0207-2" A	Stainless Steel	Socket	LR-DRE-M-357-2 (D/C-4)
D-3	Reactor Water Cleanup	3-1265-2" A	Stainless Steel	Socket	LR-DRE-M-357-2 (D/C-4) LR-DRE-M-361 (A-3)
D-3	Reactor Recirculation	2 1" Lines to FT 3-261-6C	Stainless Steel	Socket	LR-DRE-M-357-2 (D-1/3)
D-3	Reactor Recirculation	3-0225B-¾" L	Carbon Steel	Socket	LR-DRE-M-357-2 (D-3)
D-3	Reactor Recirculation	3-0231B-¾" A	Stainless Steel	Socket	LR-DRE-M-357-2 (D-3)
D-3	Reactor Recirculation	3-0231B-¾" A	Stainless Steel	Socket	LR-DRE-M-357-2 (D-3)
D-3	Reactor Recirculation	3-0231A-¾" A	Stainless Steel	Socket	LR-DRE-M-357-2 (D-5)
D-3	Reactor Recirculation	3-0225A-¾" L	Carbon Steel	Socket	LR-DRE-M-357-2 (D-6)
D-3	Reactor Recirculation	1" Instrument Lines to FT 3-261-6A	Stainless Steel	Socket	LR-DRE-M-357-2 (D-6/8)
D-3	Reactor Recirculation	3-02102-¾" A	Stainless Steel	Socket	LR-DRE-M-357-2 (E-2)
D-3	Reactor Recirculation	3-0233-¾" A	Stainless Steel	Socket	LR-DRE-M-357-2 (E-2)
D-3	Nuclear Boiler Instrumentation	4 – ¾" and 1" Instrument Lines through Penetration X-	Stainless Steel	Socket	LR-DRE-M-357-2 (F-4)

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
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D-3	Nuclear Boiler Instrumentation	4 – ¾" and 1" Instrument Lines through Penetration X-141	Stainless Steel	Socket	LR-DRE-M-357-2 (F-5)
D-3	Nuclear Boiler Instrumentation	3-0299A-½" A	Stainless Steel	Socket	LR-DRE-M-357-3 (B/C-2/3)
D-3	Nuclear Boiler Instrumentation	3-0296B-½" A	Stainless Steel	Socket	LR-DRE-M-357-3 (B/C-6/9)
D-3	Nuclear Boiler Instrumentation	3-0299B-½" A	Stainless Steel	Socket	LR-DRE-M-357-3 (B/C-7/9)
D-3	Nuclear Boiler Instrumentation	3-0296A-½" A	Stainless Steel	Socket	LR-DRE-M-357-3 (B-2/4)
D-3	Core Spray	3-1451-¾" A	Stainless Steel	Socket	LR-DRE-M-358 (C/D-3)
D-3	Core Spray	3-1452-¾" A	Stainless Steel	Socket	LR-DRE-M-358 (C/D-4)
D-3	Core Spray	3-1411-¾" ECCS	Carbon Steel	Socket	LR-DRE-M-358 (C-2)
D-3	Core Spray	3-1413-¾" ECCS	Carbon Steel	Socket	LR-DRE-M-358 (C-5)
D-3	Core Spray	3-1423A-¼" A	Stainless Steel	Socket	LR-DRE-M-358 (E-2, Detail A)
D-3	Core Spray	3-1423C-¼" A	Stainless Steel	Socket	LR-DRE-M-358 (E-2, Detail B)
D-3	Isolation Condenser	3-1305-¾" A	Stainless Steel	Socket	LR-DRE-M-359 (C-10)
D-3	Isolation Condenser	3-1302-¾" A	Stainless Steel	Socket	LR-DRE-M-359 (C-9)
D-3	Isolation Condenser	Instr. Lines to DPIS 3-1350	Stainless Steel	Socket	LR-DRE-M-359 (C-9/10)
D-3	Isolation Condenser	3-1309-¾" A	Stainless Steel	Socket	LR-DRE-M-359 (E-7)
D-3	Isolation Condenser	Instr. Lines to DPIS 3-1349	Stainless Steel	Socket	LR-DRE-M-359 (E-8)
D-3	Isolation Condenser	3-1310B-½" A	Stainless Steel	Socket	LR-DRE-M-359 (E-8)
D-3	Isolation Condenser	3-1301-¾" A	Stainless Steel	Socket	LR-DRE-M-359 (E-8/9)
D-3	Low Pressure Coolant Injection	3-1519- 1" A	Stainless Steel	Socket	LR-DRE-M-360-1 (B-3)
D-3	Low Pressure Coolant Injection	3-1537- ¾" A	Stainless Steel	Socket	LR-DRE-M-360-1 (B-4)
D-3	Low Pressure Coolant Injection	3-1538- ¾" A	Stainless Steel	Socket	LR-DRE-M-360-1 (B-6)
D-3	Low Pressure Coolant Injection	3-1506- 1" A	Stainless Steel	Socket	LR-DRE-M-360-1 (B-7)
D-3	Low Pressure Coolant	¾" Bypass lines around 3-1501-25	Stainless Steel	Socket	LR-DRE-M-360-2 (B-6, Detail A and B)

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
	Injection	A&B			
D-3	Reactor Water Clean-Up	3-12126-2" A	Stainless Steel	Socket	LR-DRE-M-361 (A-3)
D-3	Reactor Water Clean-Up	3-12120-½" A	Stainless Steel	Socket	LR-DRE-M-361 (A-3)
D-3	Reactor Water Clean-Up	3-1265-2" AM	Stainless Steel	Socket	LR-DRE-M-361 (A-3)
D-3	Reactor Water Clean-Up	3-1233-1" A	Stainless Steel	Socket	LR-DRE-M-361 (B-4)
D-3	Shutdown Cooling	Drain Lines A, B, & C to RBEDT (B)	Carbon Steel	Socket	LR-DRE-M-363 (A, C & E-8)
D-3	Shutdown Cooling	3-1020A-¾" B	Carbon Steel	Socket	LR-DRE-M-363 (B-9)
D-3	Shutdown Cooling	Vent Line to Vlv. 3-1001-47A (B)	Carbon Steel	Socket	LR-DRE-M-363 (C-9)
D-3	Shutdown Cooling	1" Line to Relief Vlv. 3-1099-29 (B)	Carbon Steel	Socket	LR-DRE-M-363 (C-9)
D-3	Shutdown Cooling	3-10130- ½" B	Carbon Steel	Socket	LR-DRE-M-363 (C-9)
D-3	Shutdown Cooling	Vent Line to Vlv. 3-1001-47B (B)	Carbon Steel	Socket	LR-DRE-M-363 (D-9)
D-3	Shutdown Cooling	3-1020B-¾" B	Carbon Steel	Socket	LR-DRE-M-363 (D-9)
D-3	Standby Liquid Control	3-1102-1½" A	Stainless Steel	Socket	LR-DRE-M-364 (D-2)
D-3	Control Rod Drive Hydraulic	3-0338A-1"	Stainless Steel	Socket	LR-DRE-M-365-2 (C/D-1/2)
D-3	Control Rod Drive Hydraulic	3-0314-1"	Stainless Steel	Socket	LR-DRE-M-365-2 (C-1)
D-3	Control Rod Drive Hydraulic	2-0336A-¾"	Stainless Steel	Socket	LR-DRE-M-365-2 (D/C-2)
D-3	Control Rod Drive Hydraulic	3-0342A-½"	Stainless Steel	Socket	LR-DRE-M-365-2 (D-1)
D-3	Control Rod Drive Hydraulic	3-0317A-½"	Stainless Steel	Socket	LR-DRE-M-365-2 (D-1)
D-3	Control Rod Drive Hydraulic	3-0341A-½"	Stainless Steel	Socket	LR-DRE-M-365-2 (D-2)
D-3	High Pressure Coolant Injection	¾" Instr. Lines to DPT 3-2352 to Vlv. 3-2301-26 and 27	Stainless Steel	Socket	LR-DRE-M-374 (D/C-1/2)
D-3	High Pressure Coolant Injection	3-2346-¾" B	Carbon Steel	Socket	LR-DRE-M-374 (D-1)

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
Q-1	Reactor Water Cleanup	1-1265-3"A	Stainless Steel	Butt	LR-QDC-M-35-1 (G-5) 3" spool is not shown on drawing but exists between valve 1-0220-65 and the 6" RWCU line
Q-1	Reactor Recirculation	1-0202A-28"A	Stainless Steel	Butt	LR-QDC-M-35-2 (E-2) A 3" Branch connection to a Decontamination Flange
Q-1	Reactor Recirculation	1-0202B-28"A	Stainless Steel	Butt	LR-QDC-M-35-2 (E-9) A 3" Branch connection to a Decontamination Flange
Q-1	Standby Liquid Control	1-1102-1½" A and 2"	Stainless Steel	Butt and Socket	LR-QDC-M-35-1 (C-4 and Detail A) Butt welds on 2" section only at Nozzle N-10
Q-1	Nuclear Boiler Instrumentation	1-0300-2"A	Stainless Steel	Socket	LR-QDC-M-35-1 (D-4) At Nozzle N-12A
Q-1	Nuclear Boiler Instrumentation	1-0299-2"A	Stainless Steel	Socket	LR-QDC-M-35-1 (D-5) At Nozzle N-12A
Q-1	Nuclear Boiler Instrumentation	1-0207-2"C	Carbon and Stainless Steel	Socket	LR-QDC-M-35-1 (G-5)
Q-1	Reactor Water Cleanup	1-1265-2"A	Stainless Steel	Socket	LR-QDC-M-35-1 (G-5) LR-QDC-M-47-1 (C-5)
Q-1	Reactor Recirculation	1-0209A-2"A	Stainless Steel	Socket	LR-QDC-M-35-2 (D-5)
Q-1	Reactor Recirculation	1-0209B-2"A	Stainless Steel	Socket	LR-QDC-M-35-2 (D-6)
Q-1	Reactor Recirculation	1-0204A-2"A	Stainless Steel	Socket	LR-QDC-M-35-2 (E-3)
Q-1	Reactor Recirculation	1-0204B-2"A	Stainless Steel	Socket	LR-QDC-M-35-2 (E-8)

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
Q-2	Reactor Water Cleanup	2-1265-3"A	Stainless Steel	Butt	LR-QDC-M-77-1 (G-5) 3" spool is not shown on drawing but exists between valve 1-0220-65 and the 6" RWCU line
Q-2	Reactor Recirculation	2-0202A-28"A	Stainless Steel	Butt	LR-QDC-M-77-2 (E-2) A 3" Branch connection to a Decontamination Flange
Q-2	Reactor Recirculation	2-0202B-28"A	Stainless Steel	Butt	LR-QDC-M-77-2 (E-9) A 3" Branch connection to a Decontamination Flange
Q-2	Standby Liquid Control	2-1102-1½" A and 2"	Stainless Steel	Butt and Socket	LR-QDC-M-77-1 (C-4 and Detail A) Butt welds on 2" section only at Nozzle N-10
Q-2	Nuclear Boiler Instrumentation	2-0300-2"A	Stainless Steel	Socket	LR-QDC-M-77-1 (D-4) At Nozzle N-12A

Unit	System	Line No.	Material	Weld Type	Drawing (Coordinates) and Comments
Q-2	Nuclear Boiler Instrumentation	2-0299-2"A	Stainless Steel	Socket	LR-QDC-M-77-1 (D-5) At Nozzle N-12B
Q-2	Nuclear Boiler Instrumentation	2-0207-2"C	Carbon and Stainless Steel	Socket	LR-QDC-M-77-1 (G-5)
Q-2	Reactor Water Cleanup	2-1265-2"A	Stainless Steel	Socket	LR-QDC-M-77-1 (G-5) LR-QDC-M-88-1 (C-6)
Q-2	Reactor Recirculation	2-0209A-2"A	Stainless Steel	Socket	LR-QDC-M-77-2 (D-5)
Q-2	Reactor Recirculation	2-0209B-2"A	Stainless Steel	Socket	LR-QDC-M-77-2 (D-6)
Q-2	Reactor Recirculation	2-0204A-2"A	Stainless Steel	Socket	LR-QDC-M-77-2 (E-3)
Q-2	Reactor Recirculation	2-0204B-2"A	Stainless Steel	Socket	LR-QDC-M-77-2 (E-8)

(a) 2. The butt welds identified in the above tables will be evaluated based on risk and placed into high, medium and low risk categories consistent with the currently approved RI-ISI Program. A sample of 10% of the high and medium risk butt welds from each unit will be selected for volumetric examination. The sample expansion will be consistent with that described in Code Case N-578-1 Section 2430.

3. The B.1.2 "Water Chemistry" and B.1.23 "One-Time Inspection" [as amended in (a) 2. above] programs are credited with managing Stress Corrosion Cracking in small bore piping.

(b) Neither Dresden nor Quad Cities have butt welds in ASME Class 1 piping 1-inch NPS and less. Therefore, this one-time inspection program does not apply to the 1-inch NPS and less piping.