BWR Vessel and Internals Project

Vessel Internals Inspection Summaries for Fall 2015 Outages

June 2016

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Reactor Internals Inspection History

Plant: **Dresden Unit 2**

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Spray Piping	1980s to D2R14	UT, VT-1 (1MIL)	IEB 80-13 (1 MIL) VT-1 of piping and welds in annulus. Indications observed at one lower elbow to riser weld (3P4c) and two collar to shroud pipe welds (3 and 4P8a) in 1995. All flaw lengths verified with UT. Full structural margins met on all three flawed welds for additional cycle. No repairs performed.
	3/1998 D2R15	UT, 0.0005" EVT	GE CSI-2000 Inspected with EVT-1 supplement for unqualified welds (P8a and P4d). Identified three previously unidentified flaws (1P5, 2P8a and 3P4d) for a total of six flaws. All flaws were analyzed for two additional cycles of operation with no repairs required. Previously identified flaws were determined to be of the same or less extent than originally sized. 1P5 and 2P8a were not visually verified.
	10/2000 D2R16	EVT-1	Core Spray Piping: P8a and P4d, EVT-1 @ all four locations. Previous indications have been found on the Core Spray Elbow to Collar on the 260° Downcomer. The results of the 1999 measurements compared with the two previous 1998 indications are as follows. It appears that the Collar indication has not changed, while the indication on the elbow is larger this year than was seen in 1998. The noted crack growth was bounded by the previous flaw evaluation and the BWRVIP-18 crack growth value.
	10/2001 D2R17	UT, EVT-1	GE CSI-2000 inspected a complete Target Set and a sample of P4 welds. No new flaws. Growth within Fracture Mechanics Evaluation predictions. Performed EVT-1 of undemonstrated welds.

	10/2003 D2R18	EVT-1, VT-1	Excessive grinding exam of 1-4P4a and b (VT-1). Undemonstrated 1-4P8a and P4d (EVT-1). Flaws are unchanged.
	11/2005 D2R19	UT, EVT-1	GE CSI-2000 inspected all demonstrated welds. Previous flaws re-sized, growth within flaw evaluation and BWRVIP-18 predictions. EVT-1 all undemonstrated welds. No new flaws identified. EVT-1 25% (2) piping bracket assembly welds. NRI.
	11/2007 D2R20	EVT-1	EVT-1of piping welds P1, P2, P3 P8a, P8b and 25% of P4a, P4b, P4c and P4d in accordance with BWRVIP-18. RIs for previous indications in 3P4d, 3P8a, 4P8a.
	11/2009 D2R21	EVT-1	EVT-1of all P1, P2, P3 and 25% of P4a & b piping welds in accordance with BWRVIP-18. NRI. Performed Core Spray Lower Sectional Replacement on all four lines. Welds P4c & d, P5, P6, P7, P8a & b and P9 all replaced. One P9 weld was examined after the old pipe was removed with no relevant indications. The other three P9 welds were destroyed by the EDM cut and could not be inspected.
	10/2011 D2R22	EVT-1	EVT-1of all P1, P2, P3 and 25% of P4a & b piping welds. NRI. EVT-1 on piping attachment welds on all four piping braces
		VT-1/VT-3	Core Spray Lower Sectional Replacement (all 4 lines) - VT-1 of bolting, keepers, ratchet springs, latch springs, lateral pins, and keepers. NRI - VT-3 of repair hardware. NRI
	11/2013 D2R23	EVT-1	EVT-1of all P1, P2, P3 and 25% of P4a & b piping welds. NRI.
	11/2015 D2R24	EVT-1	EVT-1 of all P1, P2, P3 and 25% of P4a & b piping welds. NRI.

		VT-1/VT-3	Core Spray Lower Sectional Replacement (all 4 lines) - VT-1 of bolting, keepers, ratchet springs, latch springs, lateral pins, and keepers. NRI - VT-3 of repair hardware. NRI.
Core Spray Sparger	1980s to presen	VT-1 (1 MIL)	IEB 80-13 (1 MIL) VT-1 of spargers and tee-boxes. No indications found. Future inspections per BWRVIP-18.
	3/1998 D2R16	EVT-1, MVT-1	End caps, cover plates and tee box branch welds were EVT-1 examined (OD). All sparger connections and bracket welds were MVT-1 examined. NRI.
	10/2001 D2R17	EVT-1, VT-1	Complete Target Set and 50% of S3 welds. No Indications recorded.
	11/2005 D2R19	EVT-1, VT-1	EVT-1 100% S1; S2; S4. NRI. VT-1 50% S3. NRI. VT-1 100% (12) SB. NRI.
	11/2009 D2R21	EVT-1, VT-1	EVT-1 100% S4. NRI. VT-1 50% S3. NRI. VT-1 100% (12) SB. NRI. S1 and S2 structurally replaced by bracket as part of lower sectional replacement.
	11/2013 D2R23	EVT-1, VT-1	EVT-1 100% S4. NRI. VT-1 50% S3. NRI. VT-1 100% (12) SB. One RI identified in heat affected zone of the 260° bracket. Indication acceptable for one cycle.
	11/2015 D2R24	VT-1	VT-1 of 260° bracket. Previous indication inspected with no change.
Vessel ID Brackets	4/1994 D2R15	VT-1	Section XI inspections of jet pump riser brace, dryer, feedwater sparger, core spray, and surveillance capsule holder brackets, performed once per interval. No indications noted.
	3/1998 D2R16	MVT-1	Inspected Core Spray Brackets per BWRVIP recommendations. NRI.

	10/2000 D2R17	VT-1 VT-3 EVT-1	100% (6) Surveillance Capsule Brackets. NRI. 100% (6) Guide Rod Attachments. NRI. EVT-1 100% (4) Dryer Lugs. NRI.
	10/2003 D2R18	EVT-1, VT-1	EVT-1 100% (4) Dryer Lugs. NRI. Eight feedwater sparger end-brackets VT-1, NRI. Eight Core Spray piping bracket welds, EVT-1, NRI.
	11/2005 D2R19	EVT-1, VT-1	- EVT-1 100% (8) feedwater sparger end bracket to vessel attachments. NRI. - VT-1 100% (8) feedwater sparger end bracket lug. NRI. - EVT-1 100% (8) feedwater sparger end bracket pin tack weld. NRI. - VT-1 feedwater sparger repair at 240°. RI. Hole in the weld of the repaired nozzle. Accepted as-is. - EVT-1 25% (2) core spray piping bracket to vessel attachments. NRI. - EVT-1 100% (4) steam dryer wall support lugs. NRI.
	11/2007 D2R20	EVT-1 VT-3	- EVT-1 and VT-3 of 25% of Core Spray piping brackets (2). NRI - EVT-1 100% (8) feedwater sparger end bracket pin and nut. RI, some wear identified at pin head to bracket interface on three pins. One nut not tight against shoulder.
	11/2009 D2R21	EVT-1 VT-1	- EVT-1 of 25% of Core Spray piping brackets (2). NRI - VT-1 100% (8) feedwater sparger end bracket pin and nut. RI, some wear identified at pin head to bracket interface on six pins.
	10/2011 D2R22	EVT-1 VT-1 VT-3	- EVT-1 of 25% of Core Spray piping brackets (2). VT-1 on bolting of 1 of the 2 brackets. NRI - VT-3 of moisture separator and dryer guide rod attachments. RIs for top cone bent on 200° guide rod and gouge/metal shaving on top cone of 0° guide rod. NRI for attachment welds. - VT-1 100% (4) dryer wall support lugs. Gouges noted on 3 of the lugs.

			- VT-1 on all surveillance sample holder lower brackets and VT-3 on upper brackets. NRI.
	11/2013 D2R23	EVT-1 VT-1	- EVT-1 of 25% of Core Spray piping brackets (2). VT-1 on bolting for 1 of the 2 brackets. NRI - EVT-1 100% (8) feedwater sparger end bracket to vessel attach. NRI. - EVT-1 of 200° moisture separator and 0° dryer guide rod top cones. No change to previous RIs. - VT-1 100% (4) dryer wall support lugs. Gouges and wear marks noted on all of the lugs.
	11/2015 D2R24	EVT-1 VT-1	- EVT-1 of 25% of Core Spray piping brackets (2). VT-1 on bolting for 1 of the 2 brackets. NRI - EVT-1 of 200° moisture separator guide rod top cones. No change to previous RIs. - VT-1 100% (4) dryer wall support lugs. Gouges and wear marks noted on all of the lugs. One new RI. Indications acceptable for one cycle.
Feedwater Sparger	10/2011 D2R22	VT-1	Inspected all eight feedwater sparger end bracket pins and nuts. RI, some wear identified at pin head to bracket interface on six pins. Performed inspections of spargers, arm welds and t-box welds. RI - gouge on sparger. RI - sparger repair hardware previous indication, no change.
	11/2013 D2R23	VT-1	Inspected all eight feedwater sparger end bracket pins and nuts. RI, wear on six of eight brackets at pin to bracket interface.
	11/2015 D2R24	VT-1	Inspected all eight feedwater sparger end bracket pins and nuts. RI, wear on six of eight brackets at pin to bracket interface.
Core Shroud	8/1995 D2R14	EVT-1, UT	Inspections per BWRVIP Guidelines of all shroud repair design reliant structures prior to installation of comprehensive repair (4 GE designed tie-rod assemblies). Inspection of shroud consisted of EVT-1 of all ring segment

			welds (accessible surfaces), EVT-1 of between 43% and 72% of the length of each vertical weld between H1 & H2 from OD surface (ID not accessible), UT of between 30% and 50% of the length of each of the 6 beltline vertical welds, EVT-1 of between 43% and 72% of the length of 2 of the 3 vertical welds between H6 & H7 from OD surface (ID not accessible), and UT of 35% of the length of the remaining vertical weld between H6 and H7. No Reportable Indications.
	03/1998 D2R15	VT-1, VT-3	Shroud repair hardware inspected per GE recommendations. NRI.
	10/1999 D2R16	UT & EC	UT & EC examinations from the ID with the TEIDE 2 manipulator on the core shroud vertical welds V14, V15, V16, V17, V18, and V19 per the requirements of BWRVIP-76 for a repaired shroud. NRI. Coverages are as follows: V14: 80.1% V15: 80.1% V16: 83.4% V17: 52.6% V18: 62.8% V19: 58.0%
	10/2001 D2R17	EVT-1	Exelon performed one sided EVT-1 of all vertical welds outside of the beltline with 100% coverage including welds V5, V6, V7, V26, V27 and V28. There were no recordable indications.
	11/2005 D2R19	EVT-1, VT-1	EVT-1 100% (16) Ring Segment Welds from the OD. NRI. Coverages were 100% except for the following: V9: 85% V11: 95% V20: 0% (inaccessible due to Jet Pump diffuser) V21: 90% V24: 0% (inaccessible due to Jet Pump diffuser) Attempted EVT-1 of shroud vertical welds V29, V30, V31, V32. 0%

			coverage was achieved due to Jet Pump interference. Performed 10 year shroud tie rod examination of all four tie rods: - EVT-1 of the clevis pin to verify if bottomed in slot and checking contact area for movement. NRI. - VT-1 of stabilizer assembly contact between the RPV wall and upper contact, mid support, and lower contact. RI @ 20 and 110 degrees. Accepted as-is. - VT-1 of retainer devices at lower support, lower spring to tie-rod connection, upper spring jacking bolts and tie rod nut. NRI. - VT-1 of contact of the stabilizer assembly between the shroud and upper and lower springs. NRI. - VT-1 of the core plate wedge contact. NRI.
	11/2007 D2R20	UT EVT-1	- Performed UT on the following vertical welds with the percent coverage shown: V14: 19.9% V15: 85.8% V16: 90.1% V17: 35.0% V18: 84.0% - RI, Accept as-is. V19: 47.2% V27: 63.9% Besides V18, all other welds NRI EVT-1 of welds V05-V07, V19, V26, V28, V29 and V31. NRI
		EVT-1 VT-3	- Shroud repair hardware inspections at all four locations. NRI.
	11/2009 D2R21	EVT-1	Two sided EVT-1 on V19. NRI
	10/2011 D2R22	EVT-1	One-sided EVT-1 on vertical ring welds V1, V2, V3, V4, V8, V9, V10, V11, V12, V13, V20, V21, V22, V23, V24 and V25. NRI.
	11/2013 D2R23	EVT-1	One-sided EVT-1 on vertical welds V5, V6, V7, V14, V17, V26, V28, V29, and V31. NRI.
	11/2015 D2R24	EVT-1 VT-3	Performed EVT-1 and VT-3 inspections on all four shroud tie rod repairs. NRI.

Shroud Support	3/1993 D2R13	UT/VT-1	Access hole covers proactively replaced with GE mechanical design. UT for radial flaws performed prior to replacement. No indications identified.
	8/1995 D2R14	EVT-1, VT-1	EVT-1 of H8 and H9 for approx 12" at 4 locations of shroud repair hardware attachment areas. VT-1 of both replacement access hole cover assemblies. No indications identified.
	3/1998 D2R15	N/A	Not Inspected during D2R15
	10/1999 D2R16	EVT-1	Core Support Structures, Performed EVT-1 of H8 and H9 Welds per BWRVIP-38 requirements. No Recordable Indications Inspected both Shroud Access Hole Cover repairs, NRI.
	11/2005 D2R19	EVT-1, VT-3	EVT-1 H8 & H9 from 132-177°. NRI. VT-3 H9 100% accessible areas. NRI.
	10/2011 D2R22	EVT-1	EVT-1 top side of H8 & H9 welds at 132-177° and 312-357°. NRI.
		VT-1	Bolted attachment for both Access Hole Covers. NRI.
	11/2013 D2R23	UT	UT of 10% of the H9 weld. NRI
Top Guide	8/1995 D2R14	VT-1	VT-1 of 5 cells. NRI. VT-1 of all 4 alignment assemblies. NRI. VT-1 of rim to bottom plate weld at 4 locations. NRI.
	3/1998 D2R15	N/A	No inspections during D2R15.
	10/2000 D2R16	EVT-1	Top Guide Alignment Pins, EVT 90° and 270° and Rim to Lower Plate Weld per BWRVIP-26. No Reportable Indications
	10/2003 D2R18	EVT-1 VT-1	Top Guide aligner assemblies at 0, 180° and 270° welds (EVT-1) and pin (VT-1), NRI

	11/2005 D2R19	EVT-1	Top guide rim weld at 235° on the outboard side of cell 03-30. NRI.
	11/2007 D2R20	EVT-1 VT-1	Top guide rim welds, aligner pins and sockets at 0° and 90°.
	10/2011 D2R22	EVT-1	Top guide rim weld was inspected at accessible locations. One RI - a 12" linear indication was identified.
		VT-1	The aligner pins and sockets at 180° and 270°. NRI.
		EVT-1	Top guide grid beams were inspected from 10% of the cells (18 cells). NRI.
	11/2013 D2R23	EVT-1	Top guide rim weld indication inspected with no change noted from previous outage.
	11/2015 D2R24	EVT-1	Top guide rim weld was inspected at accessible locations. No change to previous RI.
		VT-1	All four aligner pins and sockets. One RI on aligner block at 90°.
SLC	11/2005 D2R19	Enhanced VT-2	Safe end and nozzle examined. NRI.
	11/2007 D2R20	Enhanced VT-2	Safe end and nozzle examined. NRI.
	11/2009 D2R21	Liquid Penetrant	Safe end and nozzle examined. NRI.
	11/2013 D2R23	UT	Safe end and nozzle examined. NRI.
Jet Pump Assembly	8/1995 D2R14	VT-1 UT	Hold down beams, beam bolt keepers, lock-plates and retainers; restrainer wedges, stops, and adjusting screws, clamp bolts and keepers; riser brace assemblies, adapters and baffle plate welds, sensing lines and sensing line brackets per various SILS. Latest inspections were in 1995, with no reportable indications. Inspect 100% every other (even numbered) outage. Jet pump beams are UT examined each outage using technique capable of

			detecting cracking at throat and ears. One beam found cracked at ear in 1995 and was replaced.
	3/1998 D2R15	UT, EVT-1	D2R15 Beam UTs, NRI. Jet Pump Riser Welds RS-1, 2, 3, 4 and 5 OD Inspected on all ten risers. Riser to JP Pair 15/16 has 1-1/2" long crack in elbow HAZ at RS-1. Evaluated for two cycles of operation without repair. NRI all others.
	01/2000 D2R16	UT, EVT-1	Jet Pump Beams, UT 100% of Beams NRI Riser Brace, Restrainer Bracket, Wedges and Inlet Mixers EVT-1 High/Medium Priority Welds Per BWRVIP-41 sample and inspection requirements. Minor Indications noted.
	10/2001 D2R17	UT, EVT-1	Jet Pump Beams, UT 100%, NRI Riser Brace Leaf at RPV wall block on JP#9, upper Rb 4 weld cracked. EVT-1 examined 100% scope expansion, no other indications. Checked and found no set screw gaps. Examined for B-N-2. Measured known RS-1 crack on riser 15/16. No change in last two cycles.
	10/2003 D2R18	EVT-1	Replaced all 20 Jet Pump Beams with BWR4 weldless keeper beams Installed 19 Riser Brace Mitigation clamps one Repair on JP#9. Measured flaw on JP#15/16 RS-1. Increased from 1 1/2″ to 2″ length. Identified pup piece present on JP#5/6,
	11/2005 D2R19	EVT-1 VT-1 VT-3	VT-1 100% (20) WD-1. NRI. VT-3 100% (20) Jet Pump Bream Tooth Engagement. NRI. VT-1 100% (8) Jet Pump Sensing Line Clamps. RI (2). Teeth not fully engaged. Accepted as-is. EVT-1 30% (3) RS-4, 5. NRI. EVT-1 50% (5) RS-1, 2, 3. RI on JP 15/16 RS-1. Size confirmed to be 1½ ". VT-1 100% (20) Jet Pump Riser Brace Clamps. RI (8). Teeth on keepers not fully engaged. Accepted as-is. EVT-1 AS-1, 2 on Jet Pumps 8, 9, 19 (AS-1 only). NRI

			VT-1 Aux. wedge on VS of Jet Pump 11. NRI.
	11/2007 D2R20	VT-1 EVT-1 VT-3	- VT-1 100% (8) Jet Pump Sensing Line Clamps. RI (7). Teeth not fully engaged. Accepted as-is. - EVT-1 of six RB-3 welds. NRI - EVT-1 of RS-1 weld on JP 15/16. RI on previously identified indication. No change in flaw size. - Swing gate replaced and 2 aux wedges installed on Jet Pump 19. - VT-3 of IN-5 bolting sets on 10 JPs. NRI - EVT-1 of MX-1 welds on 10 JPs. NRI - VT-1 of 5 JP wedges and swing gate keeper tack welds. One RI on JP 15 swing gate keeper degraded tack weld. Accepted as-is for one cycle. - VT-1 of ratchets on eight JP Riser Brace clamps and eight JP Sensing Line clamps. Multiple RIs for incomplete ratchet teeth engagement. Accepted as-is.
	11/2009 D2R21	EVT-1 VT-1	- EVT-1 25% (5) RB-4 & 5. NRI - EVT-1 30% (3 risers) RS-8 & 9. NRI - EVT-1 JP 15/16 RS-1. Previous indication - No change - EVT-1 25% (5) MX-3a and 40% (8) MX-3b. NRI - VT-1 25% (5) WD-1. NRI - VT-1 three aux wedges. Minor wear identified on one wedge. Accepted-as-is for one cycle. - VT-1 on five swing gate keepers/ratchets. One RI for crack in tack weld HAZ and Two RIs for small gap between gate and restrainer bracket. - VT-1 two sensing line clamps and one sensing line. No change to previous indications. - Replaced JP 15 swing gate.
	10/2011 D2R22	EVT-1 VT-1	- EVT-1 30% (6) RB-3. NRI - EVT-1 70% (7 risers) RS-8 & 9. NRI - EVT-1 60% (6 risers) RS-1 & JP 5/6 RS-1a. JP 15/16 RS-1 previous indication - No change - EVT-1 50% (5 risers) RS-2 & 3. NRI - EVT-1 30% (3 risers) RS-4 & 5. NRI

			- VT-1 75% (15) WD-1. NRI - VT-1 on JP 19 aux wedges. NRI - VT-1 on seven swing gate keeper tack welds or ratchets. One RI for crack in tack weld HAZ (no change from D2R21). - VT-1 two sensing line clamps. RI for ratchet teeth engagement and clamp movement.
	11/2013 D2R23	EVT-1 VT-1 VT-3	- VT-1 on 5 riser brace mitigation clamps and the jet pump 9 riser brace repair clamp. NRI - EVT-1 of jet pump 15/16 riser RS-1. No change to previous RI but better video has concluded the flaw is only 0.875″ (previously recorded as 1.5″) - VT-1 on jet pump 2 and 11 sensing line clamps. No change to previous RIs. - VT-1 25% (5) WD-1. NRI - VT-1 30% of swing gate keeper tack welds. No change to previous RI on JP 2. - VT-1 on JP 11 and 19 aux wedges. No change to previous RI. - VT-1 of all 20 beam retainer clips. NRI - EVT-1 25% (5 jet pumps) MX-1. NRI - VT-3 25% (5 jet pumps) IN-5. NRI
	11/2015 D2R24	EVT-1 VT-1	- EVT-1 of jet pump 15/16 riser RS-1. No change to previous RI. - VT-1 on jet pump 2 and 11 sensing line clamps. No change to previous RIs. - VT-1 25% (5) WD-1. NRI - VT-1 on JP 19 vessel side aux wedge. No change to previous RI. - EVT-1 25% (5 jet pumps) MX-3a and MX3b. NRI - VT-1 on JP 19 swing gate bolt ratchets. NRI - EVT-1 25% (5) RB-4 & 5. NRI
Jet Pump Diffuser	8/1995 D2R14	VT-1	Diffuser to baffle plate welds on all 20 jet pumps. No indications.
	3/1998 D2R15	N/A	Not inspected D2R15.
	01/2000 D2R16	EVT-1	JP Diffuser EVT-1 High/Med Priority welds per BWRVIP-41 sample and inspection requirements. NRI

	10/2001 D2R17	EVT-1	No scope D2R17.
	10/2003 D2R18	UT, EVT-1	UT examined Jet Pumps# 2, 3, 4, 5, 8, 9, 12, 13, 14, 15, 18 and 19. This completes first 6 Year Inspection Interval. NRI EVT-1 of the last of the Medium Priority 50% sample also completed. NRI.
	11/2005 D2R19	N/A	Not inspected in D2R19.
	11/2007 D2R20	N/A	Not inspected in D2R19.
	11/2009 D2R21	EVT-1	- 25% (5) DF-1 and 50% (10) DF-2. NRI - 50% (10) AD-1, AD-2 and AD-3a. NRI
	11/2013 D2R23	VT-3	VT-3 inspection of 1 jet pump slip joint. NRI
CRD Guide Tubes	8/1995 D2R14	VT-1 (1 MIL)	11 CRD guide tube lower assembly welds, 2 CRD guide tube upper assembly welds, 4 CRD guide tube alignment ear welds. NRI.
	10/2001 D2R17	EVT-1, VT-3	5% inspected (9) per BWRVIP-47, CRGT-1, 2, 3 and pin. NRI.
	11/2007 D2R20	EVT-1, VT-3	Inspected 5% (9) of the control Rod Guide Tube Welds and Guide Tube and Fuel Support Alignment Pins. VT-3 on the CRGT-1 and AS-GT-ARPIN-1. EVT-1 of the CRGT-2 and 3. NRI
CRD Stub Tubes	8/1995 D2R14	VT-1 (1 MIL)	14 CRD housing to CRD stub tube welds, 14 CRD stub tube to RPV bottom head welds, 3 CRD housing tube to housing cap welds. NRI.
In-Core Housing	8/1995 D2R14	VT-1 (1 MIL)	4 incore guide tube to housing welds, 4 incore housing to RPV bottom head welds, 4 incore guide tube stabilizers. NRI.
Dry Tubes	8/1995 D2R14	VT-1	No indications identified. Examined every other outage.

	10/2000 D2R16	VT-1	NRI.
	11/2007 D2R20	VT-1	50% of SRM and IRM dry tubes inspected. NRI.
	11/2009 D2R21	VT-1	50% of SRM and IRM dry tubes inspected. NRI.
	10/2011 D2R22	VT-1	50% of SRM and IRM dry tubes inspected. NRI.
	11/2013 D2R23	VT-1	One LPRM and 50% of SRM and IRM dry tubes inspected. NRI.
	11/2015 D2R24	VT-1	50% of SRM and IRM dry tubes inspected. Four dry tube plungers not fully engaged.
Instrument Penetrations	N/A		
LPCI Coupling	N/A		
Steam Separator/ Shroud Head	11/2007 D2R20	VT-1	Inspected 100% of Shroud Head Bolt Alignment Pins and Windows. RI for one missing pin and pin/window wear on multiple shroud head bolts
	11/2009 D2R21	VT-1 EVT-1	- VT-1 Inspected 100% of Shroud Head Bolt Alignment Pins and Windows. RI for pin/window wear on multiple shroud head bolts - EVT-1 on Steam Separator Guide Rod top cone. RI for cracked tack weld. Acceptable-as-is.
	10/2011 D2R22	VT-1	- VT-1 Inspected 100% of Shroud Head Bolt Alignment Pins and Windows. RI for pin/window wear on multiple shroud head bolts
	11/2013 D2R23	VT-1	- VT-1 Inspected 100% of Shroud Head Bolt Alignment Pins and Windows. RI for pin/window wear on multiple shroud head bolts.
	11/2015 D2R24	VT-1	- VT-1 Inspected 100% of Shroud Head Bolt Alignment Pins and Windows. RI

			for pin/window wear on multiple shroud head bolts.
Steam Dryer	11/2005 D2R19	VT-1 "best effort"	Performed BWRVIP-139 required inspections as well as inspections of high-stress areas as determined by GE models. Internal start-up instrumentation piping was also examined. Several RI, including: - Four of six gusset feet tip (adjacent to R2 weld), ranging from 7 to 11.5". Cracking was ground out and rewelded. Gusset feet extensions were designed and installed to transfer the stress riser to the mid-support ring. - Several internal strut/supports were identified with cracking. Several were historical from D2R18 inspections. No change in the cracking was observed. These welds are non-structural. Accepted as-is. - Vertical guide cracking (2) at 220°. Both cracks (2.5-5" in length) were stop-drilled. - Lower instrument line in Bank C observed cracking at the weld. Performed fracture mechanics analysis and lost parts analysis. Acceptable as-is. - Interior drain channel cracking (3). Performed GE analysis. Acceptable as-is. - Perforated plate weld cracking. Performed GE analysis. Acceptable as-is. - Perforated plate bowing. Performed GE analysis. Acceptable as-is.
	11/2007 D2R20	N/A	Replaced steam dryer with a new one.
	11/2009 D2R21	"Best Effort" VT-1	Examined critical components on steam dryer ID and OD after one cycle of operation per GE recommendations. NRI
	10/2011 D2R22	"Best Effort" VT-1	Examined OEM recommended components on OD. Lifting lug at 40° found rotated. Gouge identified on dryer skirt.
	11/2013 D2R23	"Best Effort"	Examined OEM recommended components on ID and OD. New RIs

		VT-1	noted near the trough supports to cross beam welds at 8 locations. No change to previous RI identified on dryer skirt.
	11/2015 D2R24	"Best Effort" VT-1	Examined trough support attachment welds on all 52 supports. No change to previous RIs.
DM Welds	11/2009 D2R21		No inspections in D2R21
	10/2011 D2R22	UT	Inspected six DM welds. NRI.
	11/2013 D2R23	UT	Inspected four DM welds. NRI.
	11/2015 D2R24	UT	Performed manual UT on one (1) IGSCC Category C, twelve (12) IGSCC Category D, three (3) IGSCC Category F and two (2) IGSCC Category E welds. None of these welds were dissimilar welds. No relevant indications were identified.
Reactor Vessel	10/2011 D2R22	UT	Inspected vertical welds (18) and the shell to flange weld. One indication identified in shell to flange weld identified as unacceptable per Table IWB-3510-1. Indication has been evaluated in accordance with IWB-3600.
	11/2013 D2R23	EVT-1	- Examined weld and heat affected zones on four level instrument nozzles. NRI
Cast Austenitic Stainless Steel	10/2011 D2R22	EVT-1	Inspected one of each of the following for License Renewal commitment: fuel support piece; control rod guide tube base; jet pump mixer flange, mixer flare, mixer ring, inlet/mixer nozzle and inlet mixer elbow. NRI.
	11/2013 D2R23	EVT-1	Inspected one of each of the following for License Renewal commitment: fuel support piece; control rod guide tube base; jet pump mixer flange, mixer flare, mixer ring, inlet/mixer nozzle and inlet mixer elbow. NRI.

	11/2015 D2R24	EVT-1	Inspected one of each of the following for License Renewal commitment: fuel support piece; control rod guide tube base; jet pump mixer flange, mixer flare, mixer ring, inlet/mixer nozzle and inlet mixer elbow. NRI.

Plant: **Fermi Unit 2**

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud (BWRVIP-07/76)	RF04	VT-1 (1mil wire)	Inspected: 100% ID welds H2, H3, and, H4; 100% OD welds H1-H7; accessible areas H8 & H9
		VT-1/VT-3	The only indications identified were two <1" vertical in orientation above the H2 weld at azimuth 125 degrees. These were evaluated against established flaw screening criteria and found acceptable.
	RF05	EVT-1 (1/2mil wire)	Inspected approximately 60-70 degrees arc on the core shroud in area of previous indications. H2-H4 inspected on shroud ID, H1-H7 inspected on shroud OD. No new indications, no change observed in previous indications above H2 weld.
	RF06	UT	Performed focused phased array UT examination of the H3, H4, H5 and H7 welds utilizing GE's universal carousel. No indication of cracking was identified.
		EVT-1	A cursory exam was performed on H-3 weld to confirm UT results for information only. No new indications and no change was observed in the previous indication above H2 weld.
	RF07	EVT-1	Reinspected the indication above the H2 weld on the inside of the shroud. No change in appearance. The control rod blade was withdrawn to perform the examination.
	RF09	N/A	No inspections performed on the Core Shroud. Inspections were performed on the Shroud Support
	RF10	N/A	No inspections performed on the Core Shroud. Inspections were performed on the Shroud Support

	RF11	N/A	No inspections performed on the Core Shroud. Inspections were performed on the Shroud Support
	RF12	N/A	No inspections performed on the Core Shroud. Inspections were performed on the Shroud Support
		UT	Performed phased array UT examination of the H3, H4, H5 and H7 welds from both sides utilizing AREVA's demonstrated technique. No indication of cracking was identified. Inspection coverage exceeded 60% for all welds with coverage spaced around the entire circumference.
	RF13	N/A	No inspections performed on the Core Shroud. Inspections were performed on the Shroud Support.
	RF14 (10/10)	N/A	No inspections performed on the Core Shroud. Inspections were performed on the Shroud Support.
	RF15 (04/12)	N/A	No inspections performed on the Core Shroud. Inspections were performed on the Shroud Support.
	RF16 (2014)	N/A	No inspections performed on the Core Shroud. Inspections were performed on the Shroud Support.
	RF17 (2015)	N/A	No inspections performed.
Shroud Support (BWRVIP-38/*104) Access Hole Cover (BWRVIP-180)	RF03	VT-3	Inspected shroud support gusset welds and H8/H9 in conjunction with jet pump inspections. No indications
	RF04	VT-1/VT-3	Inspected areas in conjunction with jet pumps, included were gusset welds H8 and H9. H8 and H9 welds inspected at 0 and 180 degrees with 1 mil wire. No indications.
	RF05	EVT-1 (1/2 mil)	Inspected sample area 60-70 degree arc plus 180 degrees location on H8, H9, and gussets. No indications.

	RF06	VT-3*	*Inspection performed in conjunction with jet pump inspections. Approximately 50% of the gussets and H8 and H9 welds were inspected. This was a best effort exam which ranged from MVT-1 to VT-3 depending on camera angle and lighting. No cleaning was performed. No indications identified.
	RF07	EVT-1	*Inspection performed in conjunction with jet pump inspections. Remaining 50% of the gusset welds were inspected. This was a best effort exam which ranged from EVT-1 to VT-3 depending on camera angle and lighting. (Credited as a n EVT-1 exam) No cleaning was performed or needed. No indications identified. The H8 and H9 welds were inspected in detail at 0 and 180 Deg. Azimuth to EVT-1 standards where there were no obstructions.
	RF08	EVT-1	The H8 and H9 welds were reinspected to achieve required coverage. 22% of both welds were inspected and included the areas at 0 and 180 degrees as well as adjacent to Jet Pumps 2 and 3. Accessible areas on Gussets 1, 3, 11, 12, and 22 were inspected. No indications of cracking identified.
	RF09	EVT-1 VT-1	The H8 and H9 welds were inspected adjacent to Jet Pumps 3 and 4(Coverage obtained 1% and 8.3%). Accessible areas on Gussets 2 and 15 inspected (90% coverage on each obtained). Both access hole covers were inspected (VT-1). No indications identified.
	RF10	EVT-1/ VT-1	The H8 and H9 welds were inspected adjacent to Jet Pump 5(Coverage obtained 1% and 8.3%). Accessible areas on Gussets 7 and 8 inspected (70/90% coverage obtained @VT-1 quality, EVT-1 not credited, CARD 05-20378). No indications identified.

	RF11	EVT-1	The H8 and H9 welds were inspected at 0 and 180 degrees as well as several other locations. Coverage obtained was 24% for H8 and 30% for H9. Accessible areas on Gussets 5, 6, 7, 8, 9, 10, 18, and 21 were inspected with 50% to 80% coverage obtained @ EVT-1. No indications identified.
		UT	A portion of the H9 weld was examined from the vessel outside diameter using a manual technique as required by BWRVIP-104. Approximately 19.6% of weld was examined with no indications.
	RF12	EVT-1	Accessible areas on Gussets 4 and 13 were inspected with 55% to 80% coverage obtained using EVT-1. No indications identified. Both Access Hole covers were inspected per draft BWRVIP -180 requirements. Cracking identified on 0 degree cover. Reference OE 25794.
	RF13	EVT-1	Accessible areas on Gussets 5 and 6 were inspected with 75% coverage obtained using EVT-1. No indications identified. The O Degree Access Hole cover was reinspected and no additional cracking was identified. No repair installed.
	RF14 (10/10)	EVT-1	Accessible areas on Gussets 1, 21, and 22 were inspected with 50% - 60% coverage obtained using EVT-1. No indications identified. All 3 welds on the 0 Degree Access Hole Cover were reinspected and no additional cracking was identified. No repair installed.
	RF15 (04/12)	EVT-1	Accessible areas on Gussets 4, 5, 6, 13, 16, and 17 were inspected with 50% to 70% EVT-1 coverage obtained. No indications identified. The H8 and H9 welds were EVT-1 visually inspected from the annulus side with combined coverage at several locations of 15.9% for the H8 weld and 20.5% for the H9 weld. No indications identified.

	RF16 (2014)	EVT-1	Accessible areas on Gussets 11 and 12, as well as the 180° Access Hole Cover were inspected with 90% coverage and no indications were identified. All 3 welds on the 0° Access Hole Cover were re-inspected. No additional cracking was identified and the component was evaluated to be acceptable without repair.
	RF17 (2015)	EVT-1	Accessible areas on Gussets 14, 15, and 18, were inspected with 35% to 65% coverage and no indications were identified.
Core Spray Piping (BWRVIP-18/18-A)	each outage RF01 thru RF04	VT-1 (1mil)	During RF-01 two small arc strikes were identified on loop piping. These have been reinspected each outage. No change in condition. Inspections performed per IEB 80-013 and SIL 289. No indication of cracking.
	RF05	EVT-1 (1/2mil) VT-1	All welds brushed prior to inspection using 1/2 mil wire. Remainder of loop piping inspected without brushing. No indication of cracking.
	RF06	EVT-1	Inspected all welds on both loops of core spray to EVT-1 standards as opposed to BWRVIP-18 requirements of MVT-1. Cleaning assessment was performed – cleaning was not necessary. No indication of cracking.
	RF07	EVT-1	Inspected all welds on both loops of core spray to EVT-1 standards. Cleaning assessment was performed – cleaning was not necessary. No indication of cracking.
	RF08	EVT-1	Inspected all welds on both loops of core spray to EVT-1 standards. Cleaning assessment was performed, cleaning was not necessary. No indication of cracking.
	RF09	EVT-1	Inspected all target welds on both loops of core spray and sample welds on Div 2 to EVT-1 standards. Cleaning assessment was performed, cleaning was

			not necessary. No indications of cracking.
	RF10	EVT-1	Inspected all target welds on both loops of core spray and rotating sample welds on Div 2 to EVT-1. Cleaning assessment was performed, cleaning was necessary for selected locations and welds were brushed. No indications of cracking. Inspection coverage reported separately but generally >80%.
	RF11	EVT-1	Inspected all target welds on both loops of core spray and rotating sample welds on Div 1 to EVT-1. Cleaning assessment was performed, cleaning was necessary for selected locations and welds were brushed. No indications of cracking. Inspection coverage reported separately but generally >80%.
	RF12	EVT-1	Inspected all target welds on both loops of core spray and rotating sample welds on Div 1 to EVT-1. Cleaning assessment was performed, cleaning was necessary for selected locations and welds were brushed. No indications of cracking. Inspection coverage reported separately but generally >55%.
	RF13	EVT-1	Inspected all target welds on both loops of core spray and rotating sample welds on Div 2 to EVT-1. Cleaning assessment was performed, cleaning was necessary for selected locations and welds were brushed. No indications of cracking. Inspection coverage reported separately but generally >55%.
	RF14 (10/10)	EVT-1	Inspected all target welds on both loops of core spray and rotating sample welds on Div 2 to EVT-1. Cleaning was performed for all locations and welds were hydrolazed or brushed. No indications of cracking. Inspection coverage reported separately but generally >60%.

	RF15 (4/12)	EVT-1	Inspected all target welds on both loops of core spray and rotating sample welds on Div 1 to EVT-1. Cleaning was performed for all locations and welds were brushed. No indications of cracking. Inspection coverage reported separately but generally >60%.
	RF16 (2014)	EVT-1	Inspected all target welds on both loops of core spray and a rotating sample welds on Div 1 with no indications of cracking observed. Brushing was performed on all locations. Inspection coverage is reported separately in Att. 2, but averaged 58%.
	RF17 (2015)	EVT-1	Inspected all target welds on both loops of core spray and a rotating sample welds on Div 2 with no indications of cracking observed. Brushing was performed on all locations. Inspection coverage is reported separately in Att. 2, but averaged 60%.
Core Spray Sparger (BWRVIP-18/18-A)	each outage RF01-RF04	VT-1 (1 mil)	During RF01 one arc strike identified on upper CS sparger. Reinspections have not identified any changes. No indication of cracking
	RF05	VT-1/ EVT-1 (1/2mil)	1/2 mil wire used for junction box remainder utilized 1mil wire. No indication of cracking.
	RF06	EVT-1, MVT-1	Inspected per BWRVIP-18 using EVT-1 for sparger T-box and end caps and MVT-1 for remaining locations. No indications of cracking.
	RF07	EVT-1/ VT-1	Inspected per BWRVIP-18 using EVT-1 for sparger T-box welds, end cap welds, drain plug welds, and support brackets and welds, and VT-1 for flow nozzles and tack welds. No indications of cracking identified.
	RF08	EVT-1/ VT-1	Inspected per BWRVIP-18 using EVT-1 for S1, S2 and S4 welds. Selected S3a, S3b welds inspected using VT-1. Selected S3c welds as well as selected

			SB bracket welds were inspected using EVT-1 technique. A best effort exam was performed on all accessible areas. No indications of cracking identified.
	RF09	EVT-1/ VT-1	Inspected per BWRVIP-18 using EVT-1 for 50% of the S1, S2 and S4 welds and VT-1 for 50% of the S3a, S3b and S3c welds on the same spargers. 9 SB bracket welds were inspected using EVT-1 technique. Coverage for specific welds will be reported separately. No indications of cracking were identified.
	RF10	EVT-1/ VT-1	Inspected per BWRVIP-18 using EVT-1 for 50% of the S1, S2 and S4 welds and VT-1 for 50% of the S3a, S3b and S3c welds on the same spargers. 6 SB bracket welds were inspected using EVT-1 technique. Coverage for specific welds will be reported separately but was > 60% for welds and >85% for brackets. No indications of cracking were identified.
	RF11	EVT-1/ VT-1	Inspected per BWRVIP-18-A using EVT-1 for 50% of the S1, S2 and S4 welds on the same spargers. 6 SB bracket welds were inspected using VT-1 technique. Coverage for specific welds will be reported separately but was > 50% for welds and >75% for brackets. No indications of cracking were identified
	RF12	EVT-1/ VT-1	Inspected per BWRVIP-18-A using EVT-1 for 50% of the S1, S2 and S4 welds on the same spargers. 6 SB bracket welds were inspected using EVT-1 technique. Coverage for specific welds will be reported separately but was > 40% for welds and >75% for brackets. No indications of cracking were identified.
	RF13	EVT-1/ VT-1	Inspected per BWRVIP-18-A using EVT-1 for 50% of the S1, S2 and S4 welds on the same spargers. 6 SB bracket welds were inspected using EVT-

			1 technique. Coverage for specific welds will be reported separately but was > 50% for welds and >70% for brackets. No indications of cracking were identified.
	RF14 (10/10)	EVT-1/ VT-1	Inspected per BWRVIP-18-A using EVT-1 for 50% of the S1, S2 and S4 welds on the C and D spargers. 6 SB bracket welds and S3 nozzle welds were inspected using VT-1 technique. Coverage for specific welds will be reported separately but was > 40% for welds and >60% for brackets. No indications of cracking were identified.
	RF15 (4/12)	EVT-1/ VT-1	Inspected per BWRVIP-18-A using EVT-1 for 50% of the S1, S2 and S4 welds on the A and B spargers. 6 SB bracket welds inspected using VT-1 technique. Coverage for specific welds will be reported separately but was > 40% for welds and >60% for brackets. No indications of cracking were identified.
	RF16 (2014)	EVT-1/ VT-1	Inspected per BWRVIP-18-A using EVT-1 for 50% of the S1, S2 and S4 welds on the A and B spargers. 6 SB bracket welds were inspected using VT-1. Coverage for specific welds is reported separately in Attachment 2 but was > 40% for most welds and > 60% for most brackets. No indication of cracking was identified.
	RF17 (2015)	EVT-1/ VT-1	Inspected 50% of the S1, S2 and S4 welds on the A and B spargers using EVT-1 and 6 sparger bracket welds using VT-1. Coverage for specific welds is reported separately in Attachment 2 but averaged 46% for the welds and 50% for the brackets. No indication of cracking was identified.
Top Guide (Rim, etc.) Beams (BWRVIP-26) (BWRVIP-183)	RF03	VT-1/VT-3	Inspected 6 locations (RICSIL 059) and rim area 0° and 180°. No indications.

	RF04	VT-1/VT-3	Inspected 6 locations (SIL 554) and rim area 0° and 360°. No indications.
	RF05	VT-1	Inspected 15 locations (SIL 554). No indications.
	RF06	VT-1	Inspected bottom edge of beams at 11 core locations per SIL 554. No indication of cracking.
	RF07	VT-1	Inspected bottom edge of beams at 8 core locations per SIL 554. No indication of cracking.
	RF08	VT-1	Inspected bottom edge of beams at 5 core locations per SIL 554. No indication of cracking.
	RF09	VT-1	Inspected bottom edge of beams at 6 core locations per SIL 554. No indication of cracking.
	RF10	VT-1/VT-3	Inspected bottom edge of beams at 2 core locations per SIL 554 and rim area 0° and 90°. No indication of cracking.
	RF11	VT-1/VT-3	Inspected bottom edge of beams at 2 core locations per SIL 554. No indication of cracking. Inspected 90 degree segment of top guide rim (90° - 180°) and no indications were identified.
	RF12	VT-1/VT-3	Inspected intersection and bottom edge of beams at 5 core locations per SIL 554. No indication of cracking.
	RF13	EVT-1	Inspected intersection and bottom edge of beams at 5 core locations per BWRVIP-183 utilizing a new visual inspection tool and rim area 0° - 90°. No indication of cracking.
	RF14 (10/10)	VT-3	Inspected rim area 0° - 180° with no indications identified.
	RF15 (4/12)	EVT-1	Inspected intersection and bottom edge of beams at 5 core locations per BWRVIP-183 utilizing a new visual

			inspection tool. No indication of cracking. Fabrication related conditions identified on the bottom surface of the plate material at 3 cell locations. Inspected the rim area 180° - 360° with no indications.
	RF16 (2014)	N/A	No inspections performed in RF16.
	RF17 (2015)	EVT-1	Inspected intersection and bottom edge of beams at 9 core cell locations per BWRVIP-183 with no indication of cracking.
Core Plate Rim Bolts, etc. (BWRVIP-25)	RF05	VT-1 (1mil wire)	Inspected 6 core plate bolts located between 100 and 160 degrees and adjacent area. No indications.
	RF06	VT-3	Inspected tops of approximately 20 bolts per SIL 588. No indications identified.
	RF07	VT-3	Inspected tops of approximately 20 bolts per SIL 588. No indications identified.
	RF08	VT-3	Inspected tops of approximately 20 core plate bolts (VT-3) per SIL 588. Did not meet BWRVIP requirements. No indications identified.
	RF09	N/A	No inspections performed. BWRVIP analysis concluded that inspections are not required. (Reference BWRVIP 2003-117 and TJ-2003-01)
	RF10	N/A	No inspections performed. BWRVIP analysis concluded that inspections are not required. (Reference BWRVIP 2003-117 and TJ-2003-01)
	RF11	N/A	No inspections performed. BWRVIP analysis concluded that inspections are not required. (Reference BWRVIP 2006-041 and DD-2006-01)
	RF12	N/A	No inspections performed. BWRVIP analysis concluded that inspections are not required. (Reference BWRVIP 2006-041)

	RF13	N/A	No inspections performed. BWRVIP analysis concluded that inspections are not required. (Reference BWRVIP 2006-041)
	RF14 (10/10)	N/A	No inspections performed. BWRVIP analysis concluded that inspections are not required. (Reference BWRVIP 2006-041) BWRVIP 2010- 243 now requires preparation of a Deviation Disposition by 3/31/2011.
	RF15 (4/12)	N/A	No inspections performed. BWRVIP analysis concluded that inspections are not required. Deviation Disposition DD-2011-01 was submitted to BWRVIP 3/30/2011.
	RF16 (2014)	N/A	No inspections performed in RF16, as justified by Deviation Disposition DD-2011-01.
	RF17 (2015)	N/A	No inspections performed in RF17, as justified by Deviation Disposition DD-2011-01 Revision 1.
SLC (BWRVIP-27)	RF04	VT-3	Performed a visual inspection from Reactor penetration to shroud support when access was provided during jet pump beam replacement. No indications.
	RF05 - RF07	N/A	No inspections performed as access was not provided.
	RF08	VT-2*	Performed enhanced inspection on nozzle area from inside skirt area, but did not remove mirror insulation box from safe-end. No leakage observed.
	RF09	VT-2*	Performed enhanced inspection on nozzle area from inside skirt area, and removed cover on the mirror insulation box for the safe-end for direct inspection. No leakage observed.
	RF10	VT-2*	Performed enhanced inspection on nozzle area from inside skirt area, and removed

			cover on the mirror insulation box for the safe-end for direct inspection. No leakage observed.
	RF11	VT-2*	Performed enhanced inspection on nozzle area from inside skirt area, and removed cover on the mirror insulation box for the safe-end for direct inspection. No leakage observed.
	RF12	VT-2*	Performed enhanced inspection on nozzle area from inside skirt area, and removed cover on the mirror insulation box for the safe-end for direct inspection. No leakage observed.
	RF13	VT-2*/UT	Performed enhanced inspection on nozzle area from inside skirt area, and removed cover on the mirror insulation box for the safe-end for direct inspection. No leakage observed. Performed a manual PDI qualified ultrasonic inspection of the nozzle to safe end weld as well as additional base material of bored material. No indications identified.
	RF-14 (10/10)	VT-2*	Performed enhanced inspection on nozzle area from inside skirt area, and removed cover on the mirror insulation box for the safe-end for direct inspection. No leakage observed.
	RF-15 (4/12)	VT-2*	Performed enhanced inspection on nozzle area from inside skirt area, and removed cover on the mirror insulation box for the safe-end for direct inspection. No leakage observed.
	RF16 (2014)	VT-2*	Performed enhanced inspection on nozzle area from inside skirt area, and removed cover on the mirror insulation box for the safe-end for direct inspection. No leakage observed.
	RF17 (2015)	VT-2*	Performed enhanced inspection on nozzle area from inside skirt area, and removed cover on the mirror insulation box for the safe-end for direct inspection. No leakage observed.

Jet Pump Assembly (BWRVIP-41)	Each outage examine at least 50% thru RF05	VT-1, VT-3	Jet pump assemblies are inspected each outage from top to bottom. During RF-04 all (20) hold down beams were replaced as a preventative measure and to avoid performing UT's on the old style/original beams. Inspections are performed to the recommendations of SIL 551, 574, 465 S-1, and RICSIL 078. During RF05 one of the 80 restrainer screw tack welds was found to be cracked. This was evaluated and was not repaired during RF05.
	RF06	MVT-1, VT-3	Performed inspections to the intent of BWRVIP-41 as well as augmented VT-3 of selected areas on jet pumps 1-10. Inspections included all High, Medium and Low Priority locations. Inspected RS-1 and RS-2 welds on jet pumps 11-20. One indication identified on RS-1 weld, 1.75" long. JCO performed prior to start-up. No other new indications identified.
	RF07	EVT-1	Performed inspections to the intent of BWRVIP-41 including EVT-1's as well as augmented VT-1 and VT-3's of selected areas on jet pumps 11-20. Inspections included all High, Medium and Low Priority locations. Reinspected previously identified indication on RS-1 weld, 1.75" long that was identified in RF06. No change in indication length or appearance. Existing Flaw Evaluation on hand prepared by GE referenced as acceptance limit. No other indications or changes in previous indications identified.
	RF08	EVT-1	Performed reinspections to the intent of BWRVIP-41 including EVT-1's as well as augmented VT-1 and VT-3's of selected areas on jet pumps 1& 2. Inspections included all High, Medium and Low Priority locations. Reinspected previously identified 1.75" long indication on RS-1 weld for Jet Pumps 7&8 that was identified in RF06. No change in indication length or

			appearance. Existing Flaw Evaluation on hand prepared by GE referenced as acceptance limit. Inspected all 20 jet pumps per recommendations of SIL 629 and verified no wedge damage (WD-1) as well as full contact with restrainer screws. No damage identified on any location. Reinspected all restrainer screw tack welds with no changes observed.
	RF09	EVT-1	Performed reinspections to BWRVIP-41 including EVT-1's as well as augmented VT-1 and VT-3's of selected areas on Jet Pumps 3 & 4. Inspections included all High, Medium and Low Priority locations. Reinspected previously identified 1.75" long indication on RS-1 weld for Jet Pumps 7&8 that was identified in RF06. No change in indication length or appearance. Existing Flaw Evaluation on hand prepared by GE referenced as acceptance limit. Inspected all 20 Jet Pump Hold Down Beams by UT for BB1, BB2, and the transition area BB3 using the latest available technique from General Electric. No indications identified on the beams. Reinspected all restrainer screw tack welds, contact area, and wedges after both tack welds on Jet Pump 15 were found cracked. No other damage or indications identified on any location. Jet Pump 15 permanently repaired by the installation of an auxiliary spring wedge. (Reference CARD 03-16929)
	RF10	EVT-1	Performed reinspections to BWRVIP-41 including EVT-1's as well as augmented VT-1 and VT-3's of selected welds on Jet Pumps 4, 5, 6, 7, & 8. Reinspected previously identified 1.75" long indication on RS-1 weld for Jet Pumps 7 & 8 that was identified in RF06. No change in indication length / appearance. Existing Flaw Evaluation on hand prepared by GE referenced as acceptance limit. Reinspected auxiliary spring wedge on Jet Pump 15. No other damage or indications identified on any location.

	RF11	EVT-1	Performed reinspections to BWRVIP-41 including EVT-1's as well as augmented VT-1 and VT-3's of selected welds on Jet Pumps 7, 8, 9, & 10. Reinspected previously identified 1.75" long indication on RS-1 weld for Jet Pumps 7 & 8 that was identified in RF06. No change in indication length / appearance. Existing Flaw Evaluation on hand prepared by GE referenced as acceptance limit. Inspected all Jet Pump wedges after wear was identified on JP2 restrainer bracket. Performed inspection of other welds on Jet Pump 2 as required by BWRVIP-41. Auxiliary spring wedges installed on Jet Pumps 1 and 2 and a slip joint clamp was installed on Jet Pump 2 to restore integrity. No other damage or indications identified.
	RF12	EVT-1	Performed reinspections to BWRVIP-41 including EVT-1's as well as augmented VT-1 and VT-3's of selected welds on Jet Pumps 7, 8, 9, 10, 11, & 12. Reinspected previously identified 1.75" long indication on RS-1 weld for Jet Pumps 7 & 8 that was identified in RF06. No change in indication length / appearance. Existing Flaw Evaluation on hand prepared by GE referenced as acceptance limit. Inspected all 20 Jet Pump Hold Down Beams. Inspected 12 Jet Pump wedges including the wedges and hardware (auxiliary spring wedges and slip joint clamp) installed in RF11. No other damage or indications identified.
	RF13	EVT-1	Performed reinspections to BWRVIP-41 including EVT-1's as well as augmented VT-1 and VT-3's of selected welds on Jet Pumps 7, 8, 9, 10, 13, 14, 15, and 16. Reinspected previously identified indication on RS-1 weld for Jet Pumps 7/8 identified in RF06. No change in indication length or appearance. Existing Flaw Evaluation on hand prepared by GE referenced as acceptance limit. Inspected

			9 Jet Pump wedges. No other damage or indications identified.
	RF14 (10/10)	EVT-1	Performed reinspections to BWRVIP-41 including EVT-1's as well as augmented VT-1 and VT-3's of selected welds on most Jet Pumps including RS-8/9 welds on all pumps. Reinspected previously identified indication on RS-1 weld for Jet Pumps 7/8. No change in indication length or appearance. Existing Flaw Evaluation on hand prepared by GE referenced as acceptance limit. Inspected all 20 Jet Pump wedges. Minor movement noted but no other damage or indications identified.
	RF15 (4/12)	EVT-1	Performed reinspections to BWRVIP-41 including EVT-1's as well as augmented VT-1's of selected welds on several Jet Pumps. Reinspected previously identified indication on RS-1 weld for Jet Pumps 7/8. No change in indication length or appearance. Existing Flaw Evaluation on hand prepared by GE referenced as acceptance limit. Inspected all 20 Jet Pump wedges. No movement noted and no damage or indications identified.
	RF16 (2014)	EVT-1/ VT-1	Performed EVT-1 exams of selected welds in accordance with BWRVIP-41 Rev. 3 with no indications identified. VT-1 exams performed on all 20 main wedge assemblies. Wedge wear identified on Jet Pump 06; scope expansion performed with no further relevant indications observed and wedge was evaluated to be acceptable without repair. Growth identified during re-inspection of indication on RS-1 weld for Jet Pumps 07/08. Indication was evaluated to be acceptable for two cycles without repair. Ultrasonic examination of all 20 Jet Pump Hold Down Beams (BB1, BB2 and BB3). No indications identified on the beams.
	RF17		

	(2015)	EVT-1/ VT-1	Performed EVT-1 exams of selected welds with no indications identified. VT-1 exams performed on all 20 main wedge assemblies. Minor wedge rod wear identified on Jet Pump 01; evaluated to be acceptable without repair. Minor wear identified on Jet Pump 02 Auxiliary Wedge, scope expansion performed with no further relevant indications observed and evaluated to be acceptable without repair. Mitigating clamp installed on the RS-1 weld for Jet Pumps 07/08.
Jet Pump Diffuser (BWRVIP-41)	Each outage	VT-3	Diffusers will be sample inspected during refueling outages.
	RF06	MVT-1	BWRVIP-41 on Jet Pumps 1-10 except inaccessible areas. No cracking.
	RF07	EVT-1	BWRVIP-41 on Jet Pumps 11-20 except inaccessible areas. No cracking identified. Welds DF-3, AD-1, and AD-2 are inaccessible for inspection.
	RF08	EVT-1	BWRVIP-41 reinspection on Jet Pumps 1 and 2 except inaccessible areas. No cracking identified. Welds DF-3, AD-1, and AD-2 are inaccessible for inspection.
	RF09	EVT-1	BWRVIP-41 reinspection on Jet Pumps 3 and 4 except inaccessible areas. No cracking identified. Welds DF-3, AD-1, and AD-2 are inaccessible for EVT-1 visual inspection, VT-3 performed. (TJ-2003-02 prepared as justification)
	RF10	EVT-1	BWRVIP-41 reinspection of selected DF-1 and DF-2 welds on Jet Pumps 5, 6, 7, & 8. Performed access study for future performance of UT examinations of welds DF-3, AD-1, and AD-2. These welds are inaccessible for visual inspection. VT-3 performed. No indications identified (Reference TJ-2003-02)
	RF11	EVT-1	BWRVIP-41 reinspection of selected DF-2 welds on Jet Pumps 9 & 10.

		UT	Performed of UT examinations on a portion of a total of 17 DF-3, AD-1, and AD-2 welds using specialized tooling. These welds are inaccessible for visual inspection. No indications identified (Reference DD-2006-02)
	RF12	EVT-1	BWRVIP-41 reinspection of selected DF-1 and 2 welds on Jet Pumps 6, 11, & 12.
		UT	No UT examinations performed during RF12 due to tooling failures. These welds are inaccessible for visual inspection. (Reference DD-2006-02)
	RF13	EVT-1	BWRVIP-41 reinspection of selected DF-1 and 2 welds on Jet Pumps 7, 13, & 14.
		UT	No UT examinations performed during RF13 due to tooling failures. These welds are inaccessible for visual inspection. (Reference DD-2006-02)
	RF14 (10/10)	EVT-1	BWRVIP-41 reinspection of selected DF-1 and 2 welds on Jet Pumps 7, 8, 9, and 13-18. No indications identified.
		UT	Completed baseline UT examinations on all 20 Jet Pumps Diffuser/Adapter DF-3, AD-1 and AD-2 welds, (60 welds) since these welds are inaccessible for visual inspection. Deviation Disposition is no longer needed.
	RF15 (4/12)	EVT-1	BWRVIP-41 reinspection of selected DF-1 and 2 welds on Jet Pumps 10, 19, and 20. No indications identified.
	RF16 (2014)	EVT-1	BWRVIP-41 re-inspection of selected DF-1 and 2 welds on Jet Pumps 01, 02, and 11. No indications identified.
	RF17 (2015)	EVT-1	BWRVIP-41 re-inspection of selected DF-1 and 2 welds on Jet Pumps 03, 04, and 12. No indications identified.

CRD Guide Tube (BWRVIP-47)	RF04	VT-3	Inspected lower portion of peripheral guide tubes and stub tubes when access was provided during jet pump hold down beam replacement. No indications identified.
	RF07	EVT-1 and VT-3	Performed best effort exam on CRGT-3 as weld was not visible on inside of tube. CRGT-2 not accessible due to flow and ARPIN was not felt to be accessible. No indications identified.
	RF08	EVT-1 and VT-3	Performed best effort exam on CRGT-3 as weld was not visible on inside of tube. CRGT-2 not accessible due to flow and FS/GT-ARPIN was not felt to be accessible. No indications identified.
	RF09	EVT-1 and VT-3	Performed exams on CRGT-1, CRGT-2, CRGT-3, and FS/GT-ARPIN at 10 Control Rod Guide Tubes/locations. No indications identified.
	RF10	N/A	No inspection performed in RF10.
	RF11	N/A	No inspection performed in R11.
	RF12	VT-3	Performed exams on CRGT-1 and FS/GT-ARPIN at 5 Control Rod Guide Tubes/locations. CRGT-2 and CRGT-3 not performed or credited due to high flow conditions. No indications identified.
	RF13	N/A	No inspections performed in RF13.
	RF14 (10/10)	EVT-1 and VT-3	Completed all remaining baseline inspections on the Control Rod Guide Tubes. Inspections performed on (4) CRGT-1, and FS/GT-ARPIN locations and on (9) CRGT-2 and CRGT-3 locations. One manufacturing flaw identified that did not impact the functionality of the component.
	RF15	N/A	

	(4/12)		No BWRVIP required inspections performed in RF15.
	RF16 (2014)	N/A	No BWRVIP required inspections performed in RF16.
	RF17 (2015)	N/A	No BWRVIP required inspections performed in RF17.
CRD Stub Tube * (BWRVIP-47)	RF04	VT-3	Inspected lower portion of peripheral guide tubes and stub tubes when access was provided during jet pump hold down beam replacement. No indications identified.
In-Core Housing * (BWRVIP-47)	RF04	VT-3	Small portion visible during jet pump beam replacement. No indication of degradation.
Dry Tube * (BWRVIP-47)	Each outage	VT-1	9 of 12 tubes found not completely seated. Performed all inspections per SIL 409 and RICSIL 073. No indications of cracking.
	RF06	VT-1	Reinspected 12 dry tubes. No change from previous condition. No cracking.
	RF07	VT-1	Inspected all 12 original design Dry Tubes. No change from previous conditions identified. No cracking identified.
	RF08	VT-1	Inspected all 12 original design Dry Tubes from two sides. No change from previous conditions identified. No cracking identified.
	RF09	N/A	No inspections performed in RF09.
	RF10	VT-1	Inspected all 12 original design Dry Tubes from two sides. Linear indications identified on 7 tubes in the collar region above the pressure boundary weld. Evaluated as acceptable for one cycle of operation. Plan to replace in RF11. (Reference CARD 04-25703)
	RF11	VT-1	Replaced all 12 Dry Tubes in RF11. Performed baseline VT-1 and verified proper engagement in Top Guide.

	RF12	N/A	No inspections performed in RF12.
	RF13	N/A	No inspections performed in RF13.
	RF14	N/A	No inspections performed in RF14.
	RF15	N/A	No inspections performed in RF15.
	RF16 (2014)	N/A	No inspections performed in RF16.
	RF17 (2015)	N/A	No inspections performed in RF17.
Instrument Penet.* (BWRVIP-49 & 41)	Each outage	VT-3	Inspected jet pump sensing lines and brackets each outage.
	RF04	VT-3	SLC and peripheral bottom head penetrations inspected. No indications.
	RF06	VT-3	Inspected JP sensing lines for pumps 1-10. No indications.
	RF07	VT-3	Inspected JP sensing lines for pumps 11 thru 20 only. No indications.
	RF08	VT-3	Inspected JP sensing lines for Pumps 1 & 2 only. No indications.
	RF09	VT-3	Inspected JP sensing lines for Pumps 3 & 4 only. No indications.
	RF10	VT-1	Inspected JP sensing lines for Pumps 5, 6, 7, 16, & 17. No indications
	RF11	VT-1	Inspected JP sensing lines for Pumps 6, 7, 16, & 17. No indications.
	RF12	VT-1	Inspected JP sensing lines for Pumps 6, 7, 11, 12, 16, & 17. No indications.
	RF13	VT-1	Inspected JP sensing lines for Pumps 6, 7, 13, 14, 16, & 17. No indications.
	RF14	VT-1	Inspected JP sensing lines for Pumps 6, 7, 15, 16, 17, & 18. No indications.

	RF15	VT-1	Inspected JP sensing lines for Pumps 6, 7, 16, 17, 19, & 20. No indications.
	RF16 (2014)	VT-1	Inspected JP sensing lines for Pumps 1, 2, 6, 7, 16, & 17. No indications.
	RF17 (2015)	VT-1	Inspected JP sensing lines for Pumps 3, 4, 6, 7, 16, & 17. No indications.
Vessel ID Brackets (BWRVIP-48)	Each outage	VT-1/3	Inspect sample population each outage. We have inspected most brackets each outage (core spray, feedwater). Jet pump riser brace, steam dryer support lugs, guide rod brackets and specimen holder brackets are sample inspected. No indications of cracking identified.
	RF06	MVT-1	6 feedwater brackets. All core spray piping brackets. 4 steam dryer brackets 1 guide rod bracket 1 specimen bracket. No indication of cracking.
	RF07	EVT-1	6 feedwater brackets. All core spray piping brackets. 4 steam dryer brackets 1 guide rod bracket No indication of cracking identified.
	RF08	EVT-1	6 feedwater brackets. All core spray piping brackets. 4 steam dryer brackets 1 guide rod bracket Surveillance holder and Brackets @ 30 az. No indication of cracking identified.
	RF09	EVT-1	6 Feedwater brackets. 4 Core Spray piping brackets. 1 Jet Pump riser brace (Jet Pump 3 and 4) No indication of cracking identified.
	RF10	EVT-1	6 Feedwater brackets. 3 Core Spray piping brackets. 1 Surveillance Holder bracket 4 Steam Dryer Support brackets 4 Steam Dryer Hold Down 1 Guide Rod Bracket

			1 Jet Pump riser brace (Jet Pump 5 and 6) No indication of cracking identified.
	RF11	EVT-1/ VT-1	No inspections performed in RF-11.
	RF12	EVT-1/ VT-1	6 Feedwater Sparger bracket sets. 1 Surveillance Holder bracket 4 Steam Dryer Support brackets 1 Guide Rod Bracket 2 Jet Pump riser braces (Jet Pumps 7, 8, 9, & 10) No indication of cracking identified.
	RF13	EVT-1/ VT-1	No inspections performed in RF-13.
	RF14 (10/10)	EVT-1/ VT-1	3 Feedwater Sparger bracket sets. 2 Core Spray Piping Brackets 1 Surveillance Holder bracket 4 Steam Dryer Support brackets 1 Guide Rod Bracket 2 Jet Pump riser braces (Jet Pumps 1/ 2, and 11/12) No indication of cracking identified.
	RF15 (4/12)	EVT-1/ VT-1	Inspections performed on 3 Feedwater Sparger bracket sets and 1 Guide Rod Bracket. No indications identified.
	RF16 (2014)	EVT-1/ VT-1	Inspection performed on 1 Surveillance Sample Holder Bracket. No indications identified.
	RF17 (2015)	EVT-1 / VT-1	2 Feedwater Sparger bracket sets (four individual brackets) 4 Core Spray Piping Brackets 4 Steam Dryer Support Brackets 4 Steam Dryer Holddown Brackets 1 Guide Rod Bracket 1 Jet Pump Riser Brace. No indication of cracking identified.
LPCI Coupling	N/A	N/A	Fermi does not have a LPCI Coupling
Shroud Head Bolts/Shroud Head	RF04	UT/VT	16 had indications, 17 replaced during RF04.

	RF05	N/A	Remaining bolts replaced (31) during RF05 as a preventative measure. All 48 are now new style.
	RF06	VT-3	Bolts 1-24 (of 48). No indication of cracking.
	RF07	VT-3	Bolts 25-48 (of 48). No indication of cracking or damage. Springs were left compressed on 20 of the 24 inspected.
	RF08	VT-3	Bolts 1-24 (of 48). No indication of cracking or damage
	RF09	VT-3	Bolts 23 and 25-48 (of 48). No indication of cracking or damage. All retainer springs verified to be functioning properly.
	RF10	VT-3	Bolts 1-24 (of 48). Inspected North 1/3rd of Shroud Head/Separator and 2 lifting lugs. No indication of cracking or damage
	RF11	VT-3	Inspected Bolts 25-48 (of 48) and inspected Center 1/3rd of Shroud Head/Separators. No indication of cracking or damage.
	RF12	VT-3	Bolts 1-24 (of 48). Inspected South 1/3rd of Shroud Head/Separator and 2 lifting lugs. All mid support ring gussets were inspected and small short cracks were identified on 3 of the 24 gussets. No repairs were required. Ref. OE 25795.
	RF13	VT-3	Bolts 25-48 (of 48). Inspected North 1/3rd of Shroud Head/Separator and 2 lifting lugs. No changes identified in previous indications identified in RF12. No other indications identified.
	RF14 (10/10)	VT-3	Bolts 1-24, 27, 30, & 33 (of 48). Inspected Center 1/3rd of Shroud Head/Separator. No changes identified in previous indications and no new indications identified.

	RF15 (4/12)	VT-3	Inspected Bolts 25-48 and 2 (of 48). Inspected South 1/3rd of Shroud Head/Separator. No changes identified in previous gusset indications and no new indications identified.
	RF16 (2014)	VT-3	Inspected Bolts 1-12 (of 48) and the North 1/3rd of Shroud Head/Separator. No new indications were identified.
	RF17 (2015)	VT-3	Inspected bolts 13-24 (of 48). Minor pin & window wear identified on bolts 21 & 23, evaluated to be acceptable without repair. Replaced bolts 2 & 33 due to their inability to latch. Inspected the Center 1/3rd of the Separator and identified one tie bar with a severed attachment weld on one end. The tie bar was removed to preclude generation of a loose part (technical justification from OEM obtained to support acceptance of one missing tie bar).
Steam Dryer (RF01-RF-08 not previously reported)	RF09	VT-3	Inspected approximately 1/3 of dryer including hood welds and cover plate welds. (Ref. SIL 644) No indications of additional cracking identified.
	RF10	VT-1/VT-3	Inspected approximately 50% of dryer including all inner hood vertical welds as recommended in SIL 644, Supplement 1, and Revision 1). Several new indications were identified near welds due to new locations being inspected and the change in technique. Indications were noted at base of inner hood vertical welds. Reference CARD 04-25416 and also OE #17600. No changes were identified on previously recorded indications.
	RF11	VT-1/VT-3	Inspected approximately 50% of dryer including all inner hood vertical welds as recommended in SIL 644, Revision 1 and BWRVIP-139. Several new indications were identified near welds due to new locations being inspected and the change in technique. Indications previously noted on hood welds in RF10 were reinspected and no changes were noticed.

	RF12	VT-1/VT-3	Inspected approximately 50% of dryer including inner hood vertical welds as recommended in BWRVIP-139. Several new small indications were identified near welds due to new locations being inspected and the change in technique and camera angles used. Indications previously noted on hood welds were reinspected and no changes were noticed.
	RF13	VT-1/VT-3	Inspected approximately 20% of dryer including "F" Bank welds and a sampling of other locations following reinspection guidelines contained in NRC SE to BWRVIP-139. One new indication identified in support ring.
	RF14 (10/10)	VT-1/VT-3	Inspected approximately 20% of dryer including "E" Bank welds and a sampling of other locations following reinspection guidelines contained in BWRVIP-139-A. No new indications identified.
	RF15 (4/12)	VT-1/VT-3	Inspected approximately 20% of dryer including "D" Bank welds and a sampling of other locations following reinspection guidelines contained in BWRVIP-139-A. No new indications identified.
	RF16 (2014)	VT-1/VT-3	Inspected approximately 20% of dryer including "C" Bank welds and a sampling of other locations following reinspection guidelines contained in BWRVIP-139-A. Indication newly identified on interior vane bank weld HE-C-2-1; evaluated to be acceptable without repair.
	RF17 (2015)	VT-1/VT-3	Inspected approximately 20% of dryer including "B" Bank welds and a sampling of other locations following reinspection guidelines contained in BWRVIP-139-A. Indication on interior vane bank weld HE-C-2-1 identified in RF16 re-inspected with no changes observed. 24 capture plate assemblies

			installed to cover all tie rod nut washer locations. Vertical drain channel welds preemptively increased from 1/8" to 1/4".
Dissimilar Metal Welds BWRVIP-75-A (Not previously reported, reference BWRVIP letter 2008-089)	RF-12	UT	Performed ultrasonic examinations on 4 Category B DM welds that contain alloy 82/182 using automated PDI qualified techniques and procedures. Since >90% coverage was not obtained on two welds, 2 additional welds were selected and >90% volume coverage was obtained. No indications of cracking identified.
	RF-13	UT	Performed ultrasonic examinations on 5 Category B DM welds that contain alloy 82/182 using automated and manual PDI qualified techniques and procedures. No indications of cracking identified.
	RF-14 (10/10)	UT	Performed ultrasonic examination of 1 Category B DM weld that contained alloy 82/182 using manual PDI qualified technique and procedure. No indications of cracking identified.
	RF-15 (4/12)	UT	Performed ultrasonic examination of 1 Category B DM weld that contained alloy 82/182 using manual PDI qualified technique and procedure. No indications of cracking identified.
	RF16 (2014)	UT	Performed ultrasonic examination of 3 Category B DM welds using manual PDI qualified technique and procedure. No indications of cracking identified.
	RF17 (2015)	UT	Performed ultrasonic examination of 4 Category B DM welds using PDI qualified phased array technique and procedure. No indications of cracking identified.
Bottom Head Drain Line (BWRVIP-205)	RF16 (2014)	RT	Deviation Disposition DD-2014-01 issued to support not completing radiography on the first elbow and piping immediately downstream of the reactor vessel in RF16. RT was performed on straight piping further downstream with no evidence of flow accelerated corrosion observed.

*VT-2 leakage inspections have been and are performed on all RPV Instrumentation Nozzles and Piping Nozzles each refuel outage. An enhanced leakage inspection is performed on all locations to ensure no pressure boundary leakage. Inspections are performed in the annulus area adjacent to the vessel skirt, and are performed under vessel to ensure that any leakage identified is not from welded connections. Flange leakage from CRDM's is recorded, evaluated, and repaired if necessary. Mirror insulation is opened for SLC safe end inspection and for bottom head inspections but is not removed from other locations unless the leakage source can't be determined.

Reactor Internals Inspection History

Plant: **Peach Bottom Atomic Power Station, Unit 3**

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	1993	VT-1	Enhanced VT-1 (1 mil resolution) (100% ID of H-3, H4, & V-3) portions OD of H-1, H-2, H-3, H-4, H-5, H-6, and H-7 Prior to BWRVIP-01, Circumferential Indications on ID of H-3 and H-4 (Plate side, not ring side) Short circumferential indications on ID of V-3 weld. Evaluation of indications showed full structural margins for one operating cycle.
	1995	UT	Comprehensive UT Baseline of all Category "C" circumferential welds (H-1 through H-7). Baseline per BWRVIP-01, Rev. 1. Exams per BWR-VIP Core Shroud NDE Uncertainty and Procedure Standard, dated November 21, 1994. Indications identified on ID of H-1, H-3, H-4, and H-5. Full structural margins calculated using two cycles of crack growth. No indications identified on H-2, H-6, and H-7.
	1999	UT	UT Examination on welds H-3 & H-4. Re-identified indications on both welds. Extent of indications within existing structural analysis.
	2005	UT	Two-sided UT of all 7 horizontal welds (H1 thru H7) and 4 vertical welds (V3 thru V6). No indications at H2, H7, V4-V6 or ring side of any weld. One minor indication near V3. Indications at H1, H3, H4, and H5 correlated with those previously identified. One indication at H6 (new). One deep indication at H4. Characterized as thru-wall. Review of previous data (1995 and 1999) also

			characterized indication as thru-wall at that time. EVT-1 on OD surface did not identify any indications.
	2015	UT	Comprehensive UT of all 7 horizontal welds (H1 thru H7) and 4 vertical welds (V3 thru V6) per BWRVIP-76 Rev. 1-A. Recordable indications were found in the H1, H3, H4, H5, V3, and V6 welds. Indications indicative of "off-axis" indications were reported in the vicinity of the H4 weld. Core shroud welds H2, H6, H7, V4, and V5 had no reportable indications. All welds are acceptable as-is for a 10 year re-inspection interval via a plant specific analysis.
Shroud Support	1993	VT-1	Enhanced VT-1 (1 mil resolution), of portions of H-8 weld, No indications identified. VT-1 examination around perimeter of both access hole covers, No indications identified.
	1997	VT-1	VT-1 of both access hole cover bolted repairs. No indications identified.
	1999	EVT-1	10 % of weld length of welds H-8 & H-9 examined. No indications identified.
	2001	UT	10% of H-9 weld length from vessel O.D. No indications identified.
		VT-1	VT-1 of both access hole cover bolted repairs. No indications identified.
	2005	EVT-1	> 10% of H-8 weld, between jet pump banks, in area of AHCs.
		VT-1	VT-1 of both access hole cover bolted repairs. No indications identified.
		UT	Accessible length of H-9 between 0 and 180 degrees. No indications identified.
	2009	VT-1	VT-1 of both access hole cover bolted repairs. No indications identified.

	2011	EVT-1	> 10% of weld length for H-8 & H-9 welds, between jet pump banks, in area of AHCs. No indications identified
Core Spray Piping	1980-present	VT-1 (1 mil)	Enhanced VT-1 (1 mil resolution) performed on piping and welds each refueling outage per IEB 80-13,
	1985	VT-1 (1 mil)	Cracking discovered at tee-box to header pipe weld. Welded repair plates installed on both header tee-boxes.
	1993	VT-1 (1 mil)	Cracking identified in downcomer slip joint (weld P-5), evaluation demonstrated structural margin for one operating cycle.
	1995	VT-1 (1 mil)	Additional cracking identified in 3 of 4 downcomer slip joint welds (P-5), repair clamps installed on all 4 downcomers to repair flawed welds.
	1997	VT-1	4 Downcomer repair clamps, no indications identified.
		EVT-1	All annulus piping welds, no indications identified.
	1999	VT-1	VT-1 Examination of A, B, C & D Downcomer Repair Clamps & both Header Teebox welded repairs. No indications identified.
	2001	VT-1	All target welds plus 25 % sample of piping butt welds examined. No indications identified.
		EVT-1	EVT-1 of all target welds plus 25% sample of butt welds examined. No indications identified.
	2003	VT-1	Four downcomer repair clamps.
		EVT-1	EVT-1 of all target welds plus 25% sample of butt welds. No indications identified.

	2005	EVT-1	Four Header Tee Box strong back repair plate welds. EVT-1 of all target welds plus 25% sample of butt welds. No indications identified.
	2007	EVT-1	Four Header Tee Box strong back repair plate welds. EVT-1 of all target welds plus 25% sample of butt welds. No indications identified.
		VT-1	Four downcomer repair clamps.
	2009	EVT-1	Four Header Tee Box strong back repair plate welds. EVT-1 of all target welds plus 25% sample of butt welds. No indications identified.
	2011	EVT-1	Four Header Tee Box strong back repair plate welds. EVT-1 of all target welds plus 25% sample of butt welds. No indications identified.
		VT-1	Four downcomer repair clamps.
	2013	EVT-1	Internal core spray piping from N5 nozzles to core shroud replaced eliminating previously installed downcomer and T-box repairs. EVT-1 performed on two hidden thermal sleeve welds with no indications identified.
	2015	VT-1, VT-3	VT-1 and VT-3 of entire core spray line, brackets, and clamps after one operating cycle. Visual exams confirmed all repair hardware is in place/ has not changed from "as-installed" condition. No indications recorded.
Core Spray Sparger	1980-present	VT-1 (1 mil)	Enhanced VT-1 (1 mil resolution) performed on piping and welds each refueling outage per IEB 80-13, No indications identified.

	1999	EVT-1	Examination performed on all Sparger Pipe welds.
		VT-1	Examination performed on all Brackets, Drains and 50 % of Nozzles. No indications identified.
	2003	EVT-1	Examination performed on all Sparger Pipe welds.
		VT-1	Examination performed on all Brackets, Drains and 50 % of Nozzles. No indications identified.
	2007	EVT-1	Examination performed on all Sparger Pipe welds.
		VT-1	Examination performed on all Brackets, Drains and 50 % of Nozzles. No indications identified.
	2011	EVT-1	Examination performed on all Sparger Pipe welds.
		VT-1	Examination performed on all Brackets, Drains and 50 % of Nozzles. ~1.0" Indication noted on the shroud side of the 136 degree bracket weld
	2013	VT-1	Examination performed on the core spray sparger bracket 05 at 136°. No change in the indication as identified during the 2011 inspection.
	2015	VT-1, EVT-1	VT-1 of all (12) sparger support brackets and 60% of core spray nozzle welds, end cap welds, drain plug and welds on "A thru D" nozzles and drains. No change noted on the sparger bracket 05 at 136° from 2011. No other indications identified.
Top Guide (Rim, etc.)	1987	UT	UT examination performed on 40 cells. No indications identified
	1993	VT-3	Visual (VT-3) examination of 9 cells (02-19, 46-11, 42-59, 58-19, 02-39, 10-51, 18-03, 22-03, and 58-35), per SIL 554. No indications identified.

	1995	VT-3	Visual (VT-3) of 3 cells (14-23, 22-31, and 46-23) per SIL 554. No indications identified.
	1976-present	VT-3	VT-3 examination every other refueling outage per Section XI. No indications identified.
	1997	VT-3	Top Guide Grid examined from above, no indications identified.
		VT-1	Adjacent aligner pins at 180 and 270 deg.(per VIP-26), no indications identified.
	2009	EVT-1	EVT-1 of five top guide cell locations per BWRVIP-183 requirements. No indications identified.
	2011	EVT-1	EVT-1 of fourteen top guide cell locations per BWRVIP-183 requirements. No indications identified.
Core Plate (Rim, etc.)	1995	VT-3	VT-3 examination of hold down bolt retainers planned, deferred to 1997.
	1997	VT-1	Examined 18 of 34 bolts/retainers from above. No indications identified.
	2011	VT-3	Examined 9 of 34 bolts/retainers from above. No indications identified. This satisfies the 25% commitment from the submitted Deviation Disposition
SLC	1997	UT	UT of nozzle to safe end planned for 1997, per BWRVIP recommendations
		PT & UT	PT & UT of nozzle to safe-end weld, no indications identified.
	2003	PT	Extended dwell time PT of SLC nozzle to safe end weld and entire safe end. No indications identified.
	2007	PT	PT of SLC nozzle to safe end weld. No indications identified.

	2011	UT	UT of SLC nozzle to vessel and nozzle to safe end weld. No indications identified
Jet Pump Assembly	1974 to present	VT-3	Visual VT-3 of all jet pump components performed every other refueling outage. No indications identified.
	1981	VT & UT	VT and UT examination performed on all 20 hold down beams/ One beam found to be cracked, replaced with new style beam, All beams replaced with new style beam and reduced preload in 1988.
	1997	VT-3	VT-3 all 20 jet pump assemblies (all parts),including CSVT-1 (MVT-1) of 10 riser braces, including all welds. No indications identified.
		CSVT-1 (MVT-1)	CSVT-1 (MVT-1) all 10 thermal sleeve to riser elbow welds, plus UT on pumps 1/ 2, 9/10, 13/14 due to indications on thermal sleeve side of these welds. MVT-1 on welds RS-2 & RS-3 of three risers w/ indications @ 30, 150, and 300 degrees. Evaluation of indications justified continued operation for part cycle.
	1999	UT	Examinations performed on all 20 hold down beams. Reportable indications observed on hold down beam for jet pump # 20. Beam replaced. No other indications identified.
	1999	EVT-1	Examination of high priority Adapter welds on Jet Pumps 1-10. Reportable indications on welds (AD-3b) of Jet pumps 2 & 10. BWRVIP –41 evaluation resulted in use-as-is disposition. Expanded examinations to weld AD3b on Jet Pumps 11-20. No other indications identified. EVT-1 examination of high priority Diffuser Shell to Tailpipe Welds (DF-2) of Jet Pumps 1-10. No indications identified. Examination of Riser welds RS-2 & RS-3 of Jet Pump Assemblies 2, 3 & 4.

			No indications identified.
	2001	EVT-1	Reexamined weld AD-3b on Jet Pumps 2 & 10. indications remain bounded by existing flaw evaluation. All 20 WD-1 locations examined. 16 high priority and 45 medium priority welds on inlet mixers, diffusers, and riser braces also examined. No indications identified.
	2003	VT-1	VT-1 of all twenty hold down beam ratchet lock keepers (replaced in 2001). VT-1 all twenty WD-1 main wedge locations, since all inlet mixers were removed in 2001, Two auxiliary spring wedges installed in 2001, and the RS-1 repair clamp on JP 1 & 2 and 13 & 14. No indications identified.
		EVT-1	Reexamination of indication at RS-1 weld on JP 9 & 10. Minimal change in flaw size. Structural reevaluation completed for continued acceptability. 104% of High priority welds completed. 72% of Medium priority welds completed No indications identified. Indication identified in backing ring below AD-3a weld on JP 18. Structural evaluation found acceptable for continued operation.
	2005	UT	Two-sided UT of all diffuser and adapter welds (100) from I.D. Identified 4 small OD originating indications associated with the AD-3b fillet weld (2 previously ID'd). Structural and leakage evaluation proved acceptability for numerous operating cycles.
		VT-1	VT-1 of five main wedges. No wear identified.

		EVT-1	EVT-1 of 16 medium priority welds. No indications identified. EVT-1 of 3 existing indications. No appreciable change in indication size.
	2007	VT-1	VT-1 of 10 main wedges and 2 RS-1 riser repair clamps. No indications identified.
		EVT-1	EVT-1 of 30 medium and high priority welds, 1 existing RS-1 weld indication and 12 riser brace welds. No growth of existing indication noted. Small indications identified at the RS-1 weld of two risers. Structural and leakage impact evaluations found indications acceptable for continued operation. No other indications identified.
	2009	VT-1	VT-1 of 6 main wedges. Minor wear identified on 3 wedges. Expanded scope to examine all 20 main wedges and performed examinations on additional locations (AS-1/2, RS-6/7, RS-8, RS-9, MX-7) on the 3 JPs with identified wear. Two set screw gaps identified. No additional indications in expanded scope exams. No repair hardware required.
		EVT-1	EVT-1 of 31 medium and high priority welds. 3 existing RS-1 flaws were examined. – 1 existing indication exhibited no growth and was evaluated as acceptable for two cycles of continued operation. – 1 existing indication exhibited growth and was evaluated as acceptable for two cycles of continued operation. – 1 existing indication was determined to be the toe of the weld. No indication exists. No other indications identified.
	2009	VT-3	VT-3 of two aux spring wedges. No indications identified.

	2011	VT-1	A VT-1 of the BB-4 regions of all 20 JP hold down beams was performed with no indications identified. VT-1 examinations were performed on the following components with no indications identified: JP 01/02 RS-1 clamp, JP 13/14 RS-1 clamp, JP 04 MX-7 and JP 10 MX-7. Recordable indications were identified on 10 JP wedges, 3 wedges were existing wear no change, 2 JPs had new minor wedge wear and 5 had minor rod wear.
		EVT-1	EVT-1 of 53 medium and high priority locations • 2 existing RS-1 flaws were examined with no change in length • Set screw gaps identified on JP 03, 04 and 05
		UT	16 Hybrid Group 2 Hold Down Beams were examined no indications identified.
	2013	VT-1	VT-1 of 10 wedge bearing surfaces WD-1 JP01 thru WD-1 JP10 was performed. No relevant change in indications from previous inspection.
		EVT-1	EVT-1 of riser elbow to thermal sleeve weld RS-1 (JP 09/10 and JP 19/20). Previously documented indication was observed with no apparent change in the indication from the previous inspection data.
		EVT-1	EVT-1 of jet pumps JPs 03 and 05 vessel side and shroud side set screw gaps. EVT-1 of JP 04 vessel side set screw gap. New slight wear identified on the JP 03 SS, JP 03 VS and JP 04 VS belly band set screw interface. Comparison to P3R18 exam data identified these components had similar characteristics during the 2011 exam. No other indications identified.

	2015	EVT-1,	EVT-1 of (17) medium and high priority welds. 2 existing RS-1 flaws were examined with no change in length. No other indications identified.
		VT-1,	VT-1 of (2) riser clamps. No indications observed. VT-1 of ten (10) JP main wedges. No new wedge wear was identified; however, wedge rod wear was identified on JP11, JP12, JP15, and JP20. All previous wedge rod wear on JP09, JP16, JP17 and JP19 has not changed.
		VT-3,	VT-3 of the two (2) auxiliary wedges installed. No wear identified on JP14. New wear on the JP09 aux. wedge and new wear into the belly band were noted. The aux. wedge was in the over-travel position and accepted for continued use for one cycle.
		EVT-1, UT	A combination of EVT-1 on the OD and UT from the ID on 10 jet pump diffuser/ adapter welds (AD-1, AD-2, DF-1, DF-2, AD3a/b and DF-3): - UT diffuser scope: JP09, JP10, JP11, JP12 and JP18. Previous indications on JP12 and JP09 AD3b showed small changes in length from 2005. JP18: 2 of 3 previous indications on AD3a showed no change from 2005. The third indication was not observed/ could not be found. All other welds were inspected SAT. - EVT-1 diffuser scope: JP02, JP09, JP10, JP13, JP14, JP17, JP18 and JP19. Previous indication on JP02 AD3b showed no change from 2005. Previous indication on JP10 AD3b showed small change in length from 2005. All conditions were evaluated as acceptable.

Jet Pump Diffuser			See Jet Pump Assembly.
CRD Guide Tube	1985	VT-3	VT-3 PSI examination of 4 replacement CRD housings.
	1987	VT-3	VT-3 examination of one of replaced housings. No indications identified.
	1991	VT-3	VT-3 examination of housings accessible from fuel cells 26-31 and 30-27. No indications identified.
	1999	VT-3	VT-3 examination on Guide Tube welds CRGT-1 & Alignment Pin weld (Core Locations: 14-15, 14-31, 14-47, 18-19, 18-27, 18-35, 18-43, 26-11, 34-35, 42-19) No indications identified.
		EVT-1	EVT-1 examination on Guide Tube welds CRGT-2 & 3 (Core Locations:14-15, 14-31, 14-47, 18-19, 18-27, 18-35, 18-43, 26-11, 34-35, 42-19) No indications identified.
	2003	EVT-1	Best effort EVT-1 on Guide Tube welds CRGT-2 & 3 (Core locations: 10-35, 22-27, 22-35, 30-23, 30-31, 30-39, 38-27, 38-31, 38-35, and 42-31) No indications identified.
		VT-3	VT-3 examination on Guide Tube welds CRGT-1 & Alignment Pin weld (Core Locations: 10-35, 22-27, 22-35, 30-23, 30-31, 30-39, 38-27, 38-31, 38-35, and 42-31) No indications identified.
	2005	EVT-1	EVT-1 on Guide Tube welds CRGT-2 & 3 (Core locations: 22-39, 38-39, 14-35, 46-35, 46-27, 22-23, and 26-11) No indications identified. CRGT-3 (22-39) later disqualified.

		VT-3	VT-3 examination on Guide Tube welds CRGT-1 & Alignment Pin weld (Core Locations: 22-39, 38-39, 14-35, 46-35, 46-27, 22-23, and 26-11) Alignment pin weld also at 14-27 and 38-23, No indications identified.
CRD Guide Tube (cont.)	2007	EVT-1	EVT-1 on Guide Tube welds CRGT-2 (Core locations 22-03, 30-15, 42-03, 46-55, 58-39) and CRGT-3 (Core locations 22-03, 30-15, 42-03, 46-55, 58-39). No indications identified. Verification of CRGT-1 (Core locations 22-03, 30-15, 42-03, 46-55, 58-39) alignment pins and alignment lug welds. No indications identified.
	2009	EVT-1	EVT-1 on Guide Tube welds CRGT-2 (Core locations 14-31, 22-31, 22-59, 30-47, 50-51) No indications identified.
CRD Stub Tube	1991	VT-3	VT-3 of accessible portions of 12 stub tubes (30-35, 26-35, 22-35, 22-31, 22-27, 26-27, 26-23, 30-23, 34-23, 34-27, 34-31, 30-31). No indications identified.
In-Core Housing	1991	VT-3	VT-3 of housings accessible from fuel cells 26-31 and 30-27. No indications identified.
Dry Tube	1997	N/A	All Dry Tubes replaced in 1985. All IRM and SRM tubes replaced w/ Wide Range Monitoring tubes in 1997. No inspections required.
	2015	VT-3	3 spare dry tubes (no WRNM detector installed) at core locations 16-45, 40-21 and 40-45 were found not fully engaged into the top guide. The observed conditions are acceptable as there remains enough insertion into the notches to laterally support the dry tube.

Instrument Penetrations	1976 to present	PT	PT examination performed on all instrument nozzle to safe end welds once per interval, per Section XI. No indications identified.
	1997	PT	PT nozzle to safe-end (coupling) & safe-end to pipe welds on 2 nozzles. (N12A & N12B). No indications identified.
	2001	PT	PT nozzle to safe-end (coupling) welds on 2 nozzles. (N11A & N16A). No indications identified.
Vessel ID Brackets	1976 to present	VT-1 or VT-3	VT-1 and VT-3 of all ID bracket welds performed once per interval No indications identified.
	1997	VT-1	All 10 Jet Pump riser brace to vessel welds, no indications identified.
	1999	EVT-1	EVT-1 examination performed on 8 Core Spray Bracket Pads @ 15, 117, 123, 165, 195, 237, 243 & 345 AZ. No indications identified.
	2001	EVT-1	EVT-1 examination performed on 4 Feedwater Sparger brackets @ 4, 56, 64, and 116 Az., 3 Jet Pump Riser Braces @ 90, 120, and 150 AZ., and 2 Steam Dryer Support Brackets @ 4, and 94 AZ. No indications identified.
	2003	VT-1	Lower Surveillance Specimen brackets at 30°, 120°, and 300°.
		VT-3	Upper Surveillance brackets at 30°, 120°, and 300°. Guide Rod brackets at 0° and 180°.
		EVT-1 & VT-3	Steam Dryer support brackets at 184° and 274°.
		EVT-1	Jet Pump riser brace to vessel welds JP 9/10 and JP 13/14. No indications identified
	2005	EVT-1	8 Feedwater sparger bracket welds and 16 jet pump riser brace welds. No indications identified.

	2007	EVT-1	8 Core Spray pipe support brackets and one jet pump riser brace. No indications identified.
		VT-3	4 Steam dryer hold down bracket welds. No indications identified.
	2011	EVT-1	Steam dryer support brackets at 004°, 094°, 184°and 274° were examined with minor wear and rub marks found. The conditions were evaluated acceptable. The upper guide rod bracket attachment welds at 0° and 180° were examined with no recordable indications identified. The feedwater sparger brackets at the 030°, 090°, 150°, 210°, 270° and 330° sparger locations were examined with no recordable indications identified. The jet pump riser brace to vessel welds for JPs 01/02, 09/10, 11/12 and 13/14 were examined with no recordable indications identified.
	2015	EVT-1, VT-1	Lower and Upper Surveillance Specimen Holder (SSH) bracket attachment welds at 30, 120, and 300 degrees were examined. No indications were noted on the attachment weld on SSH 030 deg. Wear was only identified on the vertical portion of the interface between the SSH and the bracket. The wear is minor and does not impact the bracket or specimen holder. 8 Core Spray pipe support brackets inspected. No indications identified.
LPCI Coupling			N/A for this plant
Steam Dryer	2003	VT-3	VT-3 of the entire top of the dryer (including all upper tie bars) and the 2 outer bank hoods and cover plates.
		VT-1	VT-1 of 5 new central bank upper tie bars (added in 2001), 2 stop-drilled indications at the lower guide rod followers, and all GE SIL 644, Supp. 1 locations on outer bank hoods. No indications identified. All previous repairs were satisfactory.

	2005	VT-1	Completed all remaining BWRVIP-139 recommended inspections (68 locations). No indications identified.
	2007	VT-1	VT-1 of 23 high stress welds and all upper tie bars. No indications identified
	2009	VT-1	Re-examination of six "red" end bank welds, two "green" drain channel welds, and welds on four lifting lugs per BWRVIP-139-A. No indications identified
	2011	VT-1-89	Examinations were performed on the end panel plate to cover plate weld, end panel plate to sloped hood plate weld and end panel plate to vain cap plate weld on both the left and right end of bank 6 of the steam dryer. No recordable indications were identified. The lifting rods at 045°, 135°, 225°and 315° were examined with no recordable indications.
	2013	VT-1	VT-1 examinations performed on steam dryer seismic brackets (SDSB) at 004°, 094° and 184°. No additional wear was observed from the previous examination. VT-1 on steam dryer lifting rod assemblies at 45°, 135°, 225° and 315°. A new indication was noted on the northeast tack weld of the 225° lifting rod. No recordable indications were identified on the other three lifting rod assemblies.
	2015	Replacement	As part of the EPU License Amendment Request (LAR), Exelon PBAPS replaced the Original Equipment Manufacturer (OEM) steam dryer with a 3-ring octagonal (Nordic style) Westinghouse dryer.
Steam Separator	2007	VT-1	VT-1 examinations performed on a sample of upper and lower shroud head bolt support ring gussets. No indications identified.

	2009	VT-1	VT-1 examinations performed on a sample of upper and lower shroud head bolt support ring gussets. No indications identified.
	2011	VT-1-89	Examinations were performed at four locations on both the lower support ring gussets and the upper support ring gussets. No recordable indications were identified. Examinations were performed on the separator standpipe tie straps minor historic damage was observed conditions were acceptable. A VT-1 examination was performed on shroud head bolt 07, indicator window and pin wear observed. As a result, SHB 07 was removed. The four lifting lugs were examined with no recordable indications identified.
	2013	VT-1	The four lifting lugs were examined with no recordable indications identified.
	2015	VT-1, VT-3	Examinations were performed on the separator standpipe tie straps and all (4) lifting lugs. Found several gouges in the base metal of the lifting lug at 67.5 deg and new wear that appears to be historic. Bent Tie Straps at locations: 78 deg, 95 deg, 150 deg, and 311 deg azimuths and a previously removed tie strap at 220 deg. All observed conditions were acceptable.
Dissimilar Metal Welds (BWRVIP-75-A)	2009		No examinations scheduled.
	2011		No examinations scheduled.

	2013	UT	Examinations performed on 7 IGSCC Category A welds per BWRVIP-75-A. No recordable indications were identified. The welds examined were a pipe bend to pipe weld in the RHR system (10-O-23), the core spray nozzle to safe end weld (14-A-46), a recirculation inlet nozzle to safe end weld (2-BHC-8), 2 RHR pipe to tee welds (10-2DB20-17, and 10-2DD20-22) and 2 RHR tee to elbow welds (10-2DB20-19 and 10-2DD20-24). The last (4) RHR welds identified above were added during P3R19 (Fall 2013) as a result of EPU.
	2015	PAUT	2 dissimilar metal welds (3-I-20: Category A and 12-I-2R: Category C) and 1 weld overlay (12-I-1C) were inspected using manual Phased Array UT. Areas of less than minimum wall thickness allowable limit were discovered on 12-I-2R. The thinned piping and downstream elbow were replaced. A transition stainless steel piece was installed between the valve and the elbow. All other welds were inspected SAT. Additionally, as a result of EPU, (4) welds were added to the RHR system during P3R20 (Fall 2015). These (4) welds are Category A welds: 10-2DA20-24, 10-2DA20-25, 10-2DC20-17, and 10-2DC20-19.
RPV Shell Welds (BWRVIP-05)	2015	UT	RPV Shell Welds V1A,B,C thru V5,A,B,C and circ. weld C6 were examined. The examinations were performed using automated Phased Array UT. Two indications were observed in the circumferential weld exam volume (C-6 shell to flange). The indications are subsurface flaws and allowable IAW Table IWB 3510-1 of ASME XI 2001 Ed, 2003 Ad.