

# BWRVIP

BWR Vessel &amp; Internals Project \_\_\_\_\_ 2001-151

April 23, 2001

Document Control Desk  
U. S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852

Attention: C. E. Carpenter

Subject: PROJECT NO. 704 – BWR Vessel and Internals Inspection Summaries for  
Spring 1999, Fall 1999 and Spring 2000 Outages

Enclosed are ten (10) copies of each of the following documents:

1. "BWR Vessel and Internals Project, Vessel Internals Inspection Summaries for Spring 1999 Outages, April 2001"
2. "BWR Vessel and Internals Project, Vessel Internals Inspection Summaries for Fall 1999 Outages, April 2001"
3. "BWR Vessel and Internals Project, Vessel Internals Inspection Summaries for Spring 2000 Outages, April 2001"

The information provided in the enclosed documents identifies the BWR internal components inspected and generally includes the date or frequency of inspection, the inspection method used and a summary of results including repair or replacement activities. This information is being used by the BWRVIP to track the material performance of the associated vessel internal components. The enclosed documents are being provided to the NRC for information only.

The information contained in the enclosed documents was developed by the individual utilities and has been compiled into the enclosed documents by the BWRVIP. The BWRVIP plans to continue to gather such information and to provide periodic updates such as in the enclosed documents.

Representatives of the BWRVIP would be pleased to meet with the NRC staff to discuss any comments or questions related to the enclosed documents. If you have any questions on the enclosed documents or the general subject of inspection results, please call Vaughn Wagoner,

D058  
1/10

BWRVIP Integration Committee Technical Chairman, Carolina Power & Light Company, at 919.546.7959.

Sincerely,

A handwritten signature in cursive script, appearing to read 'C. Terry'.

Carl Terry  
Niagara Mohawk Power Corp.  
Chairman, BWR Vessel and Internals Project

**BWR Vessel and Internals Project**  
**Vessel Internals Inspection Summaries**  
**for Spring 1999 Outages**

**April 2001**

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## Reactor Internals Inspection History

Plant: **Brunswick 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	1994	EVT-1 and UT	EVT-1 baseline, except UT on H4. Installed pre-emptive clamp repair on H2/H3. Indications in several circumferential welds. Full structural margins on non-repaired welds.
	1996	UT	UT re-inspected H4 with no growth in indications. UT baseline H1, H6A, H6B and H7. Several indications noted with full structural margins maintained. VT-1 and VT-3 inspected 3 repair brackets with no indications noted.
	1997	UT	UT re-inspected H4 and H6B with no growth in indications noted. Full structural margins maintained. UT baseline H5 with no indications noted. VT-1 and VT-3 inspected 3 repair brackets with no indications noted.
	1999	UT/EVT-1	UT re-inspected H1, H4 and H6B with no growth in indications noted. Full structural margins maintained. EVT vertical welds V3, V4, V5, and V6 with no indications. VT-1 and VT-3 inspected 3 repair brackets with no indications noted.
Shroud Support	1994	EVT-1	VT-1 of access cover welds inspected - no indications noted.
	1996	UT	H9 inspected with no indication noted.
	1991 and 1994	UT	Access hole covers UT's for radial and circumferential indications with no indications noted.

	1999	NA	No inspections performed
Core Spray Piping	1980's to Present	MVT-1 and EVT-1	IEB 80-13 of piping and welds in annulus. One indication on annulus header piping at the header to T-Box weld. Welded brackets installed 1991 with full structural margins maintained. First inspected per BWRVIP-18 in Fall 1996 with no new indications found. Re-inspected per BWRVIP-18 in Fall 1997 with no new indications found.
	1999	EVT-1	Performed inspections of selected core spray annulus piping welds in accordance with BWRVIP-18 with no new indications noted.
Core Spray Sparger	1980's to Present	MVT-1, EVT-1, and VT-3	IEB 80-13 of welds on sparger. One indication in sparger to tee weld. Bolted clamp installed in 1982 and full structural margin maintained. One small indication noted in and near the heat affected zone of Core Spray sparger support bracket to shroud plate weld. Structural integrity of the support maintained. First inspected per BWRVIP-18 in Fall 1996 with no new indications found. Re-inspected per BWRVIP-18 in Fall 1997 with no new indications found.
	1999	Per BWRVIP-18	Inspected spargers per BWRVIP-18 with no new indications noted and no change in previously identified indications.
Top Guide (Rim, etc.)	1991-96	MVT-1, VT-3	Examined 2 cells in 1992 with no indications noted. 15 cells examined in 1995 with no indications noted. Did VT-3 of top guide hold downs examined in 1996 with no indications noted.
	1999	na	No inspections performed
Core Plate (Rim, etc.)	1993	VT-1	Hold down bolts from topside and partial surface areas. No indications noted.

	1999	UT	UT from shroud outside surface to detect bolting presence. Detected presence of 56 bolts out of a minimum needed of 54 with no discrepancies noted.
SLC	1988	LP	No exams performed on internal piping. Section XI LP performed on nozzle to safe end welds in 1988 with no indications noted.
Jet Pump Assembly	to present	VT-1 and VT-3	Riser brace brackets done once per period. Wedges, set screws, tack welds, sensing lines and sensing line supports VT per various SILs. Latest inspected in 1996 with no indications noted. Jet pump beams replaced in 1993. No indications noted, as well as in old jet pump beams.
	1997	VT-1 and VT-3	MVT-1 of Riser welds and tailpipe welds on 5 Jet Pump Pairs with no indications noted.
	1999	EVT-1/ MVT-1/ VT-1/VT-3	Performed inspections on 30 Riser welds, and 50% of the miscellaneous riser brace, inlet mixer, etc. welds. No indications noted.
Jet Pump Diffuser	to present	VT-3	Adapter and diffuser welds inspected once per period with no indications noted.
	1999	EVT-1	Inspected 50% of welds with no indications noted.
CRD Guide Tube		VT-3	Access has not become available.
CRD Stub Tube		VT-3	Access has not become available.
In-Core Housing		VT-3	Access has not become available.
Dry Tube		N/A	Replaced in 1987. Scheduled for inspection in 2001
Instrument Penetrations	1988 and 1996	LP	Inspections of external piping performed once per interval in accordance with ASME Section XI. No indications noted.
Vessel ID Brackets	to present	VT-1 in beltline	Section XI inspections of dryer, feedwater sparger, core spray, and

	1999	area and VT-3 in other areas  VT-1/VT-3	surveillance capsule holder brackets performed once per interval. Last inspections in 1997 with no indications noted.  Inspected Feedwater and Core Spray attachment welds to RPV with no indications noted.
LPCI Coupling			Not applicable to Brunswick.



## Reactor Internals Inspection History

Plant: Dresden 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	4/94	EVT-1 and UT	Inspections per SIL 572, extensive indications in circumferential welds.
	4/97	EVT-1 and UT	Inspections per BWRVIP Guidelines of all shroud repair design reliant structure prior to installation of comprehensive repair (4 GE designed tie-rod assemblies). Inspection consisted of EVT-1 of all ring segment welds (accessible surfaces), UT for minimum ligament of all vertical welds accessible to scanner and EVT-1 for minimum ligament on all accessible surfaces of all vertical welds not accessible to the scanner.
	2/99 D3R15	VT-1	Shroud Repair Hardware Inspection Minor Indications Note
Shroud Support	4/94	UT/VT-1	EVT-1 of H8 and H9 for approx 12" at 4 locations of shroud repair hardware attachment areas.
	4/97	EVT-1	Access hole cover VT/UT for circ and radial flaws. No indications identified.
	2/99 D3R15	EVT-1	<b>Shroud Support Weld Inspection Per BWRVIP-38</b> <ul style="list-style-type: none"> <li>• H-8 Weld (between Jet Pump 20 and 1 accessible area)</li> <li>• H-9 Weld (between Jet Pump 20 and 1 accessible area)</li> <li>• NRI</li> </ul>
Core Spray Piping	1980's Through	VT-1 (1MIL)	IEB 80-13 (1 MIL) VT-1 of piping and welds in annulus. Indications observed at

	1994		two lower elbow to downcomer welds. Welds repaired using GE designed clamps.
	4/97	UT/EVT-1	UT inspections per BWRVIP-18 of all piping circ welds in annulus. EVT-1 of any piping welds in annulus inaccessible to scanner.
	2/99 D3R15	EVT-1	<b>Core Spray Internal Piping Inspections BWRVIP-18</b> <ul style="list-style-type: none"> <li>• P4d &amp; P8a Welds on 80°, 110°, 260° and 290° Downcomers</li> <li>• No apparent Crack Growth on previously reported flawed components</li> </ul>
Core Spray Sparger	1980's Through 1994	VT-1 (1 MIL)	IEB 80-13 (1 MIL) VT-1 of spargers and tee-boxes. No indications identified.
	4/97	EVT-1 / VT-3	Inspections per BWRVIP-18, including EVT-1 of tee-box cover plate welds, tee-box to sparger arms, and sparger end caps; VT-3 of spargers and nozzles.
Top Guide (Rim, etc.)	4/94	VT-1	VT-1 of 5 cells. No indications.
	4/97	VT-1 / EVT-1	VT-1 of all 4 alignment assemblies. EVT-1 of rim to bottom plate weld at 4 locations.
Core Plate (Rim, etc.)	N/A	N/A	Installed core plate wedges in conjunction with comprehensive shroud repair in spring 1997.
	2/99 D3R15	VT-1	Visual Inspection of Installed Wedge Assemblies
SLC	N/A	N/A	N/A.
Jet Pump Assembly	4/94	VT-1	Hold down beams, beam bolt keepers, lockplates 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.

	4/94	UT	<p>Latest inspections were in 1994. Riser brace arm to yoke welds on 3 upper riser braces found cracked. Unit 3 has a redundant set of riser braces so no repairs required. No other reportable indications.</p> <p>Inspect 100% every other outage.</p>
	2/99 D3R15	UT/EVT-1 MVT-1	<p>Jet pump beams are UT examined each outage using technique capable of detecting cracking at throat and ears. No indications identified.</p> <p><b>Jet Pump Inspection BWRVIP-41</b></p> <ul style="list-style-type: none"> <li>• Riser Brace Welds RB-1b &amp; 1a, RS-8 &amp; RS-9 on Jet Pumps 1 to 20</li> <li>• Wedge WD-1 on Jet Pumps 1 to 20</li> <li>• Weld RS-4 &amp; RS-5 on Pumps 6, 7, 8, 9, 10, 16, 17, 18, 19, &amp; 20</li> <li>• Inlet Mixer Bolts IN-5 on Pumps 6, 7, 8, 9, 10, 16, 17, 18, 19, &amp; 20</li> <li>• Inlet Mixer Welds MX-1 &amp; MX-3 on Pumps 6, 7, 8, 9, 10, 16, 17, 18, 19, &amp; 20</li> <li>• Adapter Welds AD-1, AD-2 &amp; AD-3a,b on Pumps 1, 6, 7, 10, 11, 14, 15, 16, 17, 18, 19, &amp; 20</li> <li>• Jet pump beams are UT examined each outage</li> <li>• Minor Indications Noted</li> </ul>
Jet Pump Diffuser	4/94	VT-1	<ul style="list-style-type: none"> <li>• Diffuser to baffle plate welds on all 20 jet pumps. No indications</li> </ul>
	2/99 D3R15	EVT-1	<ul style="list-style-type: none"> <li>• Diffuser Welds DF-1 &amp; DF-2 on Pumps 6, 7, 8, 9, 10, 16, 17, 18, 19, &amp; 20</li> <li>• NRI</li> </ul>
CRD Guide Tube	N/A	N/A	N/A
CRD Stub Tube	N/A	N/A	N/A
In-Core Housing	N/A	N/A	N/A
Dry Tube	4/94	VT-1	<p>Identified one cracked dry tube. Replaced.</p>

			Examined every other outage.
Instrument Penetrations	N/A	N/A	N/A
Vessel ID Brackets	4/94	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.
LPCI Coupling	N/A	N/A	Not applicable to this plant.

## Reactor Internals Inspection History

Plant: **Hatch Unit 1**

Components in Scope (Guidelines/ Implementation Date)	Date/Outage	Inspection Method	Summarize the Following Information: Inspection Results, Repairs, Replacements, Frequency
Core Shroud Horizontal Welds	Spring 1992 / 1R14	UT/EVT-1	UT of horizontal welds found cracking – acceptable.
	Fall 1994 / 1R15	N/A	4-Tie Rods repair installed Fall 1994/1R15. No examination of horizontal welds H-1 through H-8 required.
Core Shroud Tie Rods (BWRVIP-07, 1996)	Fall 1994 / 1R15	Tightness, EVT-1/ VT-3	Installed 4-Tie Rods. Satisfactory.
	Spring 1996 / 1R16	Tightness, EVT-1/ VT-3	Increased torque to all 4 Tie Rods. 1 at 315° found to be less than desirable load and was corrected. All others acceptable.
	Fall 1997 / 1R17	Tightness, EVT-1/ VT-3	Tightness checks to all 4 Tie Rods. 1 at 315° was again found to be less than desirable load and was corrected. All others acceptable.
	Spring 1999 / 1R18	Tightness, EVT-1/ VT-3	Tightness check of 315° was found to be less than desirable, but acceptable. Tie Rod Nut Retainer slots bending from torque but acceptable. tightness procedure to be revised.
Core Shroud Vertical Welds (BWRVIP-07, 1996) (BWRVIP-63, 2000)	Fall 1994 / 1R15	EVT-1	EVT-1, 6" ID & OD at Horizontal Weld Intersection of H-4 & H-5. V-3, V-4,V-5, & V-6. Acceptable indications found on ID of V-4, and OD of V-5.
	Spring 1996 / 1R16	EVT-1	Baseline per BWRVIP-07 in 1996. EVT-1 Outside Surface of V-1 thru V-11, & Inside Surface of V-5 & V-6. Acceptable Indications in V-5, V-6.
	Fall 1997 /	UT	UT of 6 verticals in 1997, indications in

	1R17  Spring 1999 / 1R18	EVT-1	V-5 & V-6, acceptable.  EVT-1, V-1 & V-2 from OD due to access. And V-3 through V-8 from ID & OD. Indications reported on V-4, V-5, V-6, & V-8. Acceptable. Future examinations to be determined.
Core Shroud Ring Segment Welds (BWRVIP-07, 1996) (BWRVIP-63, 2000)	Spring 1996 / 1R16  Fall 1997 / 1R17  Spring 1999 / 1R18	EVT-1  EVT-1  EVT-1	EVT-1 from outside surface of 2 Ring welds. Satisfactory.  EVT-1 from outside surface of 4 Ring welds. 1- acceptable indication.  EVT-1 from outside surface of 5 Ring welds. No indications. Previous indication determined to be non-relevant. Future scheduling to be determined.
Core Shroud Support Ledge (H-9) (BWRVIP-38, 2000)	Fall 1994 / 1R15	VT-1/3	0-360° where accessible, from top once/interval. No indications. Future examinations to be determined. Very limited for EVT-1. Possible UT next outage.
Core Shroud Support Ledge Access Hole Covers (2) 0° & 180°. (Augmented)	Fall 1992  Spring 1993 / 1R14  Fall 1994 / 1R15  Spring 1996 / 1R16  Fall 1997 / 1R17  Spring 1999 / 1R18	UT  VT-1/3  VT-1/3  VT-1/3  VT-1/3	UT Indications. Acceptable for one cycle.  Replaced with mechanical design in 1993. Typical for 2 at 0° & 180°. Examine one every outage / or 2 each period, VT-1 bolting tack welds/VT-3 remaining. No reportable indications.  Examine each period. Examined 0°. No reportable indications.  Examine each period. Examined 180°. No reportable indications.  Examine each period. Examined 0°. No reportable indications.  Examine each period. Examined 180°. No reportable indications.
Core Spray Internal Piping	1980's to Spring 1996 /	VT- 1/.001mil	IEB 80-13/NUREG CR-4523. Examine each outage.

(BWRVIP-18, 1997)	1R16	resolution	
	Fall 1997 / 1R17	EVT-1	BWRVIP-18 implemented 1997. No indications.
	Spring 1999 / 1R18	EVT-1	No indications.
Core Spray Sparger (BWRVIP-18, 1997)	1980's to Spring 1996 / 1R16	VT-1/.001mil resolution	IEB 80-13/NUREG CR-4523. Examine each outage. Mechanical Repair Clamp on T-Box Cover Plate in 1984.
	Fall 1997 / 1R17	CSV-T-1	BWRVIP-18 implemented 1997. No Reportables.
	Spring 1999 / 1R18	EVT-1/VT-3	Began Sparger inspections as Geometry Critical. No Reportables.
Top Guide (BWRVIP-26, 1997)	Fall 1994 / 1R15	Fall 1994 / 1R15	VT-1 (.001) of Beams at 10 Cell Locations. & 4 - hold down bolts. EVT-1.
	Spring 1996 / 1R16	VT-1	4 Aligner Pins & Brackets, 4 Hold-down Brackets. No Indications.
	Fall 1997 / 1R17	VT-1	BWRVIP-26, 2 adjacent aligner pins. No indications. Accessible Rim Weld, VT-1. (EVT-1 required, no credit taken due to the in-ability to brush). No indications.
	Spring 1999 / 1R18	VT-1	2 adjacent aligner pins. No indications. Hold-downs no longer required due to GE evaluation.
Core Plate (BWRVIP-25)	Fall 1990 / 1R12	VT-1/3	VT-1 of Alignment Assembly (4). VT-1 Accessible Bolts from top surface. No reportable indications.
	Fall 1994 / 1R15	VT-1	VT-1 of Alignment Assembly (4). VT-1 Accessible Bolts from top surface. No reportable indications.
	None	N/R	BWRVIP-25 examinations not required per Hatch configuration since installation of wedges during shroud repair in 1994. No future scheduling.

Standby Liquid Control (BWRVIP-27)	None	N/R	None Scheduled.
Jet Pump Assembly (BWRVIP-41, 1999)	Through 1996 / 1R16	VT-1/3	ASME Riser Brace Arm Attachments. No Indications. Augmented SIL's/RICSIL's for Restrainer Adjusting Screw Tack Welds & Gap's. Riser Brace Arm to Riser Welds. Hold-Down Beams, Inlet mixers, Sensing Lines. Hold down beams replaced in 1990 due to UT indications.
	Fall 1997 / 1R17	VT-1/3 & EVT-1	All Thermal Sleeve to Risers welds, and some transition piece, diffuser, adapter examined 1997. Two indications that where reported in 1997 on the thermal sleeve to elbow welds HAZ's. Acceptable.
	Spring 1999 / 1R18	VT-1/3 & EVT-1	BWRVIP-41, intended to perform visual examination of all high priority welds, but could not perform EVT-1 examination of lower diffuser welds due to mainly gusset interference's. May perform UT on those welds next outage. UT examination of all Jet Pump Beam Bolts, no indications. Examined adjusting screw tack welds & gaps, 1 broken tack weld, and 4 set-screw gaps, worst one was .019" (no corrective action required). Additionally examined the restrainer wedge assemblies with the associated set-screw gaps (no reportable indications). Two indications that where reported in 1997 on the thermal sleeve to elbow welds had no significant change (took better measurements).
CRD Stub Tubes (BWRVIP-47)	None Required		None scheduled (VT-2 during class 1 pressure test).
In-Core Housing (BWRVIP-47)	None Required		None scheduled
Dry Tube (BWRVIP-47)	None Required		None scheduled



Instrument Penetrations (BWRVIP-49)	Spring 1993 / 1R14	VT-2	Pin hole leak in 1993 was repaired.
	Fall 1994 / 1R15	PT/VT-2	No reportable indications.
	Fall 1997 / 1R17	PT/I/UT/VT-2	N10, N16A/B nozzles direct visual 1997. N10, N11A/B, N12A/B UT & PT in 1997. Examined during leakage test. No reportable indications.
	Spring 1999 / 1R18	VT-2	Future PT/UT may be exempt due to size/safety function/ and make-up capacity.
*RPV Interior Attachments (BWRVIP-48)  *Other Attachments examined by other BWRVIP documents.	Spring 1996 / 1R16	VT-1/3	Surveillance Specimen Brackets (3) No reportable indications.
	Fall 1997 / 1R17		
	Spring 1999 / 1R18	VT-1/3	Guide Rod Brackets (2). No reportable indications.
	Fall 1997 / 1R17		
	Spring 1993 / 1R14	VT-1/3	Steam Dryer Support Brackets (4). No reportable indications.
	Fall 1997 / 1R17		
	Fall 1994 / 1R15	VT-1	Steam Dryer Support Hold Down Brackets (4). No reportable indications.
	Spring 1999 / 1R18	VT-1/3	FW Sparger Brackets (4) every fourth outage per NUREG-0619 commitments. No reportable indications. Future scheduling to be determined.
LPCI Coupling (BWRVIP-42)	Not Applicable to Hatch	N/A	N/A
Feedwater Spargers (NUREG-0619)	Fall 1994 / 1R15 Spring 1996 / 1R16	VT-1/3	Sparger Arms, Flow Holes, Brackets, Tees, Welds, Nozzle Blend Area. No reportable indications. Schedule 2 of 4 every outage per NUREG-0619

	Fall 1997 / 1R17 Spring 1999 / 1R18		commitments. Future scheduling to be determined.
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Many ASME Examinations have been deferred on components where BWRVIP examinations overlap.

Steam Dryer / Moisture Separator not listed.

## Reactor Internals Inspection History

Plant: **Hope Creek**

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	WINTER - 96	VT-1 (1-mil)	Examined H-4, H-5 @ 4 cell location. No indications found IAW SIL 572 R1 BWRVIP CAT B exam sched for fall of 97
	Fall -97	UT	Examined 100% accessible regions of H-3,4,5,7
Shroud Support	once a period on the annulus side of the shroud 88-97	VT-3	Examined 6 shroud support pillar during spring 94 IAW Sec. XI. No indications found
	Fall – 97	VT-1/VT-3	examined accessible portions of H-8 and H-9
	Spring - 99	VT1/VT3	examined accessible portions of H-8 and H-9
Core Spray Piping	88 to Present, examine once per period (at least every other outage)	VT-1 (1-mil)	Piping and welds in annulus examined IAW IEB 80-13. One indication found on a bracket bolt tack weld bracket was found not to be cracked during winter 97
	Fall 97	EVT -1 .0005 mil	examined all creviced weld location between thermal sleeve and shroud no indications noted
	Spring - 99	EVT -1 .0005 mil	Examined Core Spray piping IAW BWRVIP – 18 no new indications noted
Core Spray Sparger	88 to present. examine	VT-1 (1-mil)	Piping and spargers in shroud examined IAW IEB 80-13. No

	once per period		indications found
	Fall 97		No examination performed
	Spring - 99	VT-1/VT-3 & EVT -1 .0005 mil	Examined Core Spray sparger IAW BWRVIP – 18 no indications noted
Top Guide (Rim, etc.)	88 to present. examine once per period.	VT-3	Top guide examined IAW Sec. XI. No indication found
top guide lateral supports	Fall 92/ Spring 94/ Winter 96	VT-1	Examined IAW SIL 554. Examined 4 cell locations made available during normal refuel. No indication found.
	Winter 96	VT-3	Examined Top Guide wedges IAW SIL 588 R1. No Indication found.
	Fall 97	VT-3	Examined Top Guide wedges IAW SIL 588 R1. No Indication found. Examined IAW SIL 554. Examined 4 cell locations made available during normal refuel. No indication found
	Spring - 99	VT-3	Examined Hold down C-clamps IAW BWRVIP – 26. No indications noted
Core Plate (Rim, etc.)	None performed to date. Examination to be performed during RF07-Fall 97	VT-3	Examine core plate bolting IAW SIL 588R1
	Fall-97	VT-3	Examined all core plate hold down bolts No indications found
	Spring - 99	VT-3	Examined 26 core plate bolts. No indications noted

SLC	Not yet examined	VT-3	
Jet Pump Assembly	88 to present Examine once per period.	VT-3	Examined IAW Sec XI. No indication found.
jet pump riser braces	50% every other outage. Spring 94/ Winter 96/winter 97	VT-1	Examined IAW SIL 551. No indications found.
	Spring - 99	EVT-1	Examined 50% IAW BWRVIP – 41. No indications noted
jet pump hold down beams	Hold down beams were replaced during RF05-Spring 95 winter 97	VT-1	Examined IAW SIL 330. No indications found.
	Spring - 99	VT-3	Examined 100% no indications noted
jet pump sensing lines	88 to present. Examine once per period.	VT-3	Examined IAW SIL 420. No indications found.
	Winter 97		Jet pump 8.9.15 had cracked standoffs
	Spring - 99	VT-1/ VT-3	Examination revealed no new indications
jet pump adjusting screws	Spring 94/ Winter 96. Examine every outage	VT-1	Examined IAW SIL 574. 94- 3 screws with 1 tack cracked 96- 4 screws with 1 tack cracked 96- 2 screws with 2 tacks cracked 97- 1 screw with 1 tack cracked
	Spring - 99	VT-3	No new indications noted

jet pump riser pipe RS-1	Examined Fall 97	EVT-1	Examined 10 thermal sleeve to riser elbow welds. No indications noted
	Spring - 99	EVT-1	Examined 10 thermal sleeve to riser elbow welds. No indications noted
Jet Pump Diffuser			see jet pump assembly
CRD Guide Tube	Winter 96	VT-3	Examined 6 guide tubes IAW Sec. XI. No indications found.
	Spring - 99	VT-1/ EVT-1	CRGT-1,CRGT-2, CRGT-3 examined on 3 guide tubes no indications noted
CRD Stub Tube	Spring 94	VT-3	Examined IAW Sec XI. Examined CRD Housing through removed jet pump diffuser. No indications found.
In-Core Housing	Not yet examined	VT-3	
Dry Tube	Examined during fall 92	VT-1	Examined IAW SIL 409. No indications found.
	Spring - 99	VT-1	Examined IAW SIL 409 all 12 dry tubes had circumferential cracks below the upper collar
Instrument Penetrations	examined during winter 97	VT-1 and VT-3	Examine IAW Sec. XI no indication noted
Vessel ID Brackets		VT-1 and VT-3	Examine IAW Sec. XI Component brackets are examined with the component no indications found
LPCI Coupling	88 to present. Examined once per period	VT-3	Examine IAW Sec XI
	Winter 97		no indications noted
	Spring - 99	VT-3	No indications noted

## Reactor Internals Inspection History

Plant: **Limerick Generating Station, 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	1999	UT	Comprehensive UT Baseline (H-3, H-4, H-5 and H-7). Indications identified on I.D. of H-3, H-5, and on O.D. of H-3, H-4, H-5. No indications identified at H-7. Scope expanded to include UT of all remaining circumferential welds (H-1, H-2, and H-6). Indications identified on I.D. of H-1, H-2, H-6 and on O.D. of H-1.  Full structural margins calculated using one cycle of crack growth
Shroud Support	1991	VT-3	VT-3 examination of accessible portions of H-8 and H-9 welds from annulus. No indications identified.
	1991 & 1995	VT-3	VT-3 examination of both access hole covers and welds. No indications identified.
	1993	VT-3	VT-3 examination of shroud support leg welds at Azimuth 300 deg through disassembled jet pump #18. No indications identified.
	1999	EVT-1	EVT-1 examination 10% of the weld H-8 & H-9 length; in areas of 0 & 180 deg access hole covers. No indications identified.
Core Spray Piping	1991 to 1997	VT-1	Enhanced VT-1 (1 mil resolution) examination performed every refueling outage on piping and welds per IEB 80-13. No indications identified.

	1997	EVT-1	Enhanced VT-1 (1/2 mil resolution) examination of welds per IEB 80-13 and BWRVIP-18 baseline. No indications identified.
	1999	UT/EVT-1	UT examination of welds (P1 thru P8) per BWRVIP-18 baseline UT. EVT-1 supplemental examination on P4dA, P4dB, P4dC, P4dD, P8aA, P8aB, P8aC and P8aD. No indications identified.  EVT-1 of 2 piping support brackets PB-7 & PB-8 No indications identified.
Core Spray Sparger	1991 to 1997	VT-1	Enhanced VT-1 (1 mil resolution) examination performed every refueling outage on piping and welds per IEB 80-13. No indications identified.
	1997	EVT-1	Enhanced VT-1 (1/2 mil resolution) examination of welds per IEB 80-13 and BWRVIP-18 baseline. No indications identified.
	1999	EVT-1	EVT-1 examination of welds (S1A, S1B, S2aA, S2bA, S2aB, S2bB S4aA, S4bA, S4aB, S4bB) per BWRVIP-18 No indications identified.  EVT-1 examination of A & B sparger bracket, shroud attachment welds per BWRVIP-18 on SB1, SB2 and SB3. No indications identified.
		VT-1	VT-1 examination of nozzles 1A thru 65A per BWRVIP-18 on S3aXXA, S3bXXA & S3dXXA No indications identified.
Top Guide (Rim, etc.)	1991 & 1993	VT-3	VT-3 examination of accessible welds and surfaces. No indications identified.



	1995	VT-1	VT-1 examination of accessible welds and surfaces at cells 14-23, 22-31, 22-39, 38-23, and 38-47.
	1999	VT-3	VT-3 examination of 32 wedges, bolts, and keepers. No indications identified.
		VT-3	VT-3 examination of surfaces at cell locations 26-27 & 30-31 and VT-3 examination of radial restraints, 32 wedges, bolts, and keepers. No indications identified.
Core Plate (Rim, etc.)	1995	VT-3	VT-3 examination of accessible welds and surfaces at core locations 14-23, 22-31, 22-39, 38-23, and 38-47. No indications identified.
	1999	VT-3	VT-3 examination of accessible welds & surfaces at core plate location 30-31. No indications identified.
SLC			N/A, SLC connects to Core Spray System. (See summary of Instrument Penetrations)
Jet Pump Assembly	1991, 1993, & 1995	VT- 3	VT-3 examination of all jet pump components No indications identified.
	1999	VT-3/UT	VT-3 of all 20 Jet Pump Assemblies No Indication Identified.  UT examination of all jet pump hold down beams per BWRVIP-41 No indications identified.
		EVT-1	EVT-1 examination of welds RS-1, RS-2 & RS-3 per BWRVIP-41 on Jet Pumps #11 thru #20. No indications identified.
Jet Pump Diffuser			See Jet Pump Assembly
CRD Guide Tube	1991	VT-3	VT-3 examination of control rod assemblies at core positions 22-14 and

	1993	VT-3	14-31. No indications identified.
	1995	VT-3	VT-3 examination of control rod assembly at core location 34-07. Minor scratches noted. Acceptable for continued service.
	1999	VT-3	VT-3 PSI examination of replacement CRDs at core locations 06-19, 10-27, 10-47, 14-39, 18-03, 18-15, 18-55, 22-35, 22-39, 30-51, 34-47, 38-15, 38-27, 38-39, 42-43, 46-39, 46-43, 50-15, and 54-35. No indications identified.
	1999	VT-3	VT-3 examination of CRD housing accessible surfaces of 26-27 from ID and 30-31 from OD. No indications identified.
CRD Stub Tube	1993	VT-3	VT-3 examination of stub tube to vessel weld and stub tube to housing weld at azimuth 300 deg.
	1999	VT-3	No indications identified.  VT-3 examination at core location 30-31, 30-35, 26-31 & 34-31. No indications identified.
In-Core Housing	1999	VT-3	VT-3 examination of housings, guide tubes, stabilizers & housing to RPV welds at core locations 24-29 & 32-29. No indications identified.
Dry Tube	1995	VT-1	VT-1 examination of accessible portions of dry tubes at core locations 16-21, 40-21, 40-45, 24-29, 24-37, and 32-37. No indications identified.
	1999	VT-1	VT-1 examination of upper 2 feet of dry tube at core locations 24-29 & 32-29. No indications identified.
Instrument Penetrations	1991	VT-3	VT-3 examination of interior attachment of instrument nozzles N11A, N11B, N12A, through D. No indications identified.

	1999	UT/PT	<p>PT examination performed on all instrument nozzle to safe end welds once per interval, per Section XI (Includes N10 Core Differential Pressure penetration).</p> <p>No indications identified.</p> <p>UT &amp; PT examination of jet pump. Instrument nozzle to safe end N8A &amp; N8B.</p> <p>No indications identified.</p>
Vessel ID Brackets	1999	<p>VT-1 or VT-3</p> <p>VT-3</p>	<p>VT-1 or VT-3 performed on all ID bracket welds once every other outage per Section XI.</p> <p>No indications identified.</p> <p>VT-3 examination of feedwater sparger brackets (5, 55, 65, 115, 125, 175 , 185, 235, 245, 295, 305 &amp; 355 DEG), including bracket weld to RPV.</p> <p>No indications identified.</p>
LPCI Coupling	1991 & 1995	VT-3	<p>VT-3 examination of all 4 couplings.</p> <p>No indications identified.</p>
	1999	VT-3	<p>VT-3 examination of all 4 couplings.</p> <p>No indications identified.</p>

## Reactor Internals Inspection History

Plant: **Nine Mile Point Unit #1**[illegible]

	present		spargers. Two indications found, analyzed, and re-inspected. No repairs needed. Inspected to BWRVIP-18 in 1997. No new indications found.  1999 examined target welds and 25% sample
Top Guide (Rim, etc.)	1993 to present	VT-1	1993; VT-1 of selected locations on underside at mid-span locations. No indications noted. VT-1, 1995, from underside to confirm lateral spacers in place.  1999 VT-1 of 2 top guide hold downs. No indications
Core Plate (Rim, etc.)	1995	VT-1	1995 hold down bolts from top side. No indications.
SLC	1970's to Present	VT-2	Section XI performed each refueling.
Jet Pump Assembly	N/A	N/A	Not applicable to this plant.
Jet Pump Diffuser	N/A	N/A	Not applicable to this plant.
CRD Guide Tube	1997	UT	1997 commenced inspection of certain guide tube to stub tube welds. No indications.  3 guide tubes examined. No indications
CRD Stub Tube	1984-1997	VT-2 and UT	Stub tube leakage found periodically since 1984. Condition corrected by roll repair. UT inspection before and after each repair. Pre-emptive inspection and rolling commenced in 1997 on selected stub tubes.
In-Core Housing	1984  1999	VT-1 and VT-3	Indications found. Most dry tubes replaced in 1986. Re-inspected ERO. No indications. Rescheduled in 1993. Inspect 2 tubes EORF. One indication in 1997. Housing replaced.  1 dry tube examined. No indications
Dry Tube			

Instrument Penetrations	1993	LP or MT	Section XI performed once per interval. Last inspection was 1993. No indications.
Vessel ID Brackets	1988, 1993, and 1997	VT-1 and VT-3	Section XI performed once per interval. Dryer, surveillance capsule holder.
LPCI Coupling	N/A	N/A	Not applicable to this plant.

## Reactor Internals Inspection History

Plant: **Perry Nuclear Power Plant**

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	94 (RF4) 97 (RF6) 99 (RF7)	VT-3 and EVT-1 UT	VT-3 of entire shroud interior and EVT-1 of the H-3 and H-4 weld inside surfaces at 4 appx 1ft long sample locations in RF4. In RF6, a Code VT-3 exam was performed on all accessible shroud exterior areas. No indications. In RF7, UT examination of the H-3, H-4, H-6A and H-7 welds was performed in accordance with the Category B Plant guidelines of BWRVIP-01. No indications.
Shroud Support	90 (RF2) 96 (RF5) 99 (RF7)	VT-3 and VT-1 EVT-1	VT-3 of shroud support plate in RF2 and VT-1 of the shroud support plate access hole cover in RF5. No indications. In RF7, baseline EVT-1 exams of the H-8 and H-9 were performed in accordance with BWRVIP-38. No Indications.
Core Spray Piping	89-96 (RF1 thru RF5) 97 (RF6) 99 (RF7)	CVT-1  EVT-1 EVT-1	1 mil wire resolution VT-1 (i.e., CVT-1) exams of the core spray internal piping has been performed every outage since startup in accordance with IEB 80-13. In RF6, Baseline BWRVIP-18 EVT-1 examinations were performed on all the core spray piping welds. No indications. In RF7, core spray piping weld exams were performed in accordance with the re-inspection requirements of BWRVIP-18. No indications.
Core Spray Sparger	89-96 (RF1 thru RF5) 97 (RF6)  99 (RF7)	CVT-1  EVT-1 & CVT-1 EVT-1 & MVT-1	1 mil wire resolution VT-1 (i.e., CVT-1) exams of the core spray spargers has been performed every outage since startup in accordance with IEB 80-13. In RF6, Baseline BWRVIP-18 EVT-1 examinations were performed on all the core spray sparger welds. No indications.

			In RF7, core spay sparger weld exams were performed in accordance with the re-inspection requirements of BWRVIP-18. No indications.
Top Guide (Rim, etc.)	89 (RF1) 94 (RF4) 99 (RF7)	VT-3  VT-1 & VT-3	Top Guide periphery, including 90 studs and tack welds, examined in RF1. Top Guide Grid examined in RF4. No indications. In RF7, performed VT-3 of the Top Guide assembly in accordance with ASME Category B-N-2 and VT-1 of the studs and tack welds in accordance with BWRVIP-26. No indications.
Core Plate (Rim, etc.)	89 (RF1) 94 (RF4) 99 (RF7)	VT-3  VT-3	Accessible core plate areas and fuel support castings examined in RF1. All of the hold down bolts examined from shroud interior in RF4. No indications. In RF7, performed VT-3 exam of the core plate areas made accessible by replacement of 5 Control Rod blades in accordance with ASME Category B-N-2. No indications.
SLC	N/A	N/A	Not applicable to this plant
Jet Pump Assembly	89-96 (RF1 thru RF5) 97 (RF6) 99 (RF7)	VT-1 and VT-3 EVT-1 VT-3	Examine jet pump braces, hold down beams, sensing lines, restrainer bracket set screws and mixer assemblies in accordance with various GE SILs/RICSILs. Set screw gaps identified in RF5 and RF6. In RF6, baseline EVT-1 exams were performed on all the jet pump riser elbow welds. No crack indications. In RF7, the jet pump mixers were removed and cleaned with ultra high pressure. Augmented VT-3 examinations were performed on the jet pump mixer throats (pre and post cleaning) and the restrainer bracket set screws. Most of the gaps detected in RF5 and RF6 were eliminated upon re-seating the mixers. The couple that remain are very minor and within the "no fatigue" acceptance criteria. <b>Notes: 1) Jet pump beams were replaced in RF4. 2) Baseline BWRVIP-41 exams are</b>



			<b>planned for RF8.</b>
Jet Pump Diffuser	None to date	N/A	<b>Note: Baseline BWRVIP-41 exams planned for RF8.</b>
CRD Guide Tube	99 (RF7)	VT-1 & EVT-1	In RF7, performed VT-1 of alignment pins and EVT-1 of the welds of 5 Control Rod Guide Tubes in accordance with BWRVIP-47. No indications. <b>Note: An additional 4 CRDT's will be made accessible and inspected in RF8 to meet the 5% completion requirements of BWRVIP-47.</b>
CRD Stub Tube	N/A	N/A	Not applicable to this plant.
In-Core Housing	None to date	N/A	N/A
Dry Tube	89 (RF1) 90 (RF2) 94 (RF4) 99 (RF7)	VT-3	VT-3 of upper 2 ft in accordance with SIL 409 and RICSIL 73. No indications.
Instrument Penetrations	89-99 (RF1 thru RF7)	VT-2	Undervessel (i.e., through the skirt manway) visual examination for leakage performed every refueling outage. No indications.
Vessel ID Brackets	89 (RF1) 94 (RF4) 96 (RF5) 99 (RF7)	VT-1 and VT-3  MVT-1	Section XI examinations of the jet pump riser brace, feedwater sparger bracket, core spray piping bracket, surveillance specimen capsule bracket, steam dryer, and guide rod vessel attachment welds. Scheduled such that each attachment weld is examined once an interval. The last welds to be examined were the surveillance capsule bracket attachment welds in RF5. No indications. In RF7, performed MVT-1 of the Feedwater Sparger brackets in accordance with the normal frequency of ASME Category B-N-2, but utilized the MVT-1 method in accordance with BWRVIP-48. No indications.
LPCI Coupling	94 (RF4) 96 (RF6) 99 (RF7)	VT-3	The LPCI internal piping, including the couplings, was examined in RF5. The LPCI deflectors (inside the core shroud) were examined in RF4. No indications.

			In RF7, performed MVT-1 baseline exams on the welds of all three LPCI couplings in accordance with BWRVIP-42. No indications.
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## Reactor Internals Inspection History

Plant: **Pilgrim Nuclear Power Station**

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
<p><b>CORE SHROUD</b> shroud head bolts</p> <p>shroud</p>	<p>7 (UT), 8 (VT), 10 (UT)</p> <p>10 (modif. and partial VT), 11 (UT of 134" (25% of total) of vert. welds V17 and V18 from shroud I.D.) 11 (EVT-1 of 14 of 21 ring segment welds)</p> <p>RFO 12</p>	<p>EVT- 1</p>	<p>RFO 7 UT all 48 bolts; RFO 8 partial VT. No indications. RFO 10 UT of 100% of bolts, no indications. RFO 11 replaced 50% of bolts.</p> <p>Shroud captured to limit extent under VT-3 exams of RPV Interior performed each period. No indications. RFO 10 PDC 94-43 VT exams only. H4 weld 4 ft. crack reported bounded by modification. RFO 11 VT-3 of 315 degree tie rod and core plate wedges, EVT-1 of 315 degree gusset welds.</p> <p>Examined V15, V16, V17, V18 , V22 and V23. Total of vertical weld examined from both sides by UT in RFO 11 and EVT 1 in RFO 12 is 46 % With partial credit for one sided examinations the total is 51 %. This is the maximum available with current tooling. No indications.</p>
<p><b>SHROUD SUPPORT</b> Access Hole Covers</p> <p>Shroud support plate to RPV (H11) weld</p>	<p>8 (UT), 9 (VT), 10 (UT radial of 0 degree cover), 10 VT of 180 degree cover)</p> <p>10</p> <p>RFO 12</p>	<p>EVT-1</p>	<p>UT exam in RFO 8 was for circ. cracking only. No indications. RFO 10 visual indication at 0 degree cover verified non-relevant by UT.</p> <p>Enhanced VT-1 RFO 10. No indications.</p> <p>Examined 10 % of weld length with no indications</p>

Shroud support plate gusset welds	10, 11 (1 gusset)		Enhanced VT-1 RFO 10 of 4 gussets (modification attach. points), VT-1 all others (18).
	RFO 12	EVT-1	No indications. RFO 11 EVT-1 of gusset at 315 az.  Examined gusset welds at 225,135, 45, 15 and 345 degrees with no indications.
CORE SPRAY PIPING	6, 7, 8, 9, 10, 11 (UT and EVT-1 of piping welds)		3" long indications recorded previously in 1980, 81 and 84 on 'B' sparger between T-Box and B-25 nozzle. RFO 7 and 8 exams show no indications. GE suspected scale as possible source of previous indications. RFO 11 UT revealed six cracked piping welds
	RFO 12	EVT-1 and UT	EVT-1 of welds examined by EVT-1 in RFO 11 revealed no indications. UT of the four P8b welds with indications from RFO 11 revealed the indications to be geometric reflectors. All P9 welds were examined by UT with no indications. UT of 1P5 and 3P5 , which had indications in RFO 11 , revealed slight growth in the indication in 1P5.
CORE SPRAY SPARGER			see above
TOP GUIDE (RIM, ETC.)	6, 7, 8, 9		Partial exams each outage. Some scratches, wear marks; no cracking found.
TOP GUIDE ALIGNER ASSEMBLY	RFO 12	VT-1	Examination of assemblies at 0 and 90 degrees revealed no indications
CORE PLATE (RIM, ETC.)			
SLC			
JET PUMP ASSEMBLY Jet Pump Riser Braces	8, 10, 11		No indications. RFO 10 100% done. Do 50% each RFO per OE item. RFO 11 VT-1 of braces 5 through 14 (50%).
	RFO-12	EVT-1	All Riser Braces were examined at RB-1 and RB-2 except for Jet Pump 3 and 5. No indications were found.

Jet Pump Sensing Lines	7, 8, 9		No indications.
Jet Pump Beam Assemblies	Replaced RFO 6, RFO 11 (UT, VT)		RFO 11 (UT of 100%; VT of Jet Pumps 5 through 14)
	RFO-12	UT	All beams examined at BB-1 and BB-2 with no indications
Jet Pump Adjusting Screws	8, 10, 11		No indications RFO 8. Gaps found RFO 10, minor mech. damage. Inspection tied to Rise Brace cracking. RFO 11 VT of 100% of screws.
	RFO-12	VT-3	Gaps were measured for in all pumps except for 5,6,7 and 11
Jet Pump Restrainer Bracket and Swing Gate Assemblies	11		RFO 11 VT-3 of 100% of swing gates, wedges and screws. Found 10 out of 20 swing gates in unlatched position.
	RFO-12	VT-3	Inspected all Swing Gate assemblies except for 5 and 11
Jet Pump Mechanical Joints	11		RFO 11 VT-3 of 50% of Jet Pumps (Jet Pumps 5 through 14) of rams head-to-transition piece and lower slip joint-to-diffuser areas
	RFO-12	VT-3	Inlet mixer to diffuser for 1 to 4 and 15 to 20
Jet Pump Riser Welds	RFO-11	EVT-1	All RS-1 and RS-2 examined with no indications
	RFO-12	EVT-1	RS-3 of risers A to E examined with no indications.
JET PUMP DIFFUSER			See jet pump assembly
CRD GUIDE TUBE Handle Attachment	7		No indications
CRD STUB TUBE	7		No indications

IN-CORE HOUSING			
DRY TUBE			
INSTRUMENT PENETRATIONS			
VESSEL ID BRACKETS			
Surveillance specimen brackets attachment welds	10		3 locations No indications
Guide rod bracket attachment welds	10, 11 (180 az guide rod)		No indications
Abandoned start-up instrumentation brackets	11		Brackets welded to RPV wall at 90 and 150 az received VT-1 in RFO 11
Steam Dryer Drain Channels	8, 9, 11		No indications
	RFO-12	VT-3	No indications
Steam Dryer Leveling Screws	7, 8, 9, 10, 11		Cracked tack welds RFO 7; no growth observed in 8, 9 and 10. RFO 11 VT showed increased cracking of tack welds at 35 and 215 degree leveling screws, with 215 az screw loose.
	RFO-12	VT-3	No change from RFO 11
Steam Dryer Baffle Plate	7, 11		No Indications.
Steam Dryer Support Bracket	7, 8, 9, 10, 11		No Indications
Steam dryer hold-down bracket welds (on head)	10		Located underside of RPV head No indications
LPCI COUPLING			
FEEDWATER SPARGERS	6, 7, 8, 9, 10		No indications

**BWR Vessel and Internals Project**  
**Vessel Internals Inspection Summaries**  
**for Fall 1999 Outages**

**April 2001**

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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 Shroud	8/95	EVT-1 and UT	<p>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 &amp; 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 &amp; H7 from OD surface (ID not accessible), and UT of 35% of the length of the remaining vertical weld between H6 and H7.</p> <p>No Reportable Indications.</p>
	3/98 D2R15	Visual	Shroud repair hardware inspected per GE recommendations. NRI.
	10/1999 D2R16	UT & EC	<p>Core Shroud Examination Summary</p> <p>ComEd performed examinations on the core shroud vertical welds V14/ V15/ V16/ V17/ V18/, and V19 per the requirements of BWRVIP-76 for a repaired shroud. The core shroud was examined in the following areas.</p> <ul style="list-style-type: none"> <li>Weld V14/V15/V16/V17/V18/V19 UT &amp; EC examination from the ID with the TEIDE 2 manipulator.</li> </ul> <p><b>Coverages</b></p> <p>Weld V14: 80.1%</p>

			Weld V15: 80.1% Weld V16: 83.4% Weld V17: 52.6% Weld V18: 62.8% Weld V19: 58.0% <ul style="list-style-type: none"> <li>No recordable indications were found</li> </ul>
Shroud Support	8/95	EVT-1	EVT-1 of H8 and H9 for approx 12" at 4 locations of shroud repair hardware attachment areas.
	3/93	UT/VT-1	Access hole cover proactively replaced with GE mechanical design. UT for radial flaws performed prior to replacement. No indications identified.
	8/95	VT-1	VT-1 of both replacement access hole cover assemblies. No indications identified.
	3/98		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
Core Spray Piping D 2	1980s to D2R14	VT-1 / UT (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.
	3/98	Auto 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

	10/2000 D2R16	EVT-1	<p>2P8a were not visually verified.</p> <p>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.</p>
Core Spray Sparger	<p>1980s to present</p> <p>3/98</p>	<p>VT-1 (1 MIL)</p> <p>EVT-1 MVT-1</p>	<p>IEB 80-13 (1 MIL) VT-1 of spargers and tee-boxes. No indications found.</p> <p>Future inspections per BWRVIP-18.</p> <p>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.</p>
Top Guide (Rim, etc.)	<p>8/95</p> <p>3/98</p> <p>10/2000 D2R16</p>	<p>VT-1 VT-1 VT-1</p>	<p>VT-1 of 5 cells. No indications.</p> <p>VT-1 of all 4 alignment assemblies.</p> <p>VT-1 of rim to bottom plate weld at 4 locations.</p> <p>No indications identified.</p> <p>No inspections during D2R15.</p> <p>Top Guide Alignment Pins, EVT 90° and 270° and Rim to Lower Plate Weld per BWRVIP-26. Nor Reportable Indications</p>
Core Plate (Rim, etc.)	<p>N/A</p> <p>3/98</p>	<p>N/A</p> <p>MVT-1</p>	<p>Installed core plate wedges in conjunction with comprehensive shroud repair in summer 1995.</p> <p>Wedges inspected as part of shroud repair first cycle inspection. NRI.</p>

SLC	N/A	N/A	N/A
Jet Pump Assembly	8/95	VT-1	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.
		UT	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.
	3/98	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.
	10/2000 D2R16	EVT-1, UT	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.
Jet Pump Diffuser	8/95	VT-1	Diffuser to baffle plate welds on all 20 jet pumps. No indications.
	3/98	EVT-1	Not inspected D2R15.
	10/2000 D2R16		JP Diffuser EVT-1 High/Med Priority welds per BWRVIP-41 sample and inspection requirements. NRI

CRD Guide Tube	8/95	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.
	3/98		No indications identified.
	10/2000		Not inspected D2R15. Not inspected D2R16
CRD Stub Tube D 2	8/95	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.
	3/98		No indications identified
	10/2000		Stub tubes not inspected D2R15. Stub tubes not inspected D2R16
In-Core Housing	8/95	VT-1 (1 MIL)	4 incore guide tube to housing welds, 4 incore housing to RPV bottom head welds, 4 incore guide tube stabilizers.
	3/98		No indications identified Not inspected D2R15.
Dry Tube	8/95	VT-1	No indications identified.
	3/98	VT-1	Examined every other outage. Not examined D2R15.
	10/2000		No indications identified
Instrument Penetrations	N/A	N/A	N/A
Vessel ID Brackets	4/94	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.

	3/98	MVT-1	Inspected Core Spray Brackets per BWRVIP recommendations. NRI.
LPCI Coupling	N/A	N/A	Not applicable to this plant.

## Reactor Internals Inspection History

Plant: **Duane Arnold Energy Center**

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	95 (every 10 years), Next exam 2001	UT	Performed ultrasonic examination of the accessible areas. Baseline per BWRVIP-01, no indication were detected.
Shroud Support	88/93	UT	Performed ultrasonic examination of the Access Hole Covers, no indications were reported.
	98	VT-3	VT-3 of shroud support
	99	VT-3	Shroud Support including H-8/H-9 (360 degrees)
Core Spray Piping	96 (portion every RFO)	VT	Performed Visual Examination (EVT, CSVT, VT-3), baseline per BWRVIP-18, no indications were detected.
	98		Reinspection per BWRVIP-18 – no indications.
	99		Reinspection per BWRVIP-18 – no indications
Core Spray Sparger	96 (portion every RFO)	VT	Performed Visual Examination (CSVT, VT-3), baseline per BWRVIP-18, no indications were detected. One sparger nozzle is inspected every RFO due to a missing tack weld.
	99		Performed EVT-1 on S-1, S-2, and S-4 welds, VT-3 on S-3A/B welds. No indications noted

Top Guide (Rim, etc.)	95	VT-1 (1/2 mil wire)	Inspection of the 1/4" fillet weld on the contour wedge and verified that alignment blocks in place. 100% inspection of the grid locations has been completed over the past three RFOs.
	98	VT-3	VT-3 0° location
	99	VT-3	Examined nine cells (top general and bottom of grid areas)
Core Plate (Rim, etc.)	95	VT-3	Verified 25% core plate bolts were in place
	98	VT-3	Verified 20% core plate bolts
	99	VT-3	Examined Fuel support castings in nine cells
SLC	93	PT	Liquid Penetrant examination of the nozzle-safe end weld.
Jet Pump Assembly	96 (sample every RFO)	VT-3	Inspection of the riser spt pads(SIL551), holddown beams(SIL330), sensing lines(SIL420), three point contact(RICSIL078). Will inspect Riser Elbow in 1998. Repair to the set screws have been completed.
	98	MVT-1	50% of total number of jet pumps, 100% of each inspected – no indications All hold down beams – no indications
	99	UT EVT-1	DF-1 on JPs 1,2,3,4,13,14,15,16 IN-4, MX-2 and WD-1 on JPs 3,4,13 and 14 RB-1 and RB-2 on JPs 3,4,13 and 14. This completes all exams on 8 of 16 JPs
Jet Pump Diffuser	96 (sample every RFO)	General Visual	Part of doing a 100% general visual examination
CRD Guide Tube	95 (every 10 years)	VT-3	Inspected accessible portions of three guide tubes, no indication were detected.
CRD Stub Tube	95 (every 10 years)	VT-3	Inspected accessible portions of three stub tubes, no indication were detected.



In-Core Housing			
Dry Tube	88 (6 cycles(98) and then every three cycles)  99	VT-1 (1 mil wire)  VT-3	Inspected in 1988 with indications reported, replaced with the new design  Inspected accessible portions of 11 dry tubes, no indications noted
Instrument Penetrations			
Vessel ID Brackets	Every 10 years	VT-1(active fuel) VT-3 all others	Per ASME Section XI
LPCI Coupling	N/A	N/A	Not applicable to DAEC
Top Head	98  99	VT-3	No indications  No indications
Guide Rods	98  99	VT-3	No indications  Both examined (found cracked tack weld on 0 degree rod which was evaluated as acceptable)
Sample Holder Integral Attachment	98  99	VT-1/3  VT-1/3	No indications  108 and 288 degree examined with no indications
Core Spray Bracket	98	VT-3	No indications
Jet Pump Riser Support Pads	98	VT-1	No indications
Feedwater Spargers	98	VT-1/3	Indications around flow holes

## Reactor Internals Inspection History

Plant: LaSalle County Station Unit 1

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	3/94	VT-1	VT-1 of all accessible welds ID & OD for SIL 572 R/1
	1/96	UT Cat. B	BWRVIP Cat B UT of full accessible lengths of H3,4,5,6 &8. Eight indications on H4, longest is 2.72" lg. total length of all combined is 15.2" = 3% of the examined length.
	11/99 L1R08		No Additional Shroud Inspections Performed During L1R08
Shroud Support	Every other outage	VT-1 UT	VT-1 every other outage. One indication on flush 180 deg. cover in 10/92. Subsequent UT in 10/92 was NRI. NRI Since that time.
	11/99 L1R08	EVT-1	<p><b>Shroud Support Weld Inspection Per BWRVIP-38</b></p> <ul style="list-style-type: none"> <li>▪ Examine weld 9 and gusset welds on the 0° side, between gusset CCW side of JP 20 to the gusset CCW side of JP 1, This area needs a cleaning assessment prior to the inspection.</li> <li>▪ Examine weld 9 and gusset welds on the 180° side, between gusset CW side of JP 10 to the gusset CW side of JP 11, This area needs a cleaning assessment prior to the inspection. <ul style="list-style-type: none"> <li>▪ Examine the shroud surface in both of these areas listed above for general condition (VT-1).</li> </ul> </li> </ul>
Core Spray Piping	Every outage since start up.	VT-1 EVT-1	IEB 80-13 of piping and welds in annulus. EVT-1 per BWRVIP-18 in 2/96. No indications found.

	11/99 L1R08	UT/EVT-1	<b>Core Spray Piping Per BWRVIP-18</b> <ul style="list-style-type: none"> <li>▪ The scope of the UT examinations included all accessible Core Spray piping. A total of 34 core spray system welds were examined via the ultrasonic method. No flaw indications were detected</li> <li>▪ (EVT-1) Examine the Core Spray Piping Welds that the UT Tool (CSI-2000) can not inspect, (numbers P-4d and P-8a on 10°, 170°, 190° and 350° for connections to the shrouds</li> <li>▪ (VT-1) Examine the HPCS and Piping brackets to the RPV Wall Welds.</li> </ul>
Core Spray Sparger	Every outage since start up.  11/99 L1R08	VT-1  VT-1	IEB 80-13 of welds on sparger. No indications found.  <b>Core Spray Sparger Per BWRVIP-18</b> <ul style="list-style-type: none"> <li>▪ Examined the Upper and Lower Sparger Piping, Welds, Nozzles and brackets between 90° and 270°.</li> <li>▪ Examined the Upper and Lower Sparger Piping, Welds, Nozzles and brackets between 270° and 90°.</li> </ul>
Top Guide (Rim, etc.)	Every other outage.	VT-3	VT-3 General condition inspection and hold down assys. at every other outage NRI. 23 cells inspected 5/94 NRI.
Core Plate (Rim, etc.)	5/94	VT-3	23 Fuel Support castings, and accessible plate surfaces. No indications.
SLC	2/96	VT	No official exams to date, but piping could be seen to be intact in 2/96 under core plate exams.
Jet Pump Assembly	*  11/99 L1R08	*  UT/EVT-1 VT-1	*= See attached write-up  <b>Jet Pump Inspections Per BWRVIP-41</b> <ul style="list-style-type: none"> <li>▪ The examinations on Jet Pump Beams number 11 through 20 were performed. The inspections consisted of 3 transducers utilized for the</li> </ul>

			<p>detection of reflectors on or near the radius area where the beam engages the transition piece. (No indications of cracking were detected during these ultrasonic inspections.)</p> <p>IVVI of Jet Pump Assemblies as follows:</p> <ul style="list-style-type: none"> <li>• Jet Pumps 1 through 20 for General Inspections.</li> <li>• Jet Pumps 11 through 20 for BWRVIP 41.</li> </ul> <ol style="list-style-type: none"> <li>1. RS-1 Weld (Thermal Sleeve to Elbow)</li> <li>2. RS-2 Weld (Elbow to Riser Pipe)</li> <li>3. RS-3 Weld (Riser pipe to Transition Piece)</li> <li>4. IN-1 Weld (Inlet Elbow to Sleeve)</li> <li>5. IN-2 Weld (Inlet Sleeve to Nozzle)</li> <li>6. RB-1/2a, b, c, &amp; b Welds (RPV to Pad to Block, Block to Leaf, Leaf to Yoke and Riser Pipe)</li> <li>7. MX-2 Weld (Barrel to Cone)</li> <li>8. RS-6 &amp; 7 Weld (Restrainer Bracket to Riser)</li> <li>9. RS-8 &amp; 9 Welds (Riser Brace Yoke to Riser)</li> <li>10. WD-1 (Gate Wedge Assembly Position Verification) and no movement WD-1 with movement , or wedge wear is observed. The following inspections were performed.</li> </ol> <p>VT-1 RF-1, 2, &amp; 3 welds (Restrainer Bracket Welds) AS-1 &amp; 2 welds (Adjusting restrainer set screws) and WD-2a &amp; b Welds (Wedge rod/nut tack welds).</p> <p>Jet Pumps 9 and 10 were modified this outage with new inlet mixers including 3 new wedges. The "As left" inspection of Pumps 9 &amp; 10 were performed.</p>
Jet Pump Diffuser	<p>*</p> <p>11/99 L1R08</p>	<p>*</p> <p>EVT-1</p>	<p>* = See attached write-up</p> <p>Jet Pump Inspections Per BWRVIP-41</p> <ul style="list-style-type: none"> <li>• Jet Pumps 11 through 20 for BWRVIP 41.</li> </ul> <ol style="list-style-type: none"> <li>1. DF-1 Weld (Diffuser Guide to Shell)</li> <li>2. DF-2 Weld (Diffuser Shell to Tailpipe) Limited exam.</li> <li>3. DF-3 Weld (Tailpipe to Adapter), Inaccessible for VT.</li> <li>4. AD-1 Weld (Adapter top to bottom weld), Inaccessible for VT.</li> </ol> <p>AD-2 Weld (Adapter bottom to support plate weld), Inaccessible for VT.</p>

CRD Guide Tube	3/96	VT-3	Accessible areas of 6 guide Tubes NRI
	11/99 L1R08	VT-1	<ul style="list-style-type: none"> <li>• Examined 19 CRGT alignment lugs of the 31 CRGT that will be vacuumed this outage.</li> <li>• Examined the same 19 CRGT locations for the fuel support alignment Pins.</li> <li>• Examined the same 19 CRGT locations for the Top Guide Grid locations.</li> </ul>
CRD Stub Tube	3/96	VT-3	Accessible areas of 6 Housing to Stub Tube welds, and Stub Tube to RPV welds. No indications
In-Core Housing	3/96	VT-3	Accessible areas of 1 Housing to RPV weld, and 3 stabilizer brackets. No indications
Dry Tube	5/94	VT-1	All SRMs & IRMs No indications.
	11/99 L1R08	VT-1	Examined Instrument Dry tubes A, B, C & F prior replacement.
Instrument Penetrations	N/A	N/A	No exams done to date
Vessel ID Brackets	Portions every other outage	VT-1 and VT-3	Section XI inspections of jet pump riser braces, Shroud Support Plate Gussets, dryer, feedwater sparger, core spray, and surveillance capsule holder brackets, performed once per interval. Last inspection was 3/96 VT3, or VT1 if in beltline region. No indications noted.
LPCI Coupling	Every other outage	VT-3	VT-3 of all three couplings NRI
	11/99 L1R08	EVT-1	<ul style="list-style-type: none"> <li>▪ Examined all 3 LPCI Coupling Sleeve Flange weld 45-12, (Thermal Sleeve to RPV).</li> <li>▪ Examined all 3 LPCI Coupling Shroud attachment Ring Weld 45-3b to Shroud.</li> <li>▪ Examined all 3 LPCI Coupling Shroud clamp bolt # 45-6a, b, c &amp; d.</li> </ul> Examined all 3 LPCI Coupling tack weld

			Nut to Clamp # 45-8a, b, c & d
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**\*Inspections of Other Jet Pump Components:**

See Summary Below. All examinations are VT-1 for welds and VT-3/4 for surfaces.

1. Riser Brace and attachment welds at riser & vessel.
2. Restrainer bracket, adjusting screws, adjusting screw tack welds, wedge and pad assemblies.
3. Sensing lines & their bracket attachment welds at diffuser and sensing lines.

Notes: L1R01 etc. = LaSalle Unit 1, Refueling Outage 1. NRI = No Recordable Indications.

- L1R01 - 9/86 All items in 1-3 above for all 20 pumps. NRI
- L2R01 - 8/87 All items in 1-3 above for all 20 pumps. NRI
- L1R03 - 2/90 All items in 1-3 above for all 20 pumps. NRI
- L2R03 - 9/90 All items in 1-3 above for all 20 pumps. Crack detected in lower bracket weld to #15 Jet Pump Sensing Line. Temporary clamp installed.
- L1R04 - 7/91 All Jet Pump Sensing Lines only. NRI, Permanent mitigation clamps installed on #5 & #15 lower bracket to Sensing Lines.
- L2R04 - 7/92 All Jet Pump Sensing Lines only. Permanent mitigation clamps installed on #5 & #15 lower bracket to Sensing Lines.
- L1R05 - 4/93 #5 & #15 Jet Pump Sensing Lines only & examination of permanent mitigation clamps.
- L2R05 - 3/94 #5 & #15 Jet Pump Sensing Lines only & examination of permanent mitigation clamps.
- L1R06 - 9/94 All items in 1-3 above for all 20 pumps. Wear condition between Restrainer bracket pad and Wedge Assembly on # 9 Pump. Condition accepted.
- L2R06 - 9/95 All items in 1-3 above for all 20 pumps. NRI
- L1R07 - 8/96 Temporary wedges installed on # 9 Pump. Examination of # 9 Diffuser to Adapter weld and all horizontal and vertical Diffuser welds from ID with Inlet Mixer removed. # 5 & # 15 Jet Pump mitigation

clamps and all sensing lines. UT of Jet Pump Beam Bolts once each ten years. One indication, beam replaced.

L2R07 - 10/96 All items in 1-3 above for all 20 pumps, # 5 & # 15 Jet Pump mitigation clamps and all sensing lines. NRI. UT of Jet Pump Beam Bolts once each ten years. NRI.

## 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.
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,



	1999	EVT-1	<p>No indications identified.</p> <p>10 % of weld length of welds H-8 &amp; H-9 examined.</p> <p>No indications identified.</p>
Core Spray Piping	1980 to present	VT-1 (1 mil)	Enhanced VT-1 (1 mil resolution) performed on piping and welds each refueling outage per IEB 80-13,
	1985		Cracking discovered at tee-box to header pipe weld. Welded repair plates installed on both header tee-boxes.
	1993		Cracking identified in downcomer slip joint (weld P-5), evaluation demonstrated structural margin for one operating cycle.
	1995		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	<p>VT-1 Examination of A, B, C &amp; D Downcomer Repair Clamps &amp; both Header Teebox welded repairs.</p> <p>No indications identified.</p> <p>All target welds plus 25 % sample of piping butt welds examined.</p> <p>No indications identified.</p>
Core Spray Sparger	1980 to 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

		VT-1	<p>Pipe welds.</p> <p>Examination performed on all Brackets, Drains and 50 % of Nozzles.</p> <p>No indications identified.</p>
Top Guide (Rim, etc.)	1987	UT	UT examination performed on 40 cells. No indications identified.
	1993	VT-3	<p>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.</p> <p>No indications identified.</p>
	1995	VT-3	<p>Visual (VT-3) of 3 cells (14-23, 22-31, and 46-23) per SIL 554.</p> <p>No indications identified.</p>
	1976 to present	VT-3	<p>VT-3 examination every other refueling outage per Section XI.</p> <p>No indications identified.</p>
	1997	VT-3 VT-1	<p>Top Guide Grid examined from above, no indications identified.</p> <p>Adjacent aligner pins at 180 and 270 deg.(per VIP-26), no indications identified.</p>
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.
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.
Jet Pump Assembly	1974 to present	VT-3	<p>Visual VT-3 of all jet pump components performed every other refueling outage.</p> <p>No indications identified.</p>
	1981	VT & UT	VT and UT examination performed on all 20 hold down beams/

	1997		<p>One beam found to be cracked, replaced with new style beam, All beams replaced with new style beam and reduced preload in 1988.</p>
		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.
	1999	CSVT-1 (MVT-1)	<p>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.</p> <p>MVT-1 on welds RS-2 &amp; RS-3 of three risers w/ indications @ 30, 150, and 300 degrees.</p> <p>Evaluation of indications justified continued operation for part cycle.</p>
		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.
		EVT-1	<p>Examination of high priority Adapter welds on Jet Pumps 1-10. Reportable indications on welds (AD-3b) of Jet pumps 2 &amp; 10. BWRVIP-41 evaluation resulted in use-as-is disposition. Expanded examinations to weld AD3b on Jet Pumps 11-20. No other indications identified.</p> <p>EVT-1 examination of high priority Diffuser Shell to Tailpipe Welds ( DF-2) of Jet Pumps 1-10. No indications identified.</p> <p>Examination of Riser welds RS-2 &amp; RS-3 of Jet Pump Assemblies 2, 3 &amp; 4. No indications identified.</p>

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  EVT-1	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 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.
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.
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.
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.
LPCI Coupling			N/A for this plant

## Reactor Internals Inspection History

Plant: Vermont Yankee

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	'95	UT	Seven circumferential welds. Performed by FTI. Significant flaws found in H5 & H6, less extensive in H4.
	'96	UT, ET	Six vertical welds. Performed by FTI. No flaws found.
		EVT-1	Two vertical welds. No flaws found.
		UT, ET	Six ring segment welds (three each at top guide and core plate). Performed by FTI. No flaws found.
		VT-3	Four tie-rods (repair) installed by FTI. Baseline inspection.
	'98	VT-3	Retorqued and reinspected all four tie-rods.
	'99	VT-3	Reinspected all four tie-rods.
Core Shroud Support	'95	VT-1	Both access hole covers. No flaws found.
	'96	UT, ET	H8 (25%) & H9 (22%). Performed by FTI. No flaws found.
		VT-1	Both access hole covers. No flaws found.
	'98	MVT-1	Both access hole covers. No flaws found.
	'99	EVT-1	Both access hole covers. No flaws found.
Core Spray Piping	'95	CSV-T-1	All piping and brackets. No flaws found.

	'96	UT	39 circumferential welds. Performed by GE. Two collar-to-shroud welds found with indications.
	'98	EVT-1	Five circumferential welds not accessible for UT. No flaws found.
		CSV-T-1	All brackets. No flaws found.
		EVT-1	Reinspected eleven circumferential welds: two with previous indications, nine that were inaccessible for full UT in '96. No flaws found.
		VT-3	All brackets. No flaws found.
	'99	EVT-1	Reinspected 30 circumferential target welds. No flaws found.
Core Spray Sparger	'96	CSV-T-1	100% IEB 80-13 inspections performed. No flaws found.
	'98	VT-3	Clamp installed over tee-box inspection plug (cracked weld) in 1980. No flaws found.
		MVT-1	Inspected all major circumferential welds (tee-box to header, tee-box cover plate, and header to end cap). No flaws found.
		VT-3	Sparger nozzles. No flaws found.
		VT-3	All brackets. No flaws found.
		VT-3	Sparger Tee-box repair. No flaws found.
	'99	VT-3	Sparger Tee-box repair. No flaws found.
Feedwater Spargers	'95	MVT-1	Tee-box welds. No flaws found.
		MVT-1	End bracket attachments. No flaws found.
		VT-3	Piping and brackets. No flaws found.

	'98	MVT-1	Tee-box welds. No flaws found.
		MVT-1	End bracket attachments. No flaws found.
		VT-3	Piping and brackets. No flaws found.
Top Guide	'95	VT-1	Ten locations in top guide grid made available due to blade change-outs. No flaws identified.
	'96	VT-1	Seven locations in top guide grid. No flaws identified.
	'98	MVT-1	Four locations in top guide grid. No flaws identified.
	'99	VT-1	Two aligner assemblies. No flaws found.
		VT-1	Two hold-down assemblies. No flaws found.
		VT-1	Four locations in top guide grid. No flaws found.
Core Plate	'95	VT-3	Ten fuel support castings made available due to blade change-outs. No flaws found.
	'96	VT-3	Seven fuel support castings made available due to blade change-outs. No flaws found.
		VT-3	All 30 rim hold-down bolts from above. No flaws found.
	'98	VT-3	Four fuel support castings made available due to blade change-outs. No flaws found.
	'99	VT-3	16 rim hold-down bolts from above. No flaws found.
SLC	'98	EVT-2	Nozzle-to-safe-end weld. No flaws found.
	'99	EVT-2	Nozzle-to-safe-end weld. No flaws



			found.
Jet Pump Assembly	'95	VT-3	Restrainer hardware, inlet bolted connections, sensing lines on five assemblies (one loop). No flaws found.
		VT-1	Welds on five riser braces (one loop). No flaws found.
	'96	VT-3	Restrainer hardware, inlet bolted connections, sensing lines on five assemblies (one loop). No flaws found.
		VT-1	Welds on five riser braces (one loop). No flaws found.
	'98	UT	26 of 30 Riser RS-1, RS-2, RS-3, circumferential welds. Performed by GE. Four welds with indications – maximum approximately 3”.
		EVT-1	Remaining four riser RS-1 circumferential welds. No flaws found.
		MVT-1	Riser-to-restrainer RS-4, RS-5 welds on five assemblies (one loop). No flaws found.
		MVT-1	Welds on five riser braces (one loop). No flaws found.
		VT-3	Restrainer hardware, inlet bolted connections, sensing lines on five assemblies (one loop). No flaws found.
		UT	20 hold-down beams. Performed by FTI. One beam with UT indication on bolt hole replaced.
	'99	UT	160 mixer, diffuser, and adapter circumferential welds. Performed by FTI. Indications found on four diffuser welds, all less than 2”.
		EVT-1	20 MX-1 welds. No flaws found.

		UT	Ten hold-down beams. No flaws found.
CRD Guide Tube	N/A	N/A	N/A
CRD Stub Tube	'83	VT-3	2 of 89. No indications
In-Core Housing	'83	VT-3	2 of 89. No indications
Dry Tube	'95	VT-1, -3	Four dry tubes. No flaws found. (Replaced in 1986 due to indications.)
	'99	VT-1, -3	Two dry tubes. No flaws found.
Instrument Penetrations	N/A	N/A	N/A
Vessel ID Brackets	'96	VT-3, UT	Reinspected one dryer support bracket found with flawed weld in 1992, in accordance with Section XI and SIL
LPCI Coupling	N/A	N/A	N/A
Steam Dryer and Separator	'96	N/A	Replaced all steam separator / shroud head hold-down bolts.
	'98	VT-3	Steam dryer and separator. Indications on five tack welds on three jacking bolt (lifting eye) assemblies on the steam dryer.
	'99	VT-3	Reinspected cracked tack welds on steam dryer. No change.

## Reactor Internals Inspection History

Plant: WNP-2

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	1994	UT	35% weld H3, 10% of weld H4. No indication of cracking. Proactive examination as a category A plant.
	1998	UT	Baseline examination of all accessible areas of welds H3, H4, H5 and H7. per BWRVIP-01. No cracking found.
Shroud Support	1994	VT-1	ASME Section XI includes access hole covers. No indications
Core Spray Piping	1985 to 1997	VT-1 IEB 80-13	No indications of cracking. One mil wire resolution
	1998	MVT-1 IEB 80-13	No indications of cracking
	1999	VT-1 IEB-80-13	No indications of cracking. One mil wire resolution
Core Spray Sparger	1985 to 1997	VT-1 IEB 80-13	No indications of cracking. One mil wire resolution
	1998	MVT-1 IEB 80-13	No indications of cracking
	1999	VT-1 IEB 80-13	No indications of cracking. One mil wire resolution
Top Guide (Rim, etc.)	1994	VT-1, VT-3	ASME Section XI . No indications
Core Plate (Rim, etc.)	NA	NA	NA
SLC	NA	NA	SLC routed through HPCS system
Jet Pump Assembly	1985-1997	VT-1, VT-3, UT	JP Beams replaced 1994. No indications found on old beams. Adjusting screws, wedges, sensing lines and clamps done to

			<p>various GE SILS. Found one sensing line cracked at support. Acceptable for service. Found several adjusting screws with gaps between screw and inlet mixer. Reduced gaps by resetting JP and installing wedges. Found one adjusting screw tack weld cracked on two JP. Acceptable for continued service.</p>
	1998	VT-1	<p>Found one adjusting screw with gaps between screw and inlet mixer. Acceptable for continued service.</p>
	1999	VT-1	<p>Found three adjusting screws with small gaps between screw and inlet mixer. Acceptable for continued service.</p>
Jet Pump Diffuser	NA	NA	NA
CRD Guide Tube	NA	NA	NA
CRD Stub Tube	NA	NA	NA
In-Core Housing	1985-1997	VT-2	ASME Section XI. No indications
	1998	VT-2	ASME Section XI. No indications
Dry Tube	1987-1997	VT-1	Various degrees of erosion. Evaluated acceptable
	1998	VT-1	No unacceptable indications noted
Instrument Penetrations	1994	VT-2	ASME Section XI. No indications
Vessel ID Brackets	1994	VT-1	ASME Section XI. No indications
LPCI Coupling	1994	VT-1	ASME Section XI. No indications

**BWR Vessel and Internals Project**  
**Vessel Internals Inspection Summaries**  
**for Spring 2000 Outages**

**April 2001**

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## Reactor Internals Inspection History

Plant: **Brunswick Unit 1**

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	1993	EVT-1 and UT	EVT-1 baseline. Indications in several circumferential welds and ring segment welds. No indications on vertical welds. UT selected areas on H1 and H5. Installed clamp repair on H2/H3. Full structural margins on non-repaired welds.
	1995	UT	Reinspected H1 & H5 with no indication growth. 2 repair brackets inspected with no indications.
	1996	UT	Reinspected H1 and H5 with no indication growth. UT baseline of H4, H6A, H6B and H7. No indications on H7. Minor indications on H4, H6A and H6B with no impact to structural margins. VT-1 and VT-3 inspected 3 repair brackets with no indications.
	1998	VT-1/VT-3	No inspections of welds was performed. Inspected 7 of 12 total shroud clamps with no indications. This completed the initial inspection of all 12 clamps installed in 1993.
	3/2000	UT/EVT-1/VT-1/VT-3	Re-inspected H1 and H5 (UT) with no indication growth. Re-inspected (EVT-1) OD side of V1 and V2 with no indications. VT-1 and VT-3 inspected 3 repair brackets with no indications.
Shroud Support	1993	VT	VT of accessible areas on H8, H9, and access hole covers with no indications.
	1995	UT	UT baseline of H9 and VT reinspection of portions of H8. No indications.
	various	UT and VT	Access hole covers have been UT

	1998	EVT-1	inspected with no indications. EVT-1 performed in 1996 with no indications.  Inspected Access Hole covers with no indications noted
	2000		No inspections performed
Core Spray Piping	1980's to Present	MVT-1 and EVT-1	IEB 80-13 of piping and welds in annulus. One indication on the header piping. Full structural margins. Inspected per BWRVIP-18 in Spring 1996 with no new indications.
	1998	EVT-1	Performed re-inspection of Core Spray piping and spargers per BWRVIP-18. No new cracking noted. Previous cracking had no significant length changes.
	2000	EVT-1	Performed re-inspection of Core Spray piping and spargers per BWRVIP-18. No new cracking noted. Previous cracking had no significant length changes.
Core Spray Sparger	1980's to Present	MVT-1, EVT-1, and VT-3	IEB 80-13 of welds on piping and spargers. One indication on sparger T-Box. Inspected per BWRVIP-18 in Fall, 1996 with no growth in old indication and no new indications.
	1998	MVT-1, EVT-1, and VT-3	Re-inspected per BWRVIP-18 with no new indications. Previously identified crack had no significant length changes.
	2000	MVT-1, EVT-1, and VT-3	Re-inspected per BWRVIP-18 with no new indications. Previously identified crack had no significant length changes.
Top Guide (Rim, etc.)	1993-96	VT-1	VT-1 of 14 cells in 1993; no indications. 1996 reinspected with no indications. VT-3 of wedges, holddown clamps, eccentric aligners, and general surface areas in 1993. One minor indication on eccentric aligner & dowel pin hole.
	2000	VT-1	VT-1 of 2 Hold Down assemblies with no indications noted.



Core Plate (Rim, etc.)	1993	VT-1	Holddown bolts from topside and partial surface areas. No indications.
SLC	1988	LP	No examinations performed on internal piping. Section XI LP performed on nozzle to safe end welds. No indications.
Jet Pump Assembly	1993-96	VT-1	Riser brace brackets done once per period. Wedges, set screws, tack welds, sensing lines and sensing line supports VT per various SILs. Jet pump beams replaced in Fall, 1993. No indications noted, as well as in old jet pump beams. Transition areas inspected in 1995 with no indications.
	1998	EVT-1	Inspected all RS-1, RS-2 and RS3 welds and associated draw beads. Cracks found on 3 risers with lengths ranging from 1-1/8" to 5-3/4". Analysis concluded structural margin acceptable for one cycle of operation. Inspected all 10 TS-3 welds (safe end transition piece to safe end extension) with no indications.
	2000	EVT-1	Inspected previously identified cracking on 3 RS-1 welds with no change in cracking.
Jet Pump Diffuser	start-up to present	VT-3	Adapter and diffuser welds inspected once per period. Last inspected in 1995 with no indications.
	1998	MVT-1	Inspected 20 of 40 DF-1 and DF-2 welds with no indications.
	2000`	EVT-1	Inspected 10 AD1 and AD 2 welds with no indications.
CRD Guide Tube	1993	VT-3	Inspected accessible surfaces of approximately 75% of total population with no indications.
CRD Stub Tube	1993	VT-3	Inspected accessible surfaces of approximately 75% of total population with no indications.
In-Core Housing	Fall, 1993	VT	No indications noted.

Dry Tube	Fall, 1993	VT	No indications. Replaced in 1988. Scheduled for inspection in 2000.
Instrument Penetrations	1988 and 1995	LP	Inspections of external piping performed once per interval in accordance with ASME Section XI. No indications .
Vessel ID Brackets	1993-1996	VT-1 in beltline area; VT-3 other areas	Section XI inspections of core spray, feedwater sparger, dryer and surveillance capsule holder brackets performed once per interval. Last inspection Fall, 1996. No indications.
LPCI Coupling	NA	NA	Not applicable to Brunswick.

## Reactor Internals Inspection History

Plant: Cooper Nuclear Station

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	Fall 1995  Rexam in 2001 (RE20)	UT	Baseline UT performed on welds H1 through H7 per BWRVIP guidelines. Indications identified in 4 circumferential welds. No indications on vertical welds. No repair required.
Shroud Support	1993-1995	VT-1 and UT	VT-1 of welds on 50% of core plate each outage. No indications. UT of Access Hole Covers in 1993. No indications
	Spring 1997	VT-3	VT-3 on 50% of welds of core plate. No indications
		VT-1	VT-1 of access hole covers in accordance with GE SIL 462. No indications
	Fall 1998	VT-3	VT-3 of welds on 50% of core plate. No indications.
		VT-1	VT-1 of access hole covers in accordance with GE SIL 462. No indications
	Spring 2000	VT-3	VT-3 of welds on 50% of core plate. No indications.
		VT-1	VT-1 of access hole covers in accordance with GE SIL 462. No indications
Core Spray Piping	1980's to 1995	VT-1/VT-3	IEB 80-13 exams of piping and welds in annulus. Three indications identified in Fall 1995 outage by EVT-1. No repair required.
	Spring 1997	UT/EVT-1	Reexamined per BWRVIP-18 in Spring 1997 by UT. Only two indications. No repair required. Balance of piping EVT-1

	Fall 1998	UT	Two indications Re-examined. No repair required. Balance examined via UT
	Spring 2000	UT	Two indications Re-examined. No repair required.
Core Spray Sparger	1980's to 1995	VT-1/UT	IEB 80-13 of welds on sparger. No indications.
	Spring 1997	EVT-1	Sparger and brackets inspected in accordance with BWRVIP-18. Debris (wire) in C-sparger Nozzle 15C was found. No other indications.
	Fall 1998	EVT-1	Sparger and brackets inspected in accordance with BWRVIP-18. Debris (wire) in C-sparger Nozzle 15C was reconfirmed. No other indications.
	Spring 2000	EVT-1	Sparger and brackets inspected in accordance with BWRVIP-18. Five indications dispositioned as acceptable.
Top Guide (Rim, etc.)	1991-1995	VT	VT of top guide beams of 50 cells was performed in 1991 per RICSIL 059. No indications. VT exams of the members in the load path between the top guide and core shroud in 1995 per SIL 588. One indication on the 90 degree aligner pin keeper was detected and evaluated as acceptable (indication not on load bearing portion of assembly).
	Spring 1997	VT-1	VT-1 re-examination of Top Guide Alignment Pin located at 90-degrees in accordance with SIL 588, R1. Indication did not appear to change size.
	Spring 2000	VT-1	VT-1 of hold down bolts per BWRVIP-26. No indications.
Core Plate (Rim, etc.)	Fall 1995	VT-3	Hold down bolts examined in 1995 per SIL 588. No indications.
	Spring 2000	VT-3*	48 bolts examined per BWRVIP-25. *(Bolts were not accessible for EVT-1)

SLC	1986-2000	VT-2	VT-2 exam of SLC penetration during RPV pressure test each outage.
Jet Pump Assembly	1986-1995	VT-1, VT-3, UT	Ten Jet Pumps VT examined each outage. Exam includes applicable GE SILS. Jet pump beams replaced in 1985. Jet pump beam UT performed in 1993.
	Spring 1997	VT-1, VT-3	Ten jet pumps VT examined. Exam includes applicable GE SILs. No indications.
	Fall 1998	VT-1, VT-3	Ten jet pumps VT examined. Exam includes applicable GE SILs. No indications.
	Spring 2000	N/A	Exams deferred to Fall 2001
Jet Pump Diffuser	1986-1998	VT-3	10 Jet Pumps VT-3 examined each outage. No indications.
	Spring 1997	VT-1, VT-3	Ten jet pumps VT examined. Exam includes applicable GE SILs. No indications.
	Fall 1998	VT-1, VT-3	Ten jet pumps VT examined. Exam includes applicable GE SILs. No indications.
	Spring 2000	N/A	Exams deferred to Fall 2001
CRD Guide Tube	Fall 1995	VT-3	VT-3 exams of accessible guide tubes. No indications.
	Spring 1997	VT-3	VT-3 exams of accessible guide tubes. No indications.
	Fall 1998	VT-3	VT-3 exams of accessible guide tubes. No indications.
	Spring 2000	EVT-1, VT-3	EVT-1 of 4 guide tube welds per BWRVIP-47 and VT-3 exams of 10 guide tubes. No indications.  VT-3 of alignment pins at 8 locations per BWRVIP-47.

CRD Stub Tube	Spring 2000	EVT-1 and VT-3	Examined 10 locations per BWRVIP-47 and ASME XI when fuel support castings removed.
In-Core Housing	NA	NA	No record of examination back to 1986.
Dry Tube	1989-1991	VT	VT exam in 1989, 1990, and 1991 per SIL 409R1. All dry tubes replaced in 1993.
Instrument Penetrations	1986-1998	VT-2	VT-2 exams during RPV pressure test each outage.
Vessel ID Brackets	1986-1995	VT-1/VT-3	ASME XI VT-3 exams (VT-1 if in beltline region) of jet pump riser brace, dryer, FW Sparger, Core Spray, guide rod, and surveillance capsule holder brackets performed once per interval. No indications noted.
	Spring 1997	VT-1/VT-3	10 jet pump riser brackets and welds examined. No indications.
	Fall 1998	VT-1/VT-3	10 jet pump riser brackets and welds examined. No indications.
	Spring 2000	VT-1/VT-3	Guide rod and FW Sparger brackets and welds examined per BWRVIP-48. No indications.
LPCI Coupling	N/A	N/A	Not applicable to this plant.

## Reactor Internals Inspection History

Plant: **Fermi 2**

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	RF-04 (7/94)	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.
	RF-05 (9/96)	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.
	RF-06 (9/98)	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 indications above H2 weld.
	RF-07 (4/00)	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.
Shroud Support	RF-03	VT-3	Inspected shroud support gusset welds and H8/H9 in conjunction with jet pump inspections. No indications

	RF-04 (7/94)	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.
	RF-05	EVT-1 (1/2 mil)	Inspected sample area 60-70 degree arc plus 180 degrees location on H8, H9, and gussets. No indications.
	RF-06	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.
	RF-07	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. No cleaning was performed. 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.
Core Spray Piping	each outage RF-01 -- 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.
	RF-05	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.
	RF-06	EVT-1	Inspected all welds on both loops of core spray to EVT-1 standards as opposed to



	RF-07	EVT-1	<p>BWRVIP-18 requirements of MVT-1. Cleaning assessment was performed – cleaning was not necessary. No indication of cracking.</p> <p>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.</p>
Core Spray Sparger	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
	RF-05	VT-1 EVT-1 (1/2mil)	1/2 mil wire used for junction box remainder utilized 1mil wire. No indication of cracking.
	RF-06	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.
	RF-07	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.
Top Guide (Rim, etc.) beams	Each outage	VT-3	Inspected rim each outage. No indications.
	RF-03	VT-1	6 location s (RICSIL 059). No indications.
	RF-04	VT-1	6 locations (SIL 554). No indications.
	RF-05	VT-1	15 locations (SIL 554). No indications.
	RF-06	VT-1	Inspected bottom edge of beams at 11 core locations per SIL 554. No indication of cracking.

	RF-07	VT-1	Inspected bottom edge of beams at 8 core locations per SIL 554. No indication of cracking.
Core Plate (Rim, etc.)	RF-05	VT-1 (1mil wire)	Inspected 6 core plate bolts located between 100 and 160 degrees and adjacent area. No indications.
	RF-06	VT-3	Inspected approximately 20 bolts.
	RF-07	VT-3	Inspected approximately 20 bolts.
SLC	RF-04	VT-3	Performed a visual inspection from Reactor penetration to shroud support when access was provided during jet pump beam replacement. No indications.
	RF-05-07	N/A	No inspections performed as access was not provided.
Jet Pump Assembly	Each outage examine at least 50%	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. Inspection 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 is the only indication found to date. This was evaluated and was not repaired during RF-05
	RF-06	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.
	RF-07	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 RF-06. No change in indication length or appearance. Existing Flaw Evaluation on hand prepared by GE referenced as acceptance limit.
Jet Pump Diffuser	Each outage as above	VT-3	This will be inspected during each refueling outage. Same as above
	RF-06	MVT-1	BWRVIP-41 on jet pumps 1-10 except inaccessible areas. No cracking.
	RF-07	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.
CRD Guide Tube	RF-04	VT-3	Inspected lower portion of peripheral guide tubes and stub tubes when access was provided during jet pump hold down beam replacement.
	RF-07	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.
CRD Stub Tube	RF-04	VT-3	same as above
In-Core Housing	RF-04	VT-3	Small portion visible during jet pump beam replacement. No indication of degradation.
Dry Tube	Each outage	VT-1	9 tubes found not completely seated. Performed all inspections per SIL 409 and RICSIL 073. No indications of cracking
	RF-06	VT-1	No change from previous condition. No cracking.
	RF-07	VT-1	Inspected all 12 original design Dry Tubes. No change from previous

			conditions identified. No cracking identified.
Instrument Penetrations	Each outage	VT-3	Inspected jet pump sensing lines and brackets each outage.
	RF-04	VT-3	SLC and peripheral bottom head penetrations inspected. No indications.
	RF-06	VT-3	Inspected JP sensing lines for pumps 1-10. No indications.
	RF-07	VT-3	Inspected JP sensing lines for pumps 11-20. No indications.
Vessel ID Brackets	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.
	RF-06	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.
	RF-07	EVT-1	6 feedwater brackets. All core spray piping brackets. 4 steam dryer brackets 1 guide rod bracket No indication of cracking identified.
LPCI Coupling	N/A	N/A	Do not have a LPCI Coupling
Shroud Head Bolts	RF-04	UT/VT	16 had indications, 17 replaced during RF-04. Remaining bolts replaced (31) during RF-05 as a preventative measure. All 48 are now new style.
	RF-06	VT-3	Bolts 1-24 (of 48). No indication of cracking.
	RF-07	VT-3	Bolts 25-48 (of 48). No indication of

			cracking or damage. Springs were left compressed on 20 of the 24 inspected.
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Outage: RF-01: Fall of 1989  
 RF-02: Spring of 1991  
 RF-03: 9-21-92 10-31-92 Inspection sign on/off dates  
 RF-04: 5-10-94 09-21-94 Inspection sign on/off dates  
 RF-05: 9-30-96 11-04-96 Inspection sign on/off dates  
 RF-06: 9-8-98 10-8-98 Inspection sign on/off dates  
 RF-07: 4-3-00 05-04-00 Inspection sign on/off dates

## Reactor Internals Inspection History

Plant: **Hatch 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 Horizontal Welds	1994	UT VT-1 (.001)	UT H-1 through H-4. Indications on all four (4) welds. Safe for continued operation. VT-1 (.001) with brushing on sample areas of H-5, H-6A(B), & H-7) at 190° and 350°. No indications. Installed four (4) Shroud Tie Rods in "95" which exempts horizontal welds H-1 through H-8 from inspection.
Core Shroud Tie Rods	1995	VT-3	Installed four (4) Shroud Tie Rods '95. Performed baseline. No indications.
	1997	VT-3 & Tightness	Performed first cycle inspections on all 4 Shroud Tie Rods. No indications.
	1998	VT-3 & Tightness	Shroud Tie Rod at 225°. No indications. Future Shroud Tie Rod Inspections not to exceed 10 years.
Core Shroud Vertical Welds	1995	EVT-1	Bottom ID/OD six (6) inches of V-3, V-4. Top ID/OD six (6) inches of V-3, V-4. Top ID/OD Twenty-four (24) inches of V-5 & V-6. No indications. Inspections to support the Shroud Tie Rod installation.
	1997	EVT-1	Performed baseline all verticals from the outside surface per BWRVIP-07. No indications.
	2000	EVT-1	Performed baseline all verticals in the beltline region (V-3 through V-8) from the inside surface. No indications. V-1 & V-2 are inaccessible for visual

			inspection from the inside surface, and very limited from the outside surface for volumetric examination. V-9, V-10, & V-11 below the core plate are scheduled for 2001 / 2R16.
Core Shroud Ring Segment Welds	N/A	N/A	Hatch 2 does not have Ring Segment Welds.
Core Shroud Support	1995	EVT-1	<u>Horizontal surfaces of Shroud Support Ledge</u> : Examined four (4) locations (45°, 135°, 225°, & 315°) between Jet Pumps on top surface adjacent to locations where Shroud Tie Rods to be installed. No indications.
	1997	VT-3	<u>H-9</u> : Examined 25% of accessible top surfaces. No indications.
	1998	VT-3	<u>H-9</u> : Examined 75% of accessible surfaces from top per BWRVIP-38. No indications
Core Spray Internal Piping	1980-97	VT-1 (.001)	IEB 80-13/NUREG CR-4523. Examined 100% each outage prior to 96. No indications.
	1997	EVT-1	Baseline per BWRVIP-18 . No Indications.
	1998	EVT-1	Re-Inspection BWRVIP-18. No Indications.
	2000	EVT-1	Re-Inspection BWRVIP-18. No Indications.
Core Spray Sparger	1980-96	VT-1 (.001)	IEB 80-13/NUREG CR-4523. Examined 100% each outage prior to '97. Indications reported in four (4) Sparger Bracket to shroud welds first reported in 1994, safe for continued operation. Indications reported on four more Sparger Bracket to shroud welds in 1995. Eight (8) locations total. Safe for continued operation.
	1997	CSVT-1	Examined all previously reported Sparger

	1998	CSV-T-1 VT-3 (1/32)	Bracket indications. No change.  Re-inspection per BWRVIP-18. No change in previously reported Sparger Brackets indications from 1994/1995. Can not clean or get a good close look at these indications to classify.
	2000	EVT-1 VT-1	Began sampling Sparger inspections as "Geometry Critical" instead of "Geometry Tolerant". No new indications. No change in previously reported eight (8) Sparger Brackets indications from 1994/1995. Can not clean or get a good close look at these indications to classify.
Top Guide BWRVIP-26, 1997,  No BWRVIP inspections are required. Top guide has wedges.	1992	VT-1 (.001)	<u>Grid/beams</u> : SIL-554, VT-1 (.001) bottom of intersections. Examined 28 cells in '92. No indications.
	1994	VT-1 (.001)	<u>Grid/beams</u> : SIL-554, VT-1 (.001) bottom of intersections. Examined 10 cells in '94. No indications. <u>Hold downs &amp; aligners</u> : SIL-588, examined 2 of 4 1994. No indications.
	1995	VT-3	<u>Wedges (24)</u> : No indications.
	1997	VT-1 (.001) VT-1/3	<u>Grid/beams</u> : SIL-554, VT-1 (.001) bottom of intersections. Examined 6 cells in '97. No indications. <u>Rim, upper/lower plates, bolting</u> : Examined in 1997. No indications.
Core Plate	1994 1995	VT-3	<u>Surfaces</u> : Examined accessible areas during CRB replacement. No indications. <u>Hold down bolts</u> : No indications.  No BWRVIP inspections are required. Core Plate wedges installed in 1995.
Standby Liquid Control	1980-96	VT-2	Not accessible from inside. Portion visible during '94 access hole cover replacement. Examined for leakage from outside during RPV leakage test each



	2000	Direct VT-2	outage. No indications  <u>Safe-end &amp; Extension</u> : RPV Support Skirt was found to have an inspection cover to gain access during leakage test. No Leakage. Looking at performing UT in the future.
Jet Pump Assembly	1980-1988	UT	<u>Hold down beams</u> : UT each outage in '80 - '88 outages - indications in 1 beam, replaced with original design. Replaced all beams in '89 with improved design.
	1994	VT-1/3	<u>1994</u> : Riser Brace Pads & Arms, Restrainers. No Indications
	1995	VT-1/3	<u>1995</u> : All adjusting screw tack welds, sensing lines & support brackets, pads & arms. No Indications.
	1997	VT-1 (.001) & VT-3	<u>4 assemblies</u> : ( riser brace pad, restrainer adjusting screw tack welds, riser brace arm tack welds, inlet mixer, sensing line, restrainer set screw gaps). No indications.  <u>Hold down beams</u> : All 20 Hold down beams examined in '98 per BWRVIP-41. No indications.  <u>Thermal Sleeve to Elbow Welds</u> : All 10. No indications.
	1998	MVT-1	<u>All High Priority Welds</u> (not TS to el.) : per BWRVIP-41. Two small indications reported on one (1) RS-3 & one (1) DF-1 weld. Possibly non-relevant. Disposition acceptable, examine next outage.
	2000	EVT-1	Re-examination of two (2) previous indications reported in 1998, one (1) RS-3 & one (1) DF-1 weld. Indications determined to be non-relevant.
CRD Stub Tubes	1994	VT-3	Examine when accessible once/interval.

			Not normally accessible from inside. Portions visible during '94 access hole cover replacement - no indications. Examined 14 in '94. No indications.
Guide Tubes	1994	VT-3	Examine when accessible once/interval. Not normally accessible from inside. Portions visible during '94 access hole cover replacement - no indications. Examined 14 in '94. No indications.
Instrument Penetrations	1980-2000	VT-2	2N11, 2N12, 2N16 Nozzles. Examined during RPV leakage test each outage. No indications. Hatch ASME exempt.
*RPV Interior Attachments (BWRVIP-48)  *Other Attachments examined by other BWRVIP documents.	1989  1992	VT-1, VT-3  VT-1, VT-3	<p><u>Feedwater sparger brackets:</u> NUREG-0619, Examine every fourth outage. Examined in '89, '92 &amp; '97. Mechanical damage on 1 bracket in '83 - bracket replaced. No new indications.</p> <p><u>Guide rod brackets:</u> Examine once/interval. Examined in '92. Mechanical damage on 1 bracket in '92 - safe for continued operation.</p> <p><u>Steam dryer hold down brackets:</u> Examine once/interval. Examined in '92. No indications.</p> <p><u>Steam dryer support brackets:</u> Examine once/interval. Examined in '92, '94 &amp; '97. Raised metal indications on 2 brackets in '92 - metal removed, safe for continued operation.</p> <p><u>Surveillance specimen brackets:</u> Examine once/interval. Examined in '92, '97 &amp; '98. No indications. BWRVIP-48 in '98.</p>
LPCI Coupling (BWRVIP-42)	Not Applicable to Hatch	N/A	N/A

## Reactor Internals Inspection History

Plant: Hope Creek

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	WINTER - 96	VT-1 (1-MIL)	Examined H-4, H-5 @ 4 cell location. No indications found IAW SIL 572 R1 BWRVIP CAT B exam sched for fall of 97
	Fall -97	UT	Examined 100% accessible regions of H-3,4,5,7
	March 99		No examination
	April 2000		No examination
Shroud Support	once a period on the annulus side of the shroud 88-97	VT-3	Examined 6 shroud support pillar during spring 94 IAW Sec. XI. No indications found
	Fall - 97	VT1/VT3	examined accessible portions of H-8 and H-9
	March 99	VT1/VT3	examined accessible portions of H-8 and H-9
	April 2000		no examination
Core Spray Piping	88 to Present, examine once per period (at least every other outage)	VT-1 (1-mil)	Piping and welds in annulus examined IAW IEB 80-13. One indication found on a bracket bolt tack weld bracket was found not to be cracked during winter 97
	Fall 97	EVT -1 .0005 mil	examined all creviced weld location between thermal sleeve and shroud no indications noted
	March 99	EVT -1 .0005 mil	Examined all creviced weld location between thermal sleeve and shroud no

	April 2000	EVT -1 .0005 mil	indications noted  Examined all creviced weld location between thermal sleeve and shroud no indications noted
Core Spray Sparger	88 to present. examine once per period  Fall 97  March 99  April 2000	VT-1 (1-mil)    EVT -1 .0005 mil	Piping and spargers in shroud examined IAW IEB 80-13. No indications found  No examination performed  No indications noted  No examination performed
Top Guide (Rim, etc.)     top guide lateral supports	88 to present. examine once per period.  Fall 92/ Spring 94/ Winter 96  Winter 96  Fall 97  March 99  April 2000	VT-3  VT-1  VT-3  VT-3  VT-3	Top guide examined IAW Sec. XI. No indication found  Examined IAW SIL 554. Examined 4 cell locations made available during normal refuel. No indication found.  Examined Top Guide wedges IAW SIL 588 R1. No Indication found.  Examined Top Guide wedges IAW SIL 588 R1. No Indication found. Examined IAW SIL 554. Examined 4 cell locations made available during normal refuel. No indication found  Examined 4 c-clamps no indications noted  No examination performed
Core Plate (Rim, etc.)	None performed to date. Examination to be performed during RF07-Fall 97	VT-3	Examine core plate bolting IAW SIL 588R1

	Fall-97	VT-3	Examined all core plate hold down bolts No indications found
	March 99	VT-3	Examined 26
	April 2000		No examination performed
Jet Pump Assembly	88 to present Examine once per period.	VT-3	Examined IAW Sec XI. No indication found.
----- jet pump riser braces	50% every other outage. Spring 94/ Winter 96/winter 97	VT-1	Examined IAW SIL 551. No indications found.
	March 99	EVT-1	Examined 50% riser braces
	April 2000	EVT-1	Examined 50% riser braces
----- jet pump hold down beams	Hold down beams were replaced during RF05- Spring 95 winter 97	VT-1	Examined IAW SIL 330. No indications found.
	March 99	VT-3	No indications noted
----- jet pump sensing lines	88 to present. Examine once per period.	VT-3	Examined IAW SIL 420. No indications found.
	Winter 97	VT-1	Jet pump 8.9.15 had cracked standoffs
	March 99	VT-1	No indications noted
	April 00	VT-1	No indications noted
----- jet pump adjusting screws	inspected every other refuleing outage since Oct. 93	VT-1	Examined IAW SIL 574. 94- 3 screws with 1 tack cracked 96- 4 screws with 1 tack cracked 96- 2 screws with 2 tacks cracked 97- 1 screw with 1 tack cracked

----- jet pump riser pipe cracking	March 99	VT-3	No additional indications noted
	April 00	VT-3	No additional indications noted
	March 99	EVT-1 (1-MIL)	Examined IAW SIL 605. No indications noted
Jet Pump Diffuser			see jet pump assembly
CRD Guide Tube	Winter 96	VT-3	Examined 6 guide tubes IAW Sec. XI. No indications found.
	March 99	VT-3/1	Examined 3 guide tubes IAW BWRVIP
	April 2000		No examination
CRD Stub Tube	Spring 94	VT-3	Examined IAW Sec XI. Examined CRD Housing through removed jet pump diffuser. No indications found.
In-Core Housing	Not yet examined	VT-3	
Dry Tube	Examined during fall 92	VT-1	Examined IAW SIL 409. No indications found.
	March 99	EVT-1	All 12 dry tubes had circumferential cracking approx 1 inch below the upper collar
	April 2000		Replaced all 12 dry tubes
Instrument Penetrations	examined during winter 97	VT-1 and VT-3	Examine IAW Sec. XI No indication noted
Vessel ID Brackets		VT-1 and VT-3	Examine IAW Sec. XI Component brackets are examined with the component no indications found
Guide rod bracket	March 99	VT-3	No indications noted
Core spray header bracket	March 99	VT-1	No indications noted
Feedwater sparger brackets	March 99	VT-1	No indications noted
Surveillance Sample	March 99	VT-1	No indications noted

bracket			
Steam dryer support brackets	March 99	VT-1	No indications noted
LPCI Coupling	88 to present. Examined once per period  winter 97  March 99	VT-1 VT-3    VT-3	Examine IAW Sec XI   no indications noted  no indications noted

## Reactor Internals Inspection History

Plant: Monticello

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	1994-1996	UT and VT-1	<p>Baseline per BWRVIP-01 and reinspected per BWRVIP-07. Indications in several circumferential welds as identified below:</p> <p>H1 17% flawed over 307.6" total scan length.</p> <p>H2 1% flawed over 287.7" total scan length.</p> <p>H3 28% flawed over 263" total scan length.</p> <p>H4 6% flawed over 289.1" total scan length.</p> <p>H5 0% flawed over 298.4" total scan length.</p> <p>H6 4.5% flawed over 298.4" total scan length.</p> <p>H7 0% flawed over 291.7" total scan length.</p> <p>Note: 1. All flaws identified were less than 1/2 T deep. 2. Scan coverage for each weld was greater than 50%. 3. Differences in inspection methodology did not permit a rigorous correlation of the 1994 and 1996 data. 4. Full structural margins exist on all welds.</p> <p>VT-1 of accessible vertical welds &amp; ring segment welds. Minor indication identified on ring segment weld @ 73 deg azimuth between H5 and H6. Visually examined 2 feet of the following vertical welds; V3, V4, V5, and V6. Minor indications were observed on V3 and V6.</p>
Shroud Support	1994-1996	VT-1 & VT-3	VT of H8 and H9 from the annulus have been performed. No reportable



			<p>indications to date.</p> <p>VT of access hole covers, performed every other outage per the IVVI program. No indications have been reported to date.</p> <p>In 1984, two CRD guide tubes were removed which allowed access below the core plate. A VT-3 inspection was performed on the shroud support legs. No problems were observed.</p> <p>Note: Monticello has an oval shaped access hole cover. This design is superior to the round design in that it provides more shroud support plate material between the access hole cover welds and the vessel wall.</p>
	2000	EVT-1	Core Plate Support Ring at 65°, 185°, and 305°
		EVT-1	H8 and H9 Welds at Manway Cover Areas
		VT-1	Access Hole Cover Plate Welds at 0° and 180°
		VT-3	<p>Shroud Support Legs (14)</p> <ul style="list-style-type: none"> <li>Crack indication in the 210° shroud support leg to shroud support cylinder weld. The majority of the indication appears to be contained within the weld material, with the lower tip extending into the shroud support leg base material.</li> </ul>
Core Spray Piping	1980's to 1996	VT-1	<p>IEB 80-13 of piping and welds in annulus. No indications reported visually.</p> <p>UT of slip joint welds per BWRVIP-18 in 1996 identified one indication on the ID of the B core spray pipe.</p> <p>Note: Although the flaw was not through-wall, the evaluation conservatively treated the flaw as</p>

			<p>through wall. As a result, the evaluation determined that the operability of the core spray system was not impaired. Therefore no repair is scheduled at this time.</p>																												
	1998	UT	<p>UT of the following welds in 1998 were performed per the BWRVIP-18 guidelines:</p> <p><u>13.5 deg location</u></p> <p>P4A, 42% coverage  P4B, 43% coverage  P5, 100% coverage  P6, 100% coverage  P7, 64% coverage  P4D, 54% coverage</p> <p><u>166.5 deg location</u></p> <p>P4A, 41% coverage  P4B, 72% coverage</p> <p><u>193.5 deg location</u></p> <p>P4A, 26% coverage  P4B, 43% coverage</p> <p><u>346.5 deg location</u></p> <p>P4A, 44% coverage  P4B, 62% coverage</p> <p>Flaws identified during the 1998 RFO inspection were all located at the 13.5 deg location and are listed as follows:</p> <table> <tr> <th>Weld/</th><th colspan="2">Start Location</th><th></th></tr> <tr> <th>Flaw #</th><th>Start</th><th>End</th><th>Flaw Length</th></tr> <tr> <td>P5/1</td><td>313 °</td><td>351°</td><td>1.83"</td></tr> <tr> <td>P6/1</td><td>343 °</td><td>37°</td><td>2.78"</td></tr> <tr> <td>P6/2</td><td>55 °</td><td>74°</td><td>0.97"</td></tr> <tr> <td>P6/3</td><td>87 °</td><td>98°</td><td>0.54"</td></tr> <tr> <td>P6/4</td><td>295 °</td><td>327°</td><td>1.65"</td></tr> </table>	Weld/	Start Location			Flaw #	Start	End	Flaw Length	P5/1	313 °	351°	1.83"	P6/1	343 °	37°	2.78"	P6/2	55 °	74°	0.97"	P6/3	87 °	98°	0.54"	P6/4	295 °	327°	1.65"
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			<p>P6/5      199 °   279°      4.19"</p> <p>P6/6      112 °   145°      1.71"</p> <p>P6/7      175 °   187°      0.60"</p> <p>NOTE: Flaws 1 and 4 on P6 are the only flaws that appear to be through wall.  Flaws 1,2,3,8 on P6 are on the top side of the weld and flaws 4,5,6,7,9 on P6 are on the bottom side of the weld.</p> <p>EVT  An enhanced visual examination was performed on all target welds that were not UT examined. No reportable indications were identified visually.</p> <p>VT-1  Header Piping Brackets to Vessel Wall</p> <p>VT-1  Bracket Bolt Head Tack Welds</p> <p>VT-3  General Condition of Brackets</p> <p>VT-1  Clamp Assemblies on Tee Box Junctions</p> <p>EVT-1  Flaw at 90° Tee Box for Crack Extension</p> <p>EVT-1  Welds P5, P6, P7, P8a, P8b on all 4 Downcomers, and P4a, P4b, P4c, P4d on "A" Downcomer (13°)</p> <p>The crack indication in the 90° core spray tee box to header weld was estimated to be five inches in length during the RF18 Refuel Outage. Image overlaying techniques along with pixel counting software were used to measure the indication during the RF19 Refuel Outage. These more reliable methods of measurement found the indication to be 2.25 inches in length.</p>
Core Spray Sparger	1980's to present	VT-1	<p>IEB 80-13 of welds on sparger. During the 1993 refueling outage, a circumferential crack indication on the core spray loop B header where the</p>

	2000	EVT-1	<p>pipng and the T-box meet was identified. A repair was installed during the 1994 outage. The repair is inspected every refueling outage. No problems have been identified to date.</p> <p>Tee Box Cover Plate (S1), Sparger Branch Welds to Tee Box (S2), Sparger End Caps (S4)</p>
		VT-1	Mounting Brackets and End Brackets (SB)
		EVT-1	Nozzle Welds (S3a, S3b)
		VT-3	<p>Spargers</p> <ul style="list-style-type: none"> <li>• No reportable indications identified.</li> </ul>
Top Guide (Rim, etc.)	1993 and 1994	VT-1	A VT-1 inspection was performed at 15 cell locations which were considered to be high fluence areas. No discrepancies were identified.
	1996 to present		Also inspected every outage are the Hold Down Latches, Top Guide Ring Bolts and Top Guide Beams. No indications have been identified to date.
	2000	VT-1	Ring Bolts (80 Total)
		VT-1	Hold Down Latches
		EVT-1	Rim Welds at 4 Locations Adjacent to Guide Blocks
		VT-3	<p>Guide Blocks and Aligner Pins</p> <ul style="list-style-type: none"> <li>• No problems identified.</li> </ul>
Core Plate (Rim, etc.)	N/A	N/A	N/A
SLC	1984 & 1989	LP	<p>Section XI performed baseline in 1984 and reinspected in 1989, of the following welds:</p> <p>Nozzle number 10 was inspected at the inner radius to vessel weld, safe end weld, and tee to safe-end weld.</p>

			Inspections have identified minor indications which appear to have been determined to be manufactured induced.
Jet Pump Assembly	1993-1996	VT-1	<p>VT-1 of the following components performed every refueling outage for each jet pump:</p> <ol style="list-style-type: none"> <li>1. Beam Bolt &amp; Tack Welds.</li> <li>2. Lock Plate, 2 Plug Welds, 4 Tack Welds.</li> <li>3. Hold Down Beam (Latched Position)</li> <li>4. Inlet.</li> <li>5. Inlet Mixer Coupling.</li> <li>6. Wedge and Restrainer.</li> <li>7. Set Screw Tack Welds.</li> <li>8. Transition Piece.</li> <li>9. Upper (Original) Brace &amp; Reclad Area.</li> <li>10. Lower (Modification) Brace &amp; Reclad Area.</li> <li>11. Sensing Lines.</li> </ol> <p>Item 7 above had Several tack welds cracked. Weld repair performed on 11 set screws during 1994 outage. Tack welds on jet pump #10 vessel side were discovered to be cracked during the 1996 outage. An evaluation was performed which justified operability of the set screw with the cracked tack welds. No repair was performed.</p> <p>A preemptive repair of the jet pump hold-down beams was performed during the 1982 refueling outage.</p> <p>During the 1989 refueling outage, a jet pump riser brace for jet pump # 7 and # 8 was discovered to be cracked. An evaluation was performed to justify operating with the cracked riser brace. Each refueling outage the crack is reinspected and compared with previous inspection results. To date, no crack growth has been reported.</p>
	1998	EVT	An Enhanced Visual Exam was

20 Jet Pump Assemblies	2000		<p>performed on the high priority riser welds (RS-1, RS-2, RS-3) for Jet Pumps JP-3/4, JP-5/6, JP-7/8 JP-9/10, and JP-17/18. No reportable indications were identified.</p> <p>The following flaws were identified as a result of the IVVI exam:</p> <p>JP-14, Beam Bolt Retainer Tack Weld crack like indication.  JP-18, Crack like indication on upper leaf to yoke weld.  JP-19, Beam Bolt Retainer Tack Weld crack like indication.</p> <p>All 20 Jet Pump Hold Down Beams were UT examined per the BWRVIP-41 document. JP-10 had an indication and was replaced. All other beams had no reportable indications.</p>
		VT-1	Beam Bolt Keeper and Tack Welds
		VT-1	Lock Plate, Flat Head Screws, and Tack Welds
		VT-3	Hold Down Beam
		VT-3	Beam Bolt Retainer
		VT-3	Rams Head and Inlet Suction Area
		VT-1	Riser Brace Attachments to Vessel Pad (RB-1 on Primary and Secondary Riser Braces)
		VT-1	Riser Brace Leaf to Yoke Welds (RB-2 on Primary and Secondary Riser Braces)
		VT-1	Riser Brace to Riser Welds (RS-8 to RS-11 on Primary and Secondary Riser Braces)
		VT-3	Inlet to Mixer Clamp Bolting (IN-5)

		VT-1	Wedge Assembly
		VT-1	Restrainer Bracket, Set Screws, and Welds, Including Gaps
		VT-1	Slip Joint
		VT-1	Sensing Line Attachment Welds to Brackets
		VT-1	<p>Bracket to Diffuser Welds</p> <ul style="list-style-type: none"> <li>• Crack indication in the #17 Jet pump beam bolt retainer tack weld.</li> <li>• Crack indication in the #10 jet pump vessel side restrainer set screw</li> <li>• Crack indication in the jet pump #19 secondary riser brace lower leaf to block weld. The indication appears to travel approximately 50% across the width of the leaf and is contained within the block material. It also appears to have propagated radially into the block to reactor vessel pad weld.</li> </ul> <p>The examinations performed also reconfirmed previously recorded and unrepaired relevant indications in the following reactor vessel internal components:</p> <ul style="list-style-type: none"> <li>• Crack indication in the #14 jet pump beam bolt retainer tack weld. (CR19980794)</li> <li>• Crack indication in the #19 jet pump beam bolt retainer tack weld. (CR19980794)</li> <li>• Crack indication in the 325° steam dryer jacking bolt tack weld. (CR19980794)</li> </ul>

			<ul style="list-style-type: none"> <li>Crack indication in the #8 jet pump secondary riser brace lower leaf to vessel block weld. No apparent crack growth was observed. (SRI 89-028)</li> </ul> <p>Due to enhanced inspection and measurement techniques, evaluation of the previously recorded indications on the following components has changed since the RF18 Refueling Outage:</p> <p>The crack indication previously reported in the #18 jet pump secondary riser brace upper leaf to yoke weld has been determined to be weld geometry. An RCS 600 color camera, along with auxiliary lighting was used to reinspect the previously recorded indication during the RF19 Refuel Outage. This technique clearly showed the indication to be the juncture of two weld passes.</p>																																																			
Jet Pump Diffuser	1996	VT-1	Perform VT-1 inspection per the IVVI program each refueling outage. No indications have been identified to date.																																																			
	1998	UT	<p>The following Jet Pump Diffuser welds were UT examined from the ID per the BWRVIP-41 guidelines:</p> <table> <tr> <th>Jet Pump</th><th>Weld #</th><th>Coverage</th><th>Results</th></tr> <tr> <td rowspan="5">JP-14</td><td>DF-2</td><td>100%</td><td>NRI</td></tr> <tr> <td>DF-3</td><td>100%</td><td>NRI</td></tr> <tr> <td>AD-3A</td><td>100%</td><td>NRI</td></tr> <tr> <td>AD-3B</td><td>100%</td><td>NRI</td></tr> <tr> <td>AD-2</td><td>100%</td><td>NRI</td></tr> <tr> <td rowspan="5">JP-16</td><td>MX-2</td><td>100%</td><td>NRI</td></tr> <tr> <td>MX-4</td><td>100%</td><td>NRI</td></tr> <tr> <td>DF-2</td><td>100%</td><td>NRI</td></tr> <tr> <td>DF-3</td><td>100%</td><td>NRI</td></tr> <tr> <td>AD-3A</td><td>100%</td><td>NRI</td></tr> <tr> <td rowspan="5">JP-17</td><td>AD-3B</td><td>100%</td><td>NRI</td></tr> <tr> <td>AD-2</td><td>100%</td><td>NRI</td></tr> <tr> <td>DF-2</td><td>100%</td><td>NRI</td></tr> <tr> <td>DF-2</td><td>100%</td><td>NRI</td></tr> <tr> <td>AD-3A</td><td>100%</td><td>NRI</td></tr> </table>	Jet Pump	Weld #	Coverage	Results	JP-14	DF-2	100%	NRI	DF-3	100%	NRI	AD-3A	100%	NRI	AD-3B	100%	NRI	AD-2	100%	NRI	JP-16	MX-2	100%	NRI	MX-4	100%	NRI	DF-2	100%	NRI	DF-3	100%	NRI	AD-3A	100%	NRI	JP-17	AD-3B	100%	NRI	AD-2	100%	NRI	DF-2	100%	NRI	DF-2	100%	NRI	AD-3A	100%
Jet Pump	Weld #	Coverage	Results																																																			
JP-14	DF-2	100%	NRI																																																			
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JP-16	MX-2	100%	NRI																																																			
	MX-4	100%	NRI																																																			
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JP-17	AD-3B	100%	NRI																																																			
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	AD-3A	100%	NRI																																																			



			AD-3B 100% NRI AD-2 100% NRI
		EVT	An Enhanced Visual Exam from the ID was performed on the high priority diffuser welds (DF-2, DF-3 and AD-2) for Jet pumps JP-11, JP-12, JP-13, JP-15, JP-18, JP-19 and JP-20. No reportable indications were identified.
CRD Guide Tube	N/A	N/A	N/A
CRD Stub Tube	N/A	N/A	N/A
In-Core Housing	N/A	N/A	N/A
Dry Tube	80's to present	VT	In 1987, 6 out of 12 dry tubes were replaced with a new improved design. Visual inspection performed on the remaining 6 old style dry tubes every other refueling outage. No problems have been observed to date.
Instrument Penetrations		VT-1	Visual inspection of the instrument lines and penetrations performed per the IVVI program. No indications observed to date.
Vessel ID Brackets		VT-1	VT-1 inspections of jet pump riser brace, dryer, feedwater sparger, core spray, guide rod bracket and surveillance capsule holder brackets, performed every refueling outage. No problems identified to date.
LPCI Coupling	N/A	N/A	Not applicable to this plant.

## FUTURE INSPECTION PLAN

### Shroud

1. Based on Table C-9 of BWRVIP-76 Core Shroud Flaw Evaluation Guidelines document, the next shroud inspection for Monticello would not need to be scheduled until the 2005 RFO for welds H1, H2, H4 – H7. Currently, H3 is scheduled for the 2001 RFO, however, Monticello is pursuing further analysis to get H3 on the same schedule as the rest of the welds.

#### Core Spray

1. The current plan is to perform a UT exam of the target welds during the 2001 RFO with a contingency to repair in place if required. No replacement of the piping is scheduled to date.

#### Vessel Augmented Beltline Weld Exam

1. Due in 2002, will be performed during the 2001 RFO.

#### IVVI

1. Performed every outage.

#### Jet Pump Riser Piping

1. Future enhance visual exams will be performed as required by the BWRVIP-41 guidelines. Next inspection of 50% of the riser and diffuser welds is not required per BWRVIP-41 until the 2003 RFO.

## Reactor Internals Inspection History

Plant: Nine Mile Point 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	RF03 October 1993	IVVI (VT-3)	H1, H2, H7 OD H3, H4, H5 ID No reportable indications
	RF06, 1998 Then, even numbered outages	UT	RF06 (5-98) - Base line UT exams performed. Welds H1 through H7 inspected with indications observed in all but weld H6. Indications varied from approximately 2% to 85% of length inspected with maximum depth of 0.65 inches. All indications acceptable for continued operation. Welds V12 through V17 inspected with no indications observed.
		UT	RF07 (3/00) Performed UT exams of H4 & H5 only. Crack growth was within established limits. EVT-1 50% of H9A & H9B (no indications found) No other exams performed.
Shroud Support	RF04 May 1995	IVVI (VT-3)	The shroud support access hole cover welds were found to be free of radial cracking.
	Every 10 years	VT	Continue access hole cover welds per BWRVIP RF06 (5-98) - No Inspections Performed  RF07 (3/00) - No Inspections performed
Core Spray Piping	RF01 - October '90 RF02 - March '92	IVVI (VT-3)	No indications

	RF04 - May '95		
	RF06, 1998	UT, EVT-1	Base line follow BWRVIP RF06 (5-98) - No Indications EVT-1 only, no UT
		EVT-1	RF07 (3/00) – Per BWRVIP-guidelines, 100% of target welds and 25% of remaining welds. No indications found
Core Spray Sparger	RF01 - October '90	IVVI (VT-3)	No indications
	RF02 - March '92		
	RF04 - May '95		
	RF06, 1998	VT	Follow BWRVIP RF06 (5-98) - No Indications EVT-1 & MVT
		VT	RF07 (3/00) Per BWRVIP guidelines - 1 sparger (welds S3a, S3b, S3c & brackets) No indications found
Top Guide (Rim, etc.)	RF01 - October '90	IVVI (VT-3)	No indications
	RF02 - March '92		
	RF04 - May '95		
	RF06, 1998	VT-3	Examine Wedges & Clips Follow BWRVIP RF06 (5-98) - No Indications Bottom edge of beams
		VT	RF07 (3/00) – Limited inspection on the 4 “C-clamps” . Limited due to fuel cells not removed. Scheduled for RF08 to meet BWRVIP requirements
Core Plate (Rim, etc.)	None	N/A	N/A
	RF-06, 1998	VT-3	Examine Bolt Locking Device per SIL

			588R1 RF06 (5-98) - No Indications Core plate bolting & Core plate  RF07 (3/00) No inspections performed
SLC	RF04 - May, 1995	LP  LP	Core plate $\Delta P$ only this unit 2RPV-KB34 No reportable indications  2RPV-KB34 provides core $\Delta P$ only Nozzle exams per code RF06 (5-98) - No Inspections  RF07 (3/00) No Inspections performed
Jet Pump Assembly	RF01 - October '90 RF02 - March '92 RF04 - May '95 RF05 - Nov. '96	IVVI (VT-1)	Replaced Beams RF04 Adjusting screws gap RF04-RF05 Adjusting screws tackwelds RF01, 2, 5
Jet Pumps 1 thru 10	RF10 Every 10 years RF06	VT  EVT-1 VT-1	Beams replaced in RF04 Set screw gaps and jackweld cracks, as required  RF06 (5-98) - No Indications Welds RS-1, RS-2 & RS-3 Riser Brace Riser welds RB-1, RB-2, RB-8 & RB-9
Jet Pumps 5, 6, 11, 12, 19, 20	RF06  Expanded Scope	VT-1	RF06 (5-98) - Beam engagement, Rams head seating, Set screw gap & tack welds, and wedge assembly
Jet Pumps 5,6,15,16		VT	RF07 JP 5 & 6 reinspected wedges for previously identified movement, no major change noted
Jet Pump Diffuser	RF01 - October '90 RF02 - March '92	IVVI (VT-3)	Each outage exam of jet pump sensing lines  No indications

	RF03 - October '93 RF04 - May '95 RF05 - November '96  Every outage	VT-3	Jet pump sensing lines Each outage RF06 (5-98) - ISI Program plan has no special inspection frequency, it is performed during the code required B-N-1 examinations.  RF07 (3/00) JP 5,6,15,16 Inlet mixers, crude buildup noted
CRD Guide Tube	None  Only when accessible	N/A  VT	N/A  RF06 (5-98) - N/A RF07 (3-00) - No inspections performed
CRD Stub Tube	None  Only when accessible	N/A  VT	N/A  RF06 (5-98) - N/A RF07 (3/00) - No inspections performed
In-Core Housing	None  Only when accessible	N/A  VT	N/A  RF06 (5-98) - N/A RF07 (3/00) No inspections performed
Dry Tube	RF01 - October '90 RF04 - May '95 RF05 - Nov '96	IVVI (VT- 3)    VT-1	Bent plunger found @RF04 Replaced @RF05   RF06 (5-98) - Examined 12 Dry Tubes, 3 were reported separation at the collar to shaft interface RF07 (3/00) - No inspections performed

Instrument Penetrations	None		Only 1 nozzle requires inspection in RF08
	RF08	UT	N-14 Only required by SIL 571 RF06 (5-98)-No Inspections performed RF07 (3/00) - No inspections performed
Vessel ID Brackets	RF01 - October '90 RF02 - March '92 RF04 - May '95	IVVI (VT-3)	50% riser brace welds each outage No indications
	50% riser brace welds each outage	VT	As required by BWRVIP RF06 (5-98) - No Indications Jet Pumps 1 thru 10 riser brace welds RF07 (3/00) - No inspections performed
LPCI Coupling	None	N/A	No specific exam in inspection plan.
	N/A	N/A	No specific exam in inspection plan. RF06 (5-98) - No Inspections
		VT	RF07 (3/00) – Per BWRVIP guidelines one LPCI coupling was examined. No indications found

## Reactor Internals Inspection History

Plant: Quad Cities 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	4/95	EVT-1 and UT	<p>Inspections per BWRVIP Guidelines of all Shroud repair design reliant hardware prior to installation of comprehensive repair (4 GE designed tie-rod assemblies). Inspection of shroud consisted of EVT-1 of all ring segment welds (100% of accessible ring surfaces examined), EVT-1 of vertical welds between H1 &amp; H2 OD surface &gt;35% length/weld (ID not accessible), UT of all 6 beltline vertical welds &gt;30% length/weld, and EVT-1 of vertical welds between H6 &amp; H7 OD surface &gt;22% length/weld (ID not accessible). Approximately 51" of 356" examined at the core plate support ring weld (HAZ of H5) had indications (H5 is structurally replaced by comprehensive shroud repair). All other areas examined had NO Reportable Indications.</p> <p>Performed EVT-1 on all shroud vertical welds adjacent to beltline (six verticals, 100% of accessible OD surfaces). NO Reportable Indications.</p>
	3/97	EVT-1, VT-3	<p>Performed VT-3 of all four tie-rod assemblies. One reportable indication related to original installation of locking device at upper spring, not service induced. Properly latched locking device.</p>
	1/00	ET/UT	<p>Performed automated volumetric examination (TEIDE 2 tooling) of shroud vertical welds V-14 through V-19 in</p>



			accordance with BWRVIP-03, BWRVIP-07 and BWRVIP-63. NO Reportable Indications.
Shroud Support	4/95	EVT-1	EVT-1 of H8 and H9 for approx 10" -12" at 4 locations of shroud repair hardware attachment areas.  Access hole covers; VT/UT in 1991, circ indications observed and permanent repair installed 1993.
	1/00	EVT-1	Performed visual examination of H8 and H9 in accordance with BWRVIP-38 adjacent to AHC between jet pumps #20 - #1 (e.g. at least 10% of total circumference examined). NO Reportable Indications.
Core Spray Piping	1980's to 1996	VT-1 (1 mil)	IEB 80-13/NUREG of piping and welds in annulus. No indications observed.
	3/97	UT, EVT-1	UT or EVT-1 performed in accordance with BWRVIP-18. Two indications (1.60" and 2.25" in length) observed at slip joint (P6), evaluated for at least 48 months of hot operation.
	1/00	EVT-1	Performed visual examination of P4d and P8a (4 connections) and P2 at both T-boxes in accordance with BWRVIP-18. NO Reportable Indications.
Core Spray Sparger	1980's to 1996	VT-1 (1 mil)	IEB 80-13/NUREG of welds on sparger. No indications found
	3/97	CSV-1, VT-3	CSV-1, VT-3 performed in accordance with BWRVIP-18, geometry tolerant. No Reportable Indications.
	1/00	N/A	No examinations performed.
Top Guide (Rim, etc.)	4/95	VT-1	VT-1 of 5 cells. No indications. VT-1 of alignment assemblies. No indications.
	4/97	VT-1	VT-1 of alignment assemblies and adjacent rim weld. No Reportable Indications.

	1/00	N/A	No examinations performed.
Core Plate (Rim, etc.)	N/A	N/A	Core Plate Wedges installed 4/97.
SLC	1/00	UT	Performed volumetric examination of nozzle to safe-end weld in accordance with BWRVIP-27. NO Reportable Indications.
Jet Pump Assembly	3/93	VT-1	JP#7 and JP#18 set screws backed out, repaired and tack welded.
	4/95	VT-1	Hold down beams, beam bolt keepers, lockplates and retainers; restrainer wedges, stops, and adjusting screws, clamp bolts and keepers; riser brace assemblies, adapter and baffle plate welds, sensing lines and sensing line brackets per various SILS. NO Reportable Indications. Inspect 100% every other outage.
		UT	Performed UT examination of jet pump beams. JP#7 beam rejectable indication at center hole region. Beam replaced.
	4/97	UT/EVT-1	Performed UT examination of jet pump beams using technique capable of detecting cracking at throat and ears. NO Reportable Indications. Performed visual examination of RS-1,-2,-3 riser welds. NO Reportable Indications.
	1/00	UT/ET or EVT-1	Performed examinations of at least 50% of the medium and high priority jet pump assembly welds in accordance with BWRVIP-41 using combination of automated (e.g. TEJET tooling) volumetric and visual techniques. JP#15 observed possible wedge (WD-1) movement, expanded inspection to include restrainer components, with no relevant indications. All other components NO Reportable Indications.
Jet Pump Diffuser	4/95	VT-1	Diffuser to baffle plate welds examined.

			No reportable indications.
	1/00	N/A	See Jet Pump Assembly.
CRD Guide Tube	4/97	VT-3	Performed visual examination of CRGTs G-7 and H-8 while removed from core. NO Reportable Indications.
CRD Stub Tube	N/A	N/A	N/A
In-Core Housing	N/A	N/A	N/A
Dry Tube	4/97 1/00	VT VT	Replaced 6 dry tubes 1997. Dry tubes examined every other outage. Plunger engagement verified each outage.  Verified plungers engaged at Top Guide. NO Reportable Indications.
Instrument Penetrations	4/97	VT-3	Examined during periodic ASME Section XI visual B-N-1 examination. NO Reportable Indications.
Vessel ID Brackets	4/95	VT-1 and VT-3	Section XI inspections of jet pump riser brace, dryer, feedwater sparger, core spray, and surveillance capsule holder brackets, performed once per interval. VT-3, or VT-1 if in beltline region. NO Reportable Indications.
LPCI Coupling	N/A	N/A	Not applicable to this plant.