

BWR Vessel and Internals Project,
Vessel Internals Inspections Summaries
April 1997

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Reactor Internals Inspection History

Plant: Browns Ferry Nuclear Plant: 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	1994-1996	UT	Baseline (1994) per GE SIL No. 572 for circumferential seam welds - indications found in several welds (H-2, H-3, H-5). Reinspection (1996) per GE SIL No. 572 - indications found in H-1, H-6, and H-7 welds along with previous indications. Full structural margins on flawed welds for at least one additional operating cycle. Vertical welds not inspected.
Shroud Support	1996	UT	Access Hole Cover Welds at 0° and 180° UT examined in both the radial and circumferential directions per the requirements of GE SIL No. 462. No reportable indications were recorded on either cover.
Core Spray Piping	1996	EVT-1 and VT-1	IEB 80-13/GE SIL No. 289 R1S2 of piping and welds in annulus. No reportable indications.
Core Spray Sparger	1996	VT-1	IEB 80-13 of welds on sparger. One small indication in lower tack weld of the nozzle to "B" sparger in Nozzle 3B. No other indications were recorded.
Top Guide (Rim, etc.)	1996	VT-1	Lower side of beams (in cells where fuel and blade guides are removed) VT-1 inspected in accordance with GE SIL No. 554. No indications were recorded.
Core Plate (Rim, etc.)	1996	VT-1	The core plate bolts were visually inspected in accordance with GE SIL No. 588. No indications were recorded.
SLC		LP	

Jet Pump Assembly	1996	VT-1 and VT-3	1996 VT-3 inspection of sensing lines per GE SIL No. 420 - no indications recorded. Jet pump throats inspected per GE SIL No. 465 for Jet Pumps 11 and 12 - build-up found in inlet mixer that will require internal cleaning during next refueling outage. Riser braces for Jet Pumps 11-20 inspected per GE SIL No. 551 - no indications were recorded. Jet pump adjusting screws inspected per GE SIL No. 574 - minor indications on set screw tack welds for Jet Pumps 1, 11, and 12 that were evaluated and determined to be irrelevant due to their small size. Jet pump beams replaced with beams manufactured from a modified heat treatment material during the Cycle 5 Outage (prior to 1991). No inspection has been performed since the replacement.
Jet Pump Diffuser	N/A	N/A	N/A
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	1994	VT	Dry tubes inspected during U2C7 Refueling Outage per the requirements of GE SIL No. 409. Cracking was observed; tubes replaced with modified design which is resistant to cracking during U2C7 Refueling Outage. No inspections performed since.
Instrument Penetrations		LP	Visual leak check is performed during each refueling outage. No reportable indications.
Vessel ID Brackets	1996	VT-1 and VT-3	The dryer support brackets, guide rod brackets, feedwater sparger brackets, core spray piping brackets, jet pump riser support bracket, and shroud support were visually inspected in accordance with BFN Surveillance Instruction 2-SI-4.6.G. No indications were recorded.

LPCI Coupling	N/A	N/A	Not applicable to this plant
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Reactor Internals Inspection History

Plant: Browns Ferry Nuclear Plant: Unit 3

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Result, Repairs, Replacements, Reinspections
Core Shroud	1994-1997	UT	Baseline (1994) per GE SIL No. 572 for circumferential seam welds - indications found in several welds (H-1, H-4, H-5). Reinspection (1997) per GE SIL No. 572 - indications found in H-7 weld along with previous indications. Full structural margins on flawed welds for at least one additional operating cycle. Vertical welds not inspected.
Shroud Support	1994	VT	Manway cover inspected during U3C6 Refueling Outage per the requirements of GE SIL No. 462. No reportable indications were found.
Core Spray Piping	1994-1997	EVT-1, UT, VT-1	IEB 80-13/GE SIL No. 289 R1S2/BWRVIP-018 of piping and welds in annulus. Indications found during U3C6 Refueling Outage in T-box to pipe weld - both T-boxes repaired with brackets. Indications found during U3C7 Refueling Outage on welds P4d (two minor indications, total flaw length of 1.4 inches) and P8b (79% of total weld length) in Downcomer "C" piping. No other indications found.
Core Spray Sparger	1981-1997	VT-1	IEB 80-13/GE SIL No. 289 R1S1R1 of welds on sparger. Minor indications found. Reinspection performed in 1997 showed no change in indications.
Top Guide (Rim, etc.)	1994	VT-1	VT-1 performed per the recommendations of GE SIL No. 554. No indications found.

Core Plate (Rim, etc.)	1994	VT-1	VT-1 performed per the recommendations of GE SIL No. 588. No indications found.
SLC		LP	
Jet Pump Assembly	1994-1997	VT-1 and VT-3	1994 VT-3 inspection of sensing lines per GE SIL No. 420, reinspection in 1997 - no indications in either inspection. All riser braces inspected in 1994 per SIL No. 551 - cracks found between riser and riser brace on Jet Pumps 5 and 6. Repair was conducted with installation of Jet Pump Riser Brace Clamp. 1997 reinspection for Jet Pumps 1-10 - no indications found. Jet pump adjusting screws inspected in 1994 per SIL No. 574 - no indications found. Reinspection in 1997 identified a minor indication on Jet Pump No. 6, shroud side, set screw tack weld. Set screw contact verified to be acceptable per GE RICSIL No. 078. Jet pump riser elbow circumferential welds (upper and lower) inspected in 1997 per GE SIL No. 605 R1 - no indications found. Jet pump beams replaced with beams manufactured from a modified heat treatment material in 1994. No inspection has been performed since the replacement.
Jet Pump Diffuser	N/A	N/A	N/A
CRD Guide Tube	1994		Guide tubes vacuumed and inspected during U3C6 Refueling Outage - no reportable indications noted.
CRD Stub Tube	N/A	N/A	N/A
In-Core Housing	N/A	N/A	N/A
Dry Tube	1994	VT	Dry tubes replaced with modified design which is resistant to cracking. No inspections performed since.
Instrument Penetrations		LP	Visual leak check is performed during each refueling outage. No reportable indications.

Vessel ID Brackets	1997	VT-1 and VT-3	The dryer support brackets, guide rod brackets, feedwater sparger brackets, core spray piping brackets, jet pump riser support bracket, and shroud support were visually inspected in accordance with BFN Surveillance Instruction 3-SI-4.6.G. No indications were recorded.
LPCI Coupling	N/A	N/A	Not applicable to this plant.

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	
	1996	UT	Reinspected H1 & H5 with no indication growth. 2 repair brackets inspected with no indications noted. 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 noted.
Shroud Support	1993	VT	VT of accessible areas on H8, H9, and access hole covers with no indications noted.
	1995	UT	UT baseline of H9 and VT reinspection of portions of H8. No indications.
	various	UT and VT	Access hole covers have been ultrasonically tested with no indications noted. EVT-1 performed in 1996 with no indications noted.
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 found.

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 found.
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.
Core Plate (Rim, etc.)	1993	VT-1	Holddown bolts from topside and partial surface areas. No indications noted.
SLC	1988	LP	No examinations performed on internal piping. Section XI LP performed on nozzle to safe end welds. No indications noted.
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. Latest inspected in 1995. Jet pump beams replaced in Fall, 1993. No indications noted, as well as in old jet pump beams.
Jet Pump Diffuser	start-up to present	VT-3	Adapter and diffuser welds inspected once per period. No indications noted. Last inspected in 1995.
CRD Guide Tube	1993	VT-3	Inspected accessible surfaces of approximately 75% of total population with no indications noted.
CRD Stub Tube	1993	VT-3	Inspected accessible surfaces of approximately 75% of total population with no indications noted.
In-Core Housing	Fall, 1993	VT	No indications noted.
Dry Tube	Fall, 1993	VT	No indications noted. Replaced dry tubes 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 noted.

Vessel ID Brackets	1993-1996	VT-1 in beltline area; VT-3 other areas	Section XI inspections of dryer, feedwater sparger, core spray, and surveillance capsule holder brackets performed once per interval. Last inspection Fall, 1996. No indications noted.
LPCI Coupling	NA	NA	Not applicable to Brunswick.

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 and no indications on vertical welds. Full structural margins on non-repaired welds.
	1996	UT	UT reinspect 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.
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.
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. Inspected per BWRVIP-18 in Fall 1996 with no growth and no new indications found.

Core Spray Sparger	1980's to Present	MVT1, 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. Inspected per BWRVIP-18 in Fall 1996 with no new indications found.
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 holddowns examined in 1996 with no indications noted.
Core Plate (Rim, etc.)	1993	VT-1	Holddown bolts from topside and partial surface areas. No indications 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.
Jet Pump Diffuser	to present	VT-3	Adapter and diffuser welds inspected once per period 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 1998
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 area and VT-3 in other areas	Section XI inspections of dryer, feedwater sparger, core spray, and surveillance capsule holder brackets performed once per interval. Last inspections in 1996 with no indications noted.
LPCI Coupling			Not applicable to Brunswick.

Reactor Internals Inspection History

Plant: Clinton Power 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	Fall, 1998	VT-1/UT	Clinton will perform the inspection during the next refueling outage, which is tentatively scheduled in the Fall of 1998. Clinton has not met the eight (8) years hot operation requirement.
Shroud Support	92, 95	VT-3	VT-3 of shroud ledge to vessel, no indication.
Core Spray Piping	89	VT-1	Used 1EB 80-13 one mil wire requirement. No indications.
Core Spray Sparger	89	VT-1	Used 1EB 80-13 one mil wire requirement. No indications.
Top Guide (Rim, etc.)	92, 95	VT-3	Top guide hold down bolts. No indication.
Core Plate (Rim, etc.)	N/A	N/A	N/A
SLC	N/A	N/A	N/A
Jet Pump Assembly	89-96	VT-1/VT-3	1/3 of JP assemblies every other outage. Adapter and diffuser welds, riser brace brackets, wedges, set screws, tack welds, sensing lines. Performed UT of jet pump beams in 93. No indications. Jet pump beams replaced in 95.
Jet Pump Diffuser	N/A	N/A	N/A
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	93 & 96	VT-3	No indications.
Instrument Penetrations	N/A	N/A	N/A

Veslei ID Brackets	Every Interval	VT-1/VT-3	Jet pump riser brace, dryer, feedwater spargers, core spray, surveillance capsule holder performed once per interval. VT-3 or VT-1 if in beltline region.
LPCI Coupling	N/A	N/A	N/A
Access Hole Cover	96	VT-3	No indications.

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	UT	Baseline UT performed on welds H1 through H7 per BWRVIP guidelines. Several indications identified in circ welds. No repair required.
Shroud Support	93-95	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
Core Spray Piping	1980's to present	VT-1 and UT	IEB 80-13 exams of piping and welds in annulus. Three indications identified in Fall 1995 outage by EVT-1. No repair required. BWRVIP-18 baseline exam planned for Spring 1997 outage (UT and VT).
Core Spray Sparger	1980's to present	VT-1	IEB 80-13 of welds on sparger. No indications. BWRVIP-18 baseline exam planned for Spring 1997.
Top Guide (Rim, etc.)	91-95	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).
Core Plate (Rim, etc.)	95	VT-3	Hold down bolts examined in 1995 per SIL 588. No indications.
SLC	86-95	VT-2	VT-2 exam of SLC penetration during RPV pressure test each outage.

Jet Pump Assembly	86-95	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.
Jet Pump Diffuser	86-95	VT-3	10 Jet Pumps VT-3 examined each outage. No indications.
CRD Guide Tube	95	VT-3	VT-3 exams of accessible guide tubes in 1995. No indications.
CRD Stub Tube	NA	NA	No record of examination back to 1986.
In-Core Housing	NA	NA	No record of examination back to 1986.
Dry Tube	89-91	VT	VT exam in 1989, 1990, and 1991 per SIL 409R1. All dry tubes replaced in 1993.
Instrument Penetrations	86-95	VT-2	VT-2 exam during RPV pressure test each outage.
Vessel ID Brackets	86-95	VT-1 and VT-3	ASME XI VT-3 exams (VT-1 if in beltline region) of jet pump riser brace, dryer, feedwater sparger, core spray, guide rod, 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: 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 & H2 from OD surface (ID not accessible), UT of between 30% and 50% of the length of each of the 6 beltline vertical welds, EVT-1 of between 43% and 72% of the length of 2 of the 3 vertical welds between H6 & H7 from OD surface (ID not accessible), and UT of 35% of the length of the remaining vertical weld between H6 and H7.</p> <p>No Reportable Indications.</p> <p>Future inspections to be in accordance with BWRVIP-07; Reinspection of Repaired Core Shrouds.</p>

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.
Core Spray Piping	1980's to present	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 and two collar to shroud pipe welds in 1995. All flaw lengths verified with UT. Full structural margins met on all three flawed welds for additional cycle. No repairs performed. Future inspections per BWRVIP-18.
Core Spray Sparger	1980's to present	VT-1 (1 MIL)	IEB 80-13 (1 MIL) VT-1 of spargers and tee-boxes. No indications found. Future inspections per BWRVIP-18.
Top Guide (Rim, etc.)	8/95	VT-1 VT-1 VT-1	VT-1 of 5 cells. No indications. VT-1 of all 4 alignment assemblies. VT-1 of rim to bottom plate weld at 4 locations. No indications identified.
Core Plate (Rim, etc.)	N/A	N/A	Installed core plate wedges in conjunction with comprehensive shroud repair in summer 1995.
SLC	N/A	N/A	N/A.

Jet Pump Assembly	8/95	VT-1	<p>Hold down beams, beam bolt keepers, load 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.</p> <p>Latest inspections were in 1995, with no reportable indications.</p> <p>Inspect 100% every other outage.</p>
		UT	<p>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.</p>
Jet Pump Diffuser	8/95	VT-1	<p>Diffuser to baffle plate welds on all 20 jet pumps. No indications.</p>
CRD Guide Tube	8/95	VT-1 (1 MIL)	<p>11 CRD guide tube lower assembly welds, 2 CRD guide tube upper assembly welds, 4 CRD guide tube alignment ear welds.</p> <p>No indications identified.</p>
CRD Stub Tube	8/95	VT-1 (1 MIL)	<p>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.</p> <p>No indications identified.</p>
In-Core Housing	8/95	VT-1 (1 MIL)	<p>4 incore guide tube to housing welds, 4 incore housing to RPV bottom head welds, 4 incore guide tube stabilizers.</p> <p>No indications identified</p>
Dry Tube	8/95	VT-1	<p>No indications identified.</p> <p>Examined every other outage.</p>
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: 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	<p><u>Inspections Planned Spring 1997:</u> Inspections per BWRVIP Guidelines of all shroud repair design reliant structure prior to installation of comprehensive repair (4 GE designed tie-rod assemblies). Inspection will consist 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.</p> <p>Future inspections to be in accordance with BWRVIP-07; Reinspection of Repaired Core Shrouds.</p>
Shroud Support	4/97	EVT-1	<p><u>Inspections Planned Spring 1997:</u> EVT-1 of H8 and H9 for approx 12" at 4 locations of shroud repair hardware attachment areas.</p>
	4/94	UT/VT-1	Access hole cover VT/UT for circ and radial flaws. No indications identified.

Core Spray Piping	1980's Through 1994 4/97	VT-1 (1MIL) UT/EVT-1	IEB 80-13 (1 MIL) VT-1 of piping and welds in annulus. Indications observed at two lower elbow to downcomer welds. Welds repaired using GE designed clamps. <u>Inspections Planned Spring 1997:</u> UT inspections per BWRVIP-18 of all piping circ welds in annulus. EVT-1 of any piping welds in annulus inaccessible to scanner. Future inspections per BWRVIP-18.
Core Spray Sparger	1980's Through 1994 4/97	VT-1 (1 MIL) EVT-1 / VT-3	IEB 80-13 (1 MIL) VT-1 of spargers and tee-boxes. No indications identified. <u>Inspections Planned Spring 1997:</u> 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 4/97	VT-1 VT-1 / EVT-1	VT-1 of 5 cells. No indications. <u>Inspections Planned Spring 1997:</u> 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	Will install core plate wedges in conjunction with comprehensive shroud repair in spring 1997.
SLC	N/A	N/A	N/A.

Jet Pump Assembly	4/94	VT-1	<p>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.</p> <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>
	4/94	UT	<p>Jet pump beams are UT examined each outage using technique capable of detecting cracking at throat and ears.</p> <p>No indications identified.</p>
Jet Pump Diffuser	4/94	VT-1	Diffuser to baffle plate welds on all 20 jet pumps. No indications.
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> <p>Examined every other outage.</p>
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: 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	93 (every 10 years)	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.
Core Spray Piping	96 (portion every RFO)	VT	Performed Visual Examination (EVT, CSVT, VT-3), baseline per BWRVIP-18, no indications were detected.
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.
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.
Core Plate (Rim, etc.)	95	VT-3	Verified 25% core plate bolts were in place
SLC	93	PT	Liquid Penetrant examination of the nozzle-safeend 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.
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	95 (6 cycles(98) and then every three cycles)	VT-1 (1 mil wire)	Inspected in 1988 with indications reported, replaced with the new design
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

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 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	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.
Shroud Support	RF-03	VT-3	Inspected shroud support gusset weld sand 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.

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.
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.
Top Guide (Rim, etc.) beams	Each outage	VT-3	Inspected rim each outage. No indications.
	RF-03	VT-1	6 locations (RICSIL 059). No indications.
	RF-04	VT-1	6 locations (SIL 554). No indications.
	RF-05	VT-1	15 locations (SIL 554). No indications.
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.
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.

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
Jet Pump Diffuser	Each outage as above	VT-3	This will be inspected during each refueling outage. Same as above
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.
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
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
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.
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.
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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

Reactor Internals Inspection History

Plant: Grand Gulf Nuclear Station Unit I

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	Spring 1995	UT	Baseline per BWRVIP-01. All accessible areas of H3,H4,H6A,H7. No cracks.
	Spring 1995	VT-3	Shroud and general area No failures. (Sil572)
	Spring 1992	VT-1	Shroud shelf weld No failures (Sil572)
Shroud Support	Fall 1996	VT-1 , above core plate.	Sect XI , Period 3 of 10yr interval. RF05,6 Attachment weld to vessel and shroud plate to shroud weld. No failures.
	Spring 1995	VT-3	Access hole cover. No failures. (Sil462)
Core Spray Piping	Fall 1996	VT-3	Augmented exam per IE 80-13 , Each refuel outage. No failures.
	Fall 1996	VT-1	Core spray bracket welds. No failures.
Core Spray Sparger	Fall 1996	VT-3	Augmented exam per IE 80-13 , Each refuel outage. No failures.
Top Guide (Rim, etc.)	Fall 1996	VT-3	Accessible surfaces and fasteners. No failures.
Core Plate (Rim, etc.)	Fall 1996	VT-3	Sect. XI , every outage, under core plate when access is provided ,where access was provided in RF08, camera work was performed . No failures.

SLC	N/A	N/A	N/A
Jet Pump Assembly	Fall 1996	UT,VT	UT exam of beams every outage. Two beams cracked in RF06, and all were replaced with Unit 2 spares. No UT exam done in RF07, but in RF08 all beams were changed out with the new GE design and heat treat spec. components.
Jet Pump Diffuser	Fall 1996	VT-3	No failures reported. Riser brace welds (Sil551) 50% each outage. No failures. Adjusting screws. 100% each outage. No failures.
CRD Guide Tube		VT-3	8 guide tubes. When accessibility permits. No failures.
CRD Stub Tube	n/a	n/a	n/a
In-Core Housing	n/a	n/a	n/a
Dry Tube		VT-3	Every other outage. No failures.
Instrument Penetrations	Fall 1996	VT-3	Every outage. No failures.
Vessel ID Brackets	Fall 1996	VT-1 / VT-3	Sect. XI every 10 years on Attachment welds, other parts of brackets on general VT-3 exam. No failures.
LPCI Coupling	Fall 1996	VT-3 / VT-1	VT-1 on LPCI-C @ Az. 141 due to a previous loose parts impact concern. Performed every outage. No failures.

Reactor Internals Inspection History

Plant: Hatch 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	1991-1996	EVT-1, VT-3 EVT-1	<u>H-1 - H-7 welds</u> : RICSIL 054, SIL 572 - Examined H-4/H-5 welds in '91 & '93. No indications. Stabilizer modification installed '96. BWRVIP-07 - Examine all 4 assemblies once/interval. No indications. <u>Vertical welds</u> : Baseline per BWRVIP-07 in '96. Examine one ring segment weld and 25% of total length of vertical seam welds each outage. Indications in V-5, V-6 in '96 - safe for continued operation.
Shroud Support	1991-96	EVT-1 EVT-1 VT-1, VT-3	<u>H-8, H-9</u> : Examine 0-360° where accessible, from top once/interval. Examined all of H-9 in '94. No indications. <u>Gusset welds</u> : For stabilizer attachments to gussets, examine one support plate gusset weld each outage. Examined in '94 & '96. No indications. <u>Access hole cover</u> : UT in '91 on one cover - no indications. VT in '91 on both covers - no indications. Replaced in '93 with bolted design. Examine visually once each period. No indications.
Core Spray Piping	1981-96	EVT-1	IEB 80-13/NUREG CR-4523. Examined 100% each outage prior to '97. No indications. BWRVIP-18 to be implemented in Fall '97 outage.
Core Spray Sparger	1981-96	EVT-1	IEB 80-13/NUREG CR-4523. Examined 100% each outage prior to '97, including repair clamp. Indications on sparger arm to T-box weld in '84, indications acceptable but repair clamp installed. BWRVIP-18 to be implemented in Fall '97 outage.

Top Guide (Rim, etc.)	1994-96	VT-3 VT-1, VT-3 VT-1, VT-3	<u>Rim, upper/lower plates, bolting:</u> Examine 100% once over interval. No indications. <u>Hold downs, aligners:</u> Examine surfaces & welds once/interval. Examine in '94 & '96. No indications. <u>Grid/beams:</u> SIL-554, VT-1 bottom of intersections and VT-3 surfaces once/interval. Examined 10 cells in '94.
Core Plate (Rim, etc.)	1990-96	VT-3 VT-1, VT-3 VT-3 VT-3	<u>Surfaces:</u> Examine when accessible during CRB exchange, once/interval. No indications. <u>Aligners:</u> Examine surfaces & welds when accessible once/interval. Not normally accessible during refueling. <u>Hold down bolts:</u> Examine when accessible once/interval. Examined in '90, '94. No indications. <u>Wedge assemblies:</u> Installed with shroud stabilizers in '96. Examine one assembly each outage. No indications
SLC	1977-96	VT-2	Not accessible from inside. Portion visible during '93 access hole cover replacement. Examined for leakage from outside during RPV leakage test each outage. No indications.
Jet Pump Assembly	1981-96	VT-1, VT-3 EVT-1 VT-1, VT-3	<u>Assembly:</u> Examine assembly, riser brace pad, restrainer adjusting screw tack welds, riser brace arm tack welds, inlet mixer, sensing line, restrainer set screw gaps once/interval. No indications. <u>Riser welds:</u> To be examined in Fall '97 outage. <u>Hold down beams:</u> Examine once/interval. UT each outage in '81 - '88 outages - indications in 3 beams, replaced with original design. Replaced all beams in '90 with improved design. No indications.
Jet Pump Diffuser	1981-96	VT-1, VT-3	Examine once/interval with jet pump assembly. No indications.

CRD Guide Tube	N/A	VT-3	Examine when accessible once/interval. Not normally accessible from inside. No examinations.
CRD Stub Tube	1977-96	VT-2, VT-3	Examine when accessible once/interval. Not normally accessible from inside. Portions visible during '93 access hole cover replacement - no indications. Examined for leakage from outside during RPV leakage test each outage. No indications.
In-Core Housing	1977-96	VT-2	Examine when accessible once/interval. Not normally accessible from inside. Examined for leakage from outside during RPV leakage test each outage. No indications.
Dry Tube	1987	N/A	SRM/IRM. Replaced all 12 SRM/IRM dry tubes in '87 with improved design. No scheduled exams.
Instrument Penetrations	1993-96	VT-2	N10, N11, N12, N16 nozzles. PT of N11A & B, N12A, N-16 A & B in '93. Indication on N11B adjacent to instrument line connection, affected portion removed and rewelded. Examined during RPV leakage test each outage. No indications.

Vessel ID Brackets	1977-96	VT-1, VT-3	<u>Surveillance specimen brackets:</u> Examine once/interval. Examined in '96. No indications. <u>Jet pump riser brace pads:</u> Examine once/interval. Examined in '88, '90. No indications. <u>Guide rod brackets:</u> Examine once/interval. Examined in '91. No indications. <u>Steam dryer support brackets:</u> Examine once/interval. Exams in '88, '90, '93. No indications. <u>Steam dryer hold down brackets:</u> Examine once/interval. Examined in '94. No indications. <u>Shroud support plate & gussets:</u> Examine once/interval. Examined in '96. No indications <u>Core spray support brackets:</u> Examine every outage. BWRVIP-18 to be implemented in Fall '97 outage. Examined each outage '81-'96. No indications. <u>Feedwater sparger brackets:</u> NUREG-0619, Examine every fourth outage. Examined '90, '91. No indications.
LPCI Coupling	N/A	N/A	Not applicable to Hatch.

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	1997	EVT-1	<u>H-1 - H-7 welds</u> : UT H-1 - H-4 in '94. Indications on all 4 welds, safe for continued operation. Stabilizer modification installed '95. BWRVIP-07 - Examine all 4 assemblies once/interval. No indications. <u>Vertical welds</u> : Baseline all verticals per BWRVIP-07 in '97. Examine 25% of total length of vertical seam welds each outage. No indications.
Shroud Support	1988-1996	EVT-1 VT-1, VT-3	<u>H-8, H-9</u> : Examine 0-360° where accessible, from top once/interval. H-9 examined 4 of 10 areas in '94. Examined 25% in '97. No indications. <u>Access hole cover</u> : VT & UT in '88 on both covers - no indications. VT & UT in '92 on both covers - UT indications in one cover app. 58% thru-wall, no VT indications. Replaced in '94 with bolted design. Examine visually once each period. Examined one cover assembly in '97. No indications.
Core Spray Piping	1980-97	EVT-1	IEB 80-13/NUREG CR-4523. Examined 100% each outage prior to '97. No indications. Baseline per BWRVIP-18 in '97. No indications.
Core Spray Sparger	1980-97	EVT-1	IEB 80-13/NUREG CR-4523. Examined 100% each outage prior to '97. Indications in bracket to shroud welds, safe for continued operation. Baseline per BWRVIP-18 in '97. No indications.

Top Guide (Rim, etc.)	1992-96	VT-3 VT-1, VT-3 VT-1, VT-3	<u>Rim, upper/lower plates, bolting:</u> Examine 100% once over interval. Examined in 1997. No indications. <u>Hold downs, aligners:</u> Examine surfaces & welds once/interval. Examined hold downs in '94 & '95. No indications. <u>Grid/beams:</u> SIL-554, VT-1 bottom of intersections and VT-3 surfaces once/interval. Examined 28 cells in '92, 10 cells in '94, 11 cells in '95, 6 cells in '97. No indications.
Core Plate (Rim, etc.)	1995-96	VT-3	<u>Surfaces:</u> Examine when accessible during CRB exchange, once/interval. No indications. <u>Hold down bolts:</u> Examine when accessible once/interval. Examined in '95 & '96. No indications. <u>Wedge assemblies:</u> Installed with shroud stabilizers in '95. Examine one assembly each outage. Examined in '96. No indications
SLC	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 outage. No indications.
Jet Pump Assembly	1980-96	VT-1, VT-3 EVT-1 VT-1, VT-3	<u>Assembly:</u> Examine assembly, riser brace pad, restrainer adjusting screw tack welds, riser brace arm tack welds, inlet mixer, sensing line, restrainer set screw gaps once/interval. Examined in 4 assemblies '97. No indications. <u>Riser welds:</u> All 10 risers examined in Spring '97 outage. No indications <u>Hold down beams:</u> Examine once/interval. UT each outage in '80 - '88 outages - indications in 1 beam, replaced with original design. Replaced all beams in '89 with improved design. Examined 4 beam assemblies in '97. Indications on bolt keeper tack welds on 1 beam - safe for continued operation.
Jet Pump Diffuser	1980-96	VT-1, VT-3	Examine once/interval with jet pump assembly. No indications.

CRD Guide Tube	1994	VT-3	Examine when accessible once/interval. Not normally accessible from inside. Examined 14 in '94. No indications.
CRD Stub Tube	1980-96	VT-2, 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. Examined for leakage from outside during RPV leakage test each outage. No indications.
In-Core Housing	1980-96	VT-2	Examine when accessible once/interval. Not normally accessible from inside. Examined for leakage from outside during RPV leakage test each outage. No indications.
Dry Tube	1986	N/A	SRM/IRM. Replaced all 12 SRM/IRM dry tubes in '86 with improved design. No scheduled exams.
Instrument Penetrations	1980-96	VT-2	2N10, 2N11, 2N12, 2N16 Nozzles. Examined during RPV leakage test each outage. No indications.

Vessel ID Brackets	1980-96	VT-1, VT-3	<p><u>Surveillance specimen brackets:</u> Examine once/interval. Examined in '92 & '97. No indications.</p> <p><u>Jet pump riser brace pads:</u> Examine once/interval. Examined in '94 & '97. No 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 support brackets:</u> Examine once/interval. Examined in '92, '94 & '97. Raised metal indications on 2 brackets in '92 - metal removed, safe for continued operation.</p> <p><u>Steam dryer hold down brackets:</u> Examine once/interval. Examined in '92. No indications.</p> <p><u>Core spray support brackets:</u> Examined each outage '81-'96. No indications. BWRVIP-18 implemented in Spring '97 outage. No indications.</p> <p><u>Feedwater sparger brackets:</u> NUREG-0619, Examine every fourth outage. Examined in '89, '92 & '97. Mechanical damage on 1 bracket in '83 - bracket replaced. Tack weld indications on 1 bracket in '92 - safe for continued operation. No additional indications.</p>
LPCI Coupling	N/A	N/A	Not applicable to Hatch.

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-3, H-4 @ 4 cell location. No indications found IAW SIL 572 R1 BWRVIP CAT B exam sched for fall of 97
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
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
Core Spray Sparger	88 to present. examine once per period	VT-1 (1-mil)	Piping and spargers in shroud examined IAW IEB 80-13. No indications found
Top Guide (Rim, etc.)	88 to present. examine once per period.	VT-3	Top guide examined IAW Sec. XI. No indication found
	Fall 92/ Spring 94/ Winter 96	VT-1	Examined IAW SIL 554. Examined 4 cell locations made available during normal refuel. No indication found.
top guide lateral supports	Winter 96	VT-3	Examined Top Guide wedges IAW SIL 588 R1. No Indication found.

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
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	VT-1	Examined IAW SIL 551. No indications found.
jet pump hold down beams	Hold down beams were replaced during RF05-Spring 95	VT-1	Examined IAW SIL 330. No indications found.
jet pump sensing lines	88 to present. Examine once per period.	VT-3	Examined IAW SIL 420. No indications found.
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
jet pump riser pipe cracking	Not yet examined. Planned for Fall 97	VT-1 (1-MIL)	Will examine IAW SIL 605 During RF07 Fall 97
Jet Pump Diffuser			see jet pump assembly
CRD Guide Tube	Winter 96	VT-3	Examined 6 guide tubes IAW Sec. XI. No indications found.

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.
Instrument Penetrations	Not yet examined	VT-1 and VT-3	Examine IAW Sec. XI
Vessel ID Brackets			Component brackets are examined with the component
LPCI Coupling	88 to present. Examined once per period	VT-3	Examine IAW Sec XI

Reactor Internals Inspection History

Plant: James A. FitzPatrick 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	1994 to present	UT, EVT-1 VT-3 For Shroud Tie Rods	<p>94/95 Outage: Planar flaws on H2, 35" length intermittent (ID/OD) less than 0.75" depth by UT; two small planar flaws on H3, 1.42" length (ID/OD) by UT . A calculated 136" of vertical weld were inspected by EVT-1 or UT with no relevant indications.</p> <p>96 Outage: Crack like indications on H2, 55" length intermittent (OD) by EVT-1. This cracking is being mitigated by the shroud repair from 94/95 outage with 10 tie-rods; vertical crack like indications on SV5A intermittent (OD) totalling 6-3/4" in length out of total 92", and two horizontal 1/2" each (one OD and one ID). Crack like indications were less than 10% of weld length and are within allowables per BWRVIP-07. Shroud inspections included 25% vertical welds with 50% at beltline areas , and 3 tie-rods. A calculated 286" of vertical welds were inspected. No relevant indications on other welds. Tie-rod assemblies were found acceptable.</p> <p>Note: inspected all moisture separator shroud head bolts, and replaced same in 1987.</p>

Shroud Support	1992 to present	UT or EVT-1	<p>92 Outage: Inspected 0 and 180 deg access covers by UT. One planar indication detected at 180 deg, which is believed to be inherent to the fabrication process and is not ID connected.</p> <p>94/95 Outage: Inspected 40" of H9 weld and accessible areas of 10 gusset plates used for tie-rod repair.</p> <p>96 Outage: Inspected access hole cover at 0 deg, and inspected 36" of H9 weld and gusset plate welds at 3 tie-rod locations. No recordable indications.</p>
Core Spray Piping	1987 to present	VT-3, MVT-1 or EVT-1	IEB 80-13 of piping and welds in annulus. One clamp repair in 1988 at cracked weld in "B" loop at 190 deg below upper elbow piping. Welds were brushed and inspected by EVT-1 per BWRVIP-18 in Fall, 1996. No relevant indications found.
Core Spray Sparger	1987 to present	VT-3, MVT-1 or EVT-1	IEB 80-13 of sparger and welds. MVT-1 and EVT-1 inspections per BWRVIP-18 in Fall, 1996. An indication characterized as weld profile deficiency was recorded on spray nozzle D-28. Historical IVVI data was reviewed and the indication was previously noted and dispositioned as acceptable.
Top Guide (Rim, etc.)	1988, 92 and 94/95	VT-3, EVT-1	2 cells inspected in 1988 and in 1992; 4 cells in 1994. Additional inspections included, alignment wedges, hold down bolts, and rim welds at several locations (EVT-1 at rim welds in 94/95). No relevant indications.
Core Plate (Rim, etc.)	1992 and 94	VT-3	Inspection at one core plate in 1992. Inspected approximately 25% of hold down bolting in 1994/95. No reportable indications.
SLC	N/A	N/A	N/A

Jet Pump Assembly	1987 to 1994	VT-1, VT-3 and UT	<p>Inspected all riser brace attachment welds by VT-1. No relevant indications but found debris at some weld locations. Have replaced all jet pump beams in 1992 because one exhibited indications of cracking by UT exam. Also inspected pump assembly, sensing lines, supports and diffuser to shell welds, all by visual. No recordable indications but found debris at some weld locations.</p> <p>Cracking at a Japanese BWR of a Jet Pump riser weld prompted FitzPatrick to review IVVI tapes from previous refueling outages, including 1996 outage. Viewed accessible areas at two welds by VT-1, and at three welds by VT-3 examination. No cracking was found in the reviewed welds.</p>
Jet Pump Diffuser	1992 and 94	VT-3	See above.
CRD Guide Tube	1992	VT-3	Inspected stub tube to vessel and stub tube to housing welds for 9 tubes. No relevant indications.
CRD Stub Tube	1992	VT-3	See above.
In-Core Housing	1992	VT-1	No relevant indications.
Dry Tube	1994	VT-1	No indications. Replaced all dry tubes in 1987/88.
Instrument Penetrations	1992	VT-1	Two inspected in 1992. No recordable indications.
Vessel ID Brackets	1987 to present	VT-1, VT-3, EVT-1 for core spray	Section XI inspections of jet pump riser brace, dryer, feedwater sparger, core spray, and surveillance capsule holder brackets, performed once per interval. Last inspection was Fall, 96 VT3, or VT1 if in beltline region. EVT-1 for core spray. No relevant indications noted.
LPCI Coupling	N/A	N/A	Not applicable to this plant.

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 1/96	VT-1 UT Cat. B	VT-1 of all accessible welds ID & OD for SIL 572 R/1 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.
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.
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.
Core Spray Sparger	Every outage since start up.	VT-1	IEB 80-13 of welds on sparger. No indications found.
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	*	*	* = See attached write-up
Jet Pump Diffuser	*	*	* = See attached write-up
CRD Guide Tube	3/96	VT-3	Accessible areas of 6 guide Tubes NRI

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.
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

**LASALLE COUNTY STATION
BWRVIP JET PUMP INSPECTION SURVEY**

Inspections of Jet Pump Riser to Recirculation Inlet Nozzle Thermal Sleeve Welds:

Inspection Date(s):

Completed exams in unit 2 during the week of 12/9/96. Plan to complete Unit 1 exams in next scheduled refueling outage currently scheduled for late 1998.

Inspection Technique (e.g. VT or UT):

Will do a normal ASME Section XI VT-1 visual examination with 1 mil wire resolution.

Number of welds inspected:

Examined or will examine 100% of the accessible circumference of all welds from the RPV nozzle thermal sleeve to the riser transition piece.

Number of indications found and lengths:

Three indications found in unit 2. One Circ. 1.5" lg., One Circ. 3.5" lg., & 1 Axial .5" lg.

Comments:

None

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: LaSalle County 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	2/95 10/96	UT Cat. B UT Cat. B	BWRVIP Cat B UT of full accessible lengths of H3,4,5,6 & 8. Second UT done to increase coverage on welds H5, 6 & 8 No Indications in either UT exam.
Shroud Support	Every other outage	VT-1	VT-1 every other outage. NRI.
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 10/96. No indications found.
Core Spray Sparger	Every outage since start up.	VT-1	IEB 80-13 of welds on sparger. No indications found.
Top Guide (Rim, etc.)	Every other outage.	VT-3	VT-3 General condition inspection and hold down assys. at every other outage NRI. 13 cells inspected 3/95 NRI.
Core Plate (Rim, etc.)	3/95	VT-3	14 Fuel Support castings, and accessible plate surfaces. No indications.
SLC	2/96	VT	No official exams to date.
Jet Pump Assembly	*	*	* = See attached write-up
Jet Pump Diffuser	*	*	* = See attached write-up
CRD Guide Tube	N/A	VT-3	No exams to date.
CRD Stub Tube	N/A	VT-3	No exams to date.
In-Core Housing	N/A	VT-3	No exams to date.
Dry Tube	3/95 10/96	VT-1	All SRMs & IRMs, 4 indications, brushed away. Re-exam 10/96 NRI.
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, dryer, feedwater sparger, core spray, and surveillance capsule holder brackets, performed once per interval. Last inspection was 10/96 VT3, or VT1 if in beltline region. No indications noted.
LPCI Coupling	Every other outage	VT-3	VT-3 of all three couplings NRI

**LASALLE COUNTY STATION
BWRVIP JET PUMP INSPECTION SURVEY**

Inspections of Jet Pump Riser to Recirculation Inlet Nozzle Thermal Sleeve Welds:

Inspection Date(s):

Completed exams in unit 2 during the week of 12/9/96. Plan to complete Unit 1 exams in next scheduled refueling outage currently scheduled for late 1998.

Inspection Technique (e.g. VT or UT):

Will do a normal ASME Section XI VT-1 visual examination with 1 mil wire resolution.

Number of welds inspected:

Examined or will examine 100% of the accessible circumference of all welds from the RPV nozzle thermal sleeve to the riser transition piece.

Number of indications found and lengths:

Three indications found in unit 2. One Circ. 1.5" lg., One Circ. 3.5" lg., & 1 Axial .5" lg.

Comments:

None

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: Limerick Generating 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	1994	VT-3	VT-3 examination of OD of welds H-1, H-2, H-3, H-4, H-5, H-6, and H-7. No indications identified.
	1996	UT	Baseline Category "B" UT examinations. UT of welds H-3, H-4, H-5 and H-7 per BWRVIP-01, Rev. 1. Exams per BWRVIP Core Shroud NDE Uncertainty and Procedure Standard, dated November 21, 1994, and BWRVIP-03. Minor indications identified on H-3. No indications identified on H-4, H-5 and H-7. Full structural margins calculated for a minimum of two operating cycles.
Shroud Support	1987, 1994, & 1990	VT-3	VT-3 examination of H-8 and H-9 welds from annulus. No indications identified. VT-3 examination of both access hole covers and welds. No indications identified.
Core Spray Piping	1987 to present	VT-1	Enhanced VT-1 (1 mil resolution) examination performed every refueling outage on piping and welds per IEB 80-13. No indications identified.
Core Spray Sparger	1987 to present	VT-1	Enhanced VT-1 (1 mil resolution) examination performed every refueling outage on piping and welds per IEB 80-13. No indications identified.

Top Guide (Rim, etc.)	1987, 1990, & 1994	VT-3	VT-3 examination of accessible welds and surfaces. No indications identified.
	1994	VT-1	VT-1 examination of accessible welds and surfaces at core locations 14-31, 22-23, 22-39, 30-15, 30-47, 38-23, 38-39, and 46-31. No indications identified.
	1990 & 1994	VT-3	VT-3 examination of 32 wedges, bolts, and keepers. No indications identified.
Core Plate (Rim, etc.)			None
SLC			N/A SLC connects to Core Spray System
Jet Pump Assembly	1987, 1990, & 1994	VT-3	VT-3 examination of all jet pump components No indications identified.
	1994	UT	UT baseline of replacement hold- down beams. No indications identified.
Jet Pump Diffuser			See Jet Pump Assembly

CRD Guide Tube	1990	VT-3	VT-3 PSI examination of replacement CRDs at core locations 10-23, 14-19, 14-23, 14-31, 18-43, 18-55, 22-11, 22-39, 22-47, 26-03, 26-11, 26-27, 30-23, 30-3530-55, 34-23, 34-37, 34-31, 34-39, 38-07, 38-23, 38-31, 38-35, 38-39, 42-19, 46-11, 46-39, and 54-31. No indications identified.
	1992	VT-3	VT-3 examination of control rod assembly at core locations 30-11, 22-55, 54-23, 38-07, 38-55, and 22-07. No indications identified.
	1994	VT-3	VT-3 PSI examination of replacement CRDs at core locations 02-43, 10-19, 10-39, 14-39, 18-23, 18-39, 20-35, 26-27, 26-31, 30-47, 34-31, 34-47, 38-19, 38-35, 38-41, 42-15, 42-55, 50-43, 54-19, and 58-31. No indications identified.
CRD Stub Tube	1992	VT-2	VT-2 examination from vessel exterior on 100% of penetrations once per interval, in excess of Section XI. No indications identified.
In-Core Housing	1992	VT-2	VT-2 examination from vessel exterior on 100% of penetrations once per interval, in excess of Section XI. No indications identified.

Dry Tube	1989	VT-3	VT-3 examination of accessible portions of dry tubes at core locations 16-45, 40-45, 40-21, 16-21, (SRM's), 16-53, 48-53, 24-37, 32-37, 32-29, 24-29, 48-13, and 16-13 (IRM's). No indications identified.
	1992	VT-1	VT-1 examination of 4 dry tubes. No indications identified.
	1994	VT-1	VT-1 examination of dry tubes at core locations: 24-37 (IRM), and 40-21 and 38-23 (SRM). No indications identified.
Instrument Penetrations	1990	VT-3	VT-3 examination of interior attachment of instrument nozzles N16A through D, N12A through D, and N11 A & B.. No indications identified.
	1996	VT-2	PT examination performed on all instrument nozzle to safe end welds once per interval, per Section XI (includes N10 Core Differential Pressure penetration). No indications identified. VT-2 examination from vessel exterior on 100% of penetrations once per interval, in excess of Section XI. No indications identified.
Vessel ID Brackets			VT-1 and VT-3 performed on all ID bracket welds once per interval per Section XI. No indications identified.
LPCI Coupling	1987, 1990, & 1994	VT-3	VT-3 examination of all 4 couplings. No indications identified.

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	Baseline Category "B" UT examinations planned for 1999.
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.
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	EVT-1 (1/2 mil resolution) examination of welds per IEB 80-13 and BWRVIP-18 baseline. No indication 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	EVT-1 (1/2 mil resolution) examination of welds per IEB 80-13 and BWRVIP-18 baseline. 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.
		VT-3	VT-3 examination of 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.
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.

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 14-31. No indications identified.
	1993	VT-3	VT-3 examination of control rod assembly at core location 34-07. Minor scratches noted. Acceptable for continued service.
	1995	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.
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. No indications identified.
In-Core Housing			None
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.

Instrument Penetrations	1991	VT-3	<p>VT-3 examination of interior attachment of instrument nozzles N11A, N11B, N12A, through D. No indications identified.</p> <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>
Vessel ID Brackets		VT-1 or VT-3	<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>
LPCI Coupling	1991 & 1995	VT-3	<p>VT-3 examination of all 4 couplings.</p> <p>No indications identified.</p>

Reactor Internals Inspection History

Plant: Millstone Unit No.1

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	91-95	VT-1 & UT	All accessible areas of all ten horizontal welds were inspected with cracking found on all welds ranging from moderate to significant cracking. All welds found to be structurally acceptable. All accessible areas of four vertical welds were UT inspected. No cracking found.
Shroud Support	95	VT-1	Accessible areas of welds H-8 and H-9 and the gusset welds were inspected. No relevant indications found.
Core Spray Piping	82-95	VT-1 & UT	Accessible areas of Core Spray piping inspected. Two indications found in piping. Piping remains structurally acceptable. No repairs required.
Core Spray Sparger	82-95	VT-1	Cracking found in 1982 in pipe to "D" T-Box weld. Clamp installed in "D" T-Box in 1982. Additional cracking was found in 1995 in the pipe to "C" T-box weld which was found to be acceptable without repair
Top Guide (Rim, etc.)	95	VT-3	No relevant indications found
Core Plate (Rim, etc.)	95	VT-3	No relevant indications found
SLC			
Jet Pump Assembly	95	VT-1 & VT-3	No relevant indications found
Jet Pump Diffuser	94	VT-3	No relevant indications found
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	91	VT	No relevant indications found
Instrument Penetrations	N/A*	N/A*	N/A*
Vessel ID Brackets	95	VT-1	No relevant indications found
LPCI Coupling	N/A*	N/A*	N/A*
Access Hole Cover	95	VT-1	No relevant indications found

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 & 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	<p>VT of H8 and H9 from the annulus have been performed. No reportable indications to date.</p> <p>VT of access hole covers, performed every 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>
Core Spray Piping	1980's to present	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 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>

Core Spray Sparger	1980's to present	VT-1	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 piping 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.
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. Also inspected every outage are the Hold Down Latches, Top Guide Ring Bolts and Top Guide Beams. No indications have been identified to date.
Core Plate (Rim, etc.)	N/A	N/A	N/A
SLC	1984 & 1989	LP	Section XI performed baseline in 1984 and reinspected in 1989, of the following welds: Nozzle number 10 was inspected at the inner radius to vessel weld, safe end weld, and tee to safe-end weld. 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"> 1. Beam Bolt & Tack Welds. 2. Lock Plate, 2 Plug Welds, 4 Tack Welds. 3. Hold Down Beam (Latched Position) 4. Inlet. 5. Inlet Mixer Coupling. 6. Wedge and Restrainer. 7. Set Screw Tack Welds. 8. Transition Piece. 9. Upper (Original) Brace & Reclad Area. 10. Lower (Modification) Brace & Reclad Area. 11. Sensing Lines. <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>
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Jet Pump Diffuser		VT-1	Perform VT-1 inspection per the IVVI program each refueling outage. No indications have been identified to date.
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, and surveillance capsule holder brackets, performed every refueling outage.
LPCI Coupling	N/A	N/A	Not applicable to this plant.

FUTURE INSPECTION PLAN

Shroud

1. Based on the BWRVIP-07 reinspection document, the next shroud inspection for Monticello would not need to be scheduled until 6 years from the 1996 outage.
2. H8 and H9 may be UT at the time the next shroud exam is scheduled, depending on the technology available.

Core Spray

1. The guidelines of BWRVIP-18 will be followed. At the present time, it has been decided to perform a UT of 36 core spray welds during the 1998 outage including the slip joint welds which were UT during the 1996 outage. The basis for this exam is to establish a baseline inspection so that depending on the results of the UT, an examination of the core spray welds within the vessel can be performed during

alternating cycles. Accessible portions of the welds that can not be UT will be VT inspected per the IVVI program every outage.

Vessel Augmented Beltline Weld Exam

1. Due in 2002.

IVVI

1. Performed every outage.

Jet Pump Riser Piping

1. As a minimum, a visual inspection will be performed during the 1998 outage in order to be in compliance with SIL 605. UT inspection methods of the target welds are currently being evaluated.

Reactor Internals Inspection History

Plant: Nine Mile Point 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	95-97	EVT and UT	Tie rod repair (for BWRVIP) for horizontal welds H1-H7. EVT on I.D. of certain vert weld locations. No indications on vert welds (1995). 1997, (per BWRVIP) RE inspection of 2 vert welds found extensive flaws. Inspection scope expanded to include all accessible vert welds and some horizontal welds. Flaws found at several locations. Structural re-analysis performed (per BWRVIP) shroud expected to be acceptable with tie rod repair.
Shroud Support	95-97	EVT and UT	1996 H8 inspected by EVT and UT, minor indications noted full structural margin. H9 EVT at 4 locations no indication. 1997 H8 re-inspected with increased scope. Previous indications no change. One new indication found by EVT in previously uninspected area. Full structural margin. H9 re-inspected EVT at one location, no indications noted.
Core Spray Piping	1980's to Present	EVT	IEB 80-13 of piping and welds in annulus. No indications noted. EVT per BWRVIP-18 in 1997. No indications noted.
Core Spray Sparger	1980's to Present	EVT	IEB 80-13 of piping and welds on spargers. Two indications found, analyzed, and and re-inspected. No repairs needed. Inspected to BWRVIP-18 in 1997. No new indications found.

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.
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.
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	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.
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: 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	Base line Follow BWRVIP
Shroud Support	RF04 May 1995	IVVI (VT-3)	The shroud support access hole cover welds were found to be free of radial cracking. Continue access hole cover welds per BWRVIP
	Every 10 years	VT	
Core Spray Piping	RF01 - October '90 RF02 - March '92 RF04 - May '95 RF06, 1998	IVVI (VT-3)	No indications
		UT, VT	Base line follow BWRVIP
Core Spray Sparger	RF01 - October '90 RF02 - March '92 RF04 - May '95 RF06, 1998	IVVI (VT-3)	No indications
		VT	Follow BWRVIP

Top Guide (Rim, etc.)	RF01 - October '90 RF02 - March '92 RF04 - May '95 RF06, 1998	IVVI (VT- 3) VT	No indications Examine Wedges & Clips Follow BWRVIP
Core Plate (Rim, etc.)	None RF-06, 1998	N/A UT-3	N/A Examine Bolt Locking Device per SIL 588R1
SLC	RF04 - May, 1995	LP LP	Core plate Δ P only this unit 2RPV- KB34 No reportable indications 2RPV-KB34 provides core Δ P only Nozzle exams per code
Jet Pump Assembly	RF01 - October '90 RF02 - March '92 RF04 - May '95 RF05 - Nov. '96 RF10 Every 10 years	IVVI (VT- 1) VT	Replaced Beams RF04 Adjusting screws gap RF04-RF05 Adjusting screws tackwelds RF01, 2, 5 Beams replaced in RF04 Set screw gaps and jackweld cracks, as required
Jet Pump Diffuser	RF01 - October '90 RF02 - March '92 RF03 - October '93 RF04 - May '95 RF05 - November '96 Every outage	IVVI (VT- 3) VT-3	Each outage exam of jet pump sensing lines No indications Jet pump sensing lines Each outage

CRD Guide Tube	None	N/A	N/A
	Only when accessible	VT	
CRD Stub Tube	None	N/A	N/A
	Only when accessible	VT	
In-Core Housing	None	N/A	N/A
	Only when accessible	VT	
Dry Tube	RF01 - October '90 RF04 - May '95 RF05 - Nov '96	IVVI (VT-3)	Bent plunger found @RF04 Replaced @RF05
	Every even outage	VT	
Instrument Penetrations	None		Only 1 nozzle requires inspection in RF08
	RF08	UT	N-14 Only required by SIL 571
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
LPCI Coupling	None	N/A	No specific exam in inspection plan.
	N/A	N/A	No specific exam in inspection plan.

Reactor Internals Inspection History

Plant: Oyster Creek Nuclear Generating 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 1996	Visual	Inspected per BWRVIP-07. Three of ten tie rods inspected, no change from installation. EVT-1, OD of V-9 and V-11, (120" total). V-9 exhibited 3 small axial cracks in HAZ on the OD totaling 1.75". The ID of V-9 was free of axial cracks. A number of small transverse cracks were found on the OD and ID of V-9. V-11 was free of any indications. Analysis showed structural margin maintained.
	Fall 1994	Ultrasonic and visual	Inspected per BWRVIP-01 and 03. Cracks were detected in the Shroud welds H2, H4, H6A, and H6B. Lack of fusion was detected in H3 weld and visual cracks on the ID surface. The Tie Rod modification was installed. Base line visual performed of the tie rods.
Shroud Support	Fall 1996	Visual	25% of H-9, (different area then the 1994 inspection), cleaning performed and enhanced VT-1, no findings.
	Fall 1994	Visual	25% of H-9 cleaning performed and enchanted VT-1, no findings.

Core Spray Piping	Fall 1996	Visual	Inspected per BWRVIP- 03. Cleaning of all accessible weld/HAZ surface and performed enhanced VT-1. No findings.
	Fall 1994	Visual and air test	Inspected VT-1, (1 mil wire). No change to pinhole weld defect detected in slip joint in 1992. Note: Pinhole weld defect detected in 1992 in System I. Analysis showed structural margin maintained.
Core Spray Sparger	Fall 1996	Visual and air test	Inspected per BWRVIP-03. Cleaned end cap welds and performed enhanced VT-1. No findings. Tee box welds are clamped and not accessible to clean or visual. Performed VT-1, (1 mil wire), of sparger piping and nozzles. No findings.
	Fall 1994		
	1978 - 1980	Visual and Air Test Visual	Performed VT-1, (1 mil wire) of sparger piping and nozzles. No findings. (2) Cracks in sparger piping. Repair clamps installed. Note: Cracking found in sparger in 1978; repaired with clamps. Sparger has been inspected and air tested every outage since then; report submitted to NRC for approval for restart every outage.

Top Guide (Rim, etc.)	Fall 1996	Ultrasonic 100% grid beams	12 indications emanating from notches detected at intersections of cross members.. 5 of the 6 cracks on bottom side of member at mid span detected. Removed sample from beam with crack to investigate root case.
	Fall 1994	Visual	[Under side of Top Guide] Three additional vertical cracks were detected at mid span locations. Disposition use as is.
	Fall 1992	Visual	
	Fall 1991	Visual	[Under side of Top Guide] Two additional vertical cracks were detected at mid span location. Disposition use as is.
Core Plate (Rim, etc.)	Fall 1996	Visual	[Under side of Top Guide] A vertical crack was detected at mid span location. Disposition use as is.
	Fall 1994	Visual	
SLC	Fall 1996	No inspection performed	Inspected top portion only of 18 hold down bolt that were not inspected in fall 1994 and top periphery section at bolt locations. No findings.
	Fall 1994	"	Inspected 18 hold down bolt tops only and top periphery at bolt locations inspected. No findings.
Jet Pump Assembly			
Jet Pump Diffuser			
CRD Guide Tube	Fall 1996	No inspection Performed	Not made accessible.
	Fall 1994	"	"

CRD Stub Tube	Fall 1996	No inspection performed	Not made accessible.
	Fall 1994	"	"
In-Core Housing	Fall 1996 & Fall 1994	No inspection performed	Not made accessible.
Dry Tube	Fall 1996	Visual	VT-1 one dry tube, no findings.
	Fall 1994	Visual	VT-1 four dry tubes, no findings.
Instrument Penetrations	Fall 1996 & Fall 1994	No inspection performed	Not made accessible.
Vessel ID Brackets	Fall 1996 & Fall 1994	Visual	VT-1 of accessible portions of weld on guide rod brackets, steam dryer brackets, surveillance sample brackets. All attachment welds no findings.
LPCI Coupling			
Fuel Support Casting	Fall 1996	Visual	VT-3 (25) support castings. No findings.
	Fall 1994	Visual	VT-3 (17) support castings. No findings.

Note: All indications left "as is" were analyzed and structural margins were acceptable for continued service

Reactor Internals Inspection History

Plant: Peach Bottom Atomic Power 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	1994	UT & VT	<p>Comprehensive UT Baseline of some Category "C" circumferential welds (H-2,H-3, H-4, and H-5) per BWRVIP-01, Rev. 0.</p> <p>Partial UT baseline of welds H-1, H-6, and H-7, w/ partial Enhanced VT-1 of H-6 OD.</p> <p>Exams per BWR-VIP Core Shroud NDE Uncertainty and Procedure Standard, dated November 21, 1994.</p> <p>Indications identified on ID of H-1, H-3, H-4, and H-6, and OD of H-4 and H-5.</p> <p>Full structural margins calculated using two cycles of crack growth for comprehensively examined welds, one cycle for welds with limited exams.</p> <p>No indications identified on H-2 and H-7.</p>
	1996	UT	<p>Comprehensive UT of welds H-1,H-6 and H-7 per BWRVIP-01, Rev. 1.</p> <p>Exams per BWRVIP-03.</p> <p>Indications identified on ID of welds H-1, H-6 and H-7, on OD of weld H-1.</p> <p>Full structural margins calculated using two cycles of crack growth.</p>

Shroud Support	1992	VT-3	VT-3 examination of support leg stub welds. No indications identified. VT-3 examination of welds H-7, H-8, and shroud support cylinder. No indications identified.
	1994	VT-3	VT-3 of accessible portions of H-8 weld between Jet Pump #1 and #10. No indications identified.
		VT-1	VT-1 examination around perimeter of 0 deg. access hole cover. No indications identified.
		UT	UT examination of both access hole covers. No indications identified.
Core Spray Piping	1980 to 1996	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.
	1996	VT-1 (1/2 mil)	EVT-1 (1/2 mil resolution) performed on annulus piping welds per BWRVIP-18. Cracking identified in "B" Header tee-box cover plate weld (P2B). UT performed to characterize indication. Evaluation demonstrated structural margin for one operating cycle.
Core Spray Sparger	1980 TO 1994	VT-1 (1 mil)	Enhanced VT-1 (1 mil resolution) performed on piping and welds each refueling outage per IEB 80-13, Cracking discovered at tee-box to sparger pipe weld ("B" Sparger, 1982), bolted repair clamp installed. No other indications identified.

Top Guide (Rim, etc.)	1987	UT	UT examination performed of specific cells. No indications identified.
	1994	VT-3	Visual (VT-3) examination of 4 cells (48-41, 08-25, 24-17, and 24-25), per SIL 554.
	1996	VT-3	No indications identified. Visual (VT-3) of 2 aligner pins (0 deg. And 270 deg.), per SIL 588. No indications identified.
	1976 to present	VT-3	VT-3 exam every other refueling outage per Section XI. No indications identified.
Core Plate (Rim, etc.)	1995	VT-3	VT-3 examination of all accessible hold down bolts (cell 16-57, and area at 0 and 270 deg. Azimuth. No indications identified.
SLC	1992	PT	Surface (PT) examination of nozzle to safe end weld per Section XI. No indications identified.
Jet Pump Assembly	1976 to present	VT-3	Visual VT-3 of all jet pump components performed every other refueling outage.
	1994		Restrainer bracket wedge misalignment and wear identified on several wedges. Evaluations found condition acceptable without repair. One restrainer bracket set screw tack weld found cracked. Evaluations found condition acceptable without repair.
	1996		Restrainer bracket wedge conditions and set screw tack welds remain unchanged, condition acceptable without repair.
	1981	VT & UT	VT and UT examination performed on all 20 hold down beams. No indications identified,

Jet Pump Diffuser			See Jet Pump Assembly
CRD Guide Tube	1992	VT-3	VT-3 examination of housings accessible from fuel cells 26-31 and 30-27. No indications identified.
CRD Stub Tube	1992	VT-3	VT-3 examination of stub tube welds accessible from fuel cells 26-31 and 30-27. No indications identified.
In-Core Housing	1992	VT-3	VT-3 examination of housings accessible from fuel cells 26-31 and 30-27. No indications identified.
Dry Tube	1994	VT-1	All Dry Tubes replaced in 1984 VT-1 examination of IRM Dry Tube 2D, at core location 37-32.
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.
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.
LPCI Coupling			N/A to this plant

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.
Shroud Support	1993	VT-1	Enhanced VT-1 (1 mil resolution), of portions of H-8 weld, No indications identified. VT-1 examination around perimeter of both access hole covers, No indications identified.

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.
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.
Top Guide (Rim, etc.)	1987	UT	UT examination performed on 40 cells. No indications identified.
	1993	VT-3	Visual (VT-3) examination of 9 cells (02-19, 46-11, 42-59, 58-19, 02-39, 10-51, 18-03, 22-03, and 58-35), per SIL 554. No indications identified.
	1995	VT-3	Visual (VT-3) of 3 cells (14-23, 22-31, and 46-23) per SIL 554. No indications identified.
	1976 to present	VT-3	VT-3 examination every other refueling outage per Section XI. No indications identified.
Core Plate (Rim, etc.)	1995	VT-3	VT-3 examination of hold down bolt retainers planned, deferred to 1997.
SLC	1997	UT	UT of nozzle to safe end planned for 1997, per BWRVIP recommendations.

Jet Pump Assembly	1974 to present	VT-3	Visual VT-3 of all jet pump components performed every other refueling outage. No indications identified.
	1981	VT & UT	VT and UT examination performed on all 20 hold down beams/ One beam found to be cracked, replaced with new style beam, All beams replaced with new style beam and reduced preload in 1988.
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.
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			All Dry Tubes replaced in 1985.
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.
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.
LPCI Coupling			N/A for 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)	VT-3 and EVT-1	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. No indications. Note: UT examination of the H-3, H-4, H-6A and H-7 welds in accordance with the Category B Plant guidelines of BWRVIP-01 will be performed in Fall 97 (RF6).
Shroud Support	90(RF2) 96(RF5)	VT-3 and VT-1	VT-3 of shroud support plate in RF2 and VT-1 of the shroud support plate access hole cover in RF5. No indications.
Core Spray Piping	89-96 (RF1 thru RF5)	CVT-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. No indications. Note: Baseline EVT-1 examination in accordance with the guidelines of BWRVIP-18 will be performed in Fall 97 (RF6).
Core Spray Sparger	89-96 (RF1 thru RF5)	CVT-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. No indications. Note: Baseline EVT-1 examination in accordance with the guidelines of BWRVIP-18 will be performed in Fall 97 (RF6).
Top Guide (Rim, etc.)	89(RF1) 94(RF4)	VT-3	Top Guide periphery, including 90 studs and tack welds, examined in RF1. Top Guide Grid examined in RF4. No indications.

Core Plate (Rim, etc.)	89(RF1) 94(RF4)	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.
SLC	N/A	N/A	Not applicable to this plant
Jet Pump Assembly	89-96 (RF1 thru RF5)	VT-1 and 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. No crack indications. Set screw gaps identified in RF5. Notes: 1. Jet pump beams were replaced in RF4. 2. EVT-1 examination of the jet pump riser elbows will be performed in Fall 97 (RF6).
Jet Pump Diffuser	None to date	N/A	N/A
CRD Guide Tube	None to date	N/A	N/A
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)	VT-3	VT-3 of upper 2 ft in accordance with SIL 409 and RICSIL 73. No indications.
Instrument Penetrations	89-96 (RF1 thru RF5)	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)	VT-1 and VT-3	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.

LPCI Coupling	94(RF4) 96(RF6)	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.
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Reactor Internals Inspection History

Plant: Boston Edison 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
Core Shroud			
shroud head bolts	7 (UT), 8 (VT), 10 (UT)		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.
shroud	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)		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.

Shroud Support			
Access Hole Covers	8 (UT), 9 (VT), 10 (UT radial of 0 degree cover), 10 VT of 180 degree cover)		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.
Shroud support plate to RPV (H11) weld	10		Enhanced VT-1 RFO 10. No indications.
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). No indications. RFO 11 EVT-1 of gusset at 315 az.
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
Core Spray Sparger			see above
Top Guide (Rim, etc.)	6, 7, 8, 9		Partial exams each outage. Some scratches, wear marks; no cracking found.
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%).
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)
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.
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.
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
Jet Pump Riser Welds	11		RFO 11 EVT-1 of 100% (10) riser welds (2 welds per riser elbow)
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
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.
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

Reactor Internals Inspection History

Plant: Quad Cities 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	4/94	EVT-1 and UT	Inspections per SIL 572, indications in circumferential welds.
	3/96	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 (accessible surfaces), EVT-1 of vertical welds between H1 & H2 OD surface 100% (ID not accessible), UT of all 6 beltline vertical welds >30% length/weld, and EVT-1 of vertical welds between H6 & H7 OD surface >25% length/weld (ID not accessible) with NO Reportable Indications.</p> <p>Future inspections to be in accordance with BWRVIP-07; Reinspection of Repaired Core Shrouds.</p>
Shroud Support	3/96	EVT-1	<p>EVT-1 of H8 and H9 for approx 12" at 4 locations of shroud repair hardware attachment areas.</p> <p>Access hole covers; VT/UT in 1992, circ indications observed, permanent repair installed.</p>

Core Spray Piping	1980's to 1994	VT-1 (1 mil)	IEB 80-13/NUREG of piping and welds in annulus. Indication previously observed during 1994 on T-box was permanently repaired in 1996.
	4/96	EVT-1	EVT-1 performed to intent of BWRVIP-18 in 1996. Indications observed at two lower elbow welds, full structural margins on non-repaired welds. Future inspections per BWRVIP-18.
Core Spray Sparger	1980's to 1994	VT-1 (1 mil)	IEB 80-13 of welds on sparger. No indications found.
	4/96	EVT-1 or VT-3	EVT-1 performed to intent of BWRVIP-18, on T-box cover plate welds, T-box to sparger welds, end cap welds and bracket welds. VT-3 of spargers and nozzles. Future inspections per BWRVIP-18.
Top Guide (Rim, etc.)	3/94	VT-1	VT-1 of 4 cells. No indications.
	4/96	VT-1	VT-1 of alignment assemblies. No indications.
Core Plate (Rim, etc.)	N/A	N/A	Installed core plate wedges in conjunction with comprehensive shroud repair 1996.
SLC	N/A	N/A	N/A.

Jet Pump Assembly	3/94	VT-1	Hold down beams, beam bolt keepers, lockplates and retainers; restrainer wedges, stops, and adjusting screws, clamp bolts and keepers; riser brace assemblies, adapter and baffle plate welds, sensing lines and sensing line brackets per various SILS. Latest inspections were in 1994. No reportable indications. Inspect 100% every other outage. One jet pump riser brace repaired 1994, repair examined 1996, no changes noted.
	4/96	UT	One jet pump beam replaced 1986 due to indication. Jet pump beams are UT examined each outage using technique capable of detecting cracking at throat and ears. No subsequent indications.
Jet Pump Diffuser	3/94	VT-1	Diffuser to baffle plate welds examined. No indications.
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	3/94	VT	Replaced 3 dry tubes 1996.
	3/96	VT	Replaced 2 dry tubes in 1994. Examined each outage.
Instrument Penetrations	N/A	N/A	N/A
Vessel ID Brackets	3/94	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 indications noted.
LPCI Coupling	N/A	N/A	Not applicable to this plant.

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	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 & H2 OD surface >35% length/weld (ID not accessible), UT of all 6 beltline vertical welds >30% length/weld, and EVT-1 of vertical welds between H6 & H7 OD surface >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.
	3/97	EVT-1, VT-3	<p>Inspections per BWRVIP-07 required VT-3 of one tie-rod assembly, minimum. However, performed EVT-1 on all shroud vertical welds adjacent to beltline (six verticals, 100% of accessible OD surfaces). NO Reportable Indications.</p> <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. Will properly latch locking device.</p> <p>Future inspections to be in accordance with BWRVIP-07 Reinspection of Repaired Core Shrouds.</p>

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, permanent repair installed 1993.
Core Spray Piping	1980's to 1996 3/97	VT-1 (1 mil) UT, EVT-1	IEB 80-13/NUREG of piping and welds in annulus. No indications observed. UT or EVT-1 performed in accordance with BWRVIP-18. Two indications (1.60" and 2.25" in length) observed at slip joint, evaluation in progress. Future inspections per BWRVIP-18.
Core Spray Sparger	1980's to 1996 3/97	VT-1 (1 mil) CSVT-1, VT-3	IEB 80-13/NUREG of welds on sparger. No indications found CSVT-1, VT-3 performed in accordance with BWRVIP-18, geometry tolerant. Future inspections per BWRVIP-18.
Top Guide (Rim, etc.)	4/95 4/97	VT-1 VT-1	VT-1 of 5 cells. No indications. VT-1 of alignment assemblies. No indications. VT-1 of alignment assemblies. No indications.
Core Plate (Rim, etc.)	N/A	N/A	Installing Core Plate Wedges 4/97
SLC	N/A	N/A	N/A.

Jet Pump Assembly	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. Latest inspections were in 1995. No reportable indications. Inspect 100% every other outage.
	3/93	VT-1	JP#7 and JP#18 set screws backed out, repaired and tack welded.
	4/97	UT	Jet pump beams are UT examined each outage using technique capable of detecting cracking at throat and ears. No reportable indications.
Jet Pump Diffuser	4/95	VT-1	Diffuser to baffle plate welds examined. No reportable indications.
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	4/97	VT	Replaced 6 dry tubes 1997. Examined each outage.
Instrument Penetrations	N/A	N/A	N/A
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 indications noted.
LPCI Coupling	N/A	N/A	Not applicable to this plant.

Reactor Internals Inspection History

Plant: River Bend

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	94	VT-1/VT-3	Partial inspection during forced outage. Welds H-3 thru H-7, Limited vertical weld inspection. No indication detected.
	96	VT-3	ASME XI inspection of accessible areas including the grid. No indications detected.
Shroud Support	94	VT-1/VT-3	Inspection of accessible areas during forced outage. Access hole cover; VT. No indications.
	96	VT-3	Access hole cover. No indications.
Core Spray Piping	1987 to present	VT-1/VT-3	Piping and welds in annulus, every other cycle, starting 1994 every cycle. No indications.
Core Spray Sparger	1987 to present	VT-1/VT-3	Nozzles, end caps, support (guides), every other outage. Selected Tee (welds) every other outage. All tee (welds), end caps and nozzles each outage starting 1996.
Top Guide (Rim, etc.)	1987 to present	VT-3	1/6 of total each outage (Hold down studs, nuts and keeper). No indications.
Core Plate (Rim, etc.)	N/Acces	N/A	N/A
SLC	N/A	N/A	N/A
Jet Pump Assembly	1987 to present	VT-1/VT-3	Twenty pumps. 1/3 inspected each period (Diffuser Assembly, Riser Assembly, Riser Braces, inlet suction area, riser brace, wedge assembly, Hold down beam (bolt keeper and tack welds). Wedges, adjusting screws (tack welds), sensing lines receive VT per various SILs. Jet Pump Beams replaced 1994. VT of complete assemblies in 1994 forced outage.

Jet Pump Diffuser	see Jet Pump Assembly	N/A	N/A
CRD Guide Tube	1992	VT-3	Inspected accessible tubes during bottom head drain line replacement. No indications observed.
CRD Stub Tube	N/A	N/A	N/A
In-Core Housing	92, 96	VT-3	Upper portion only per Sil recommendation. No indications.
Dry Tube	above		
Instrument Penetrations	1994	VT-3	Inspected penetration at vessel during forced outage. No indications noted.
Vessel ID Brackets	1987 to present	VT-1/VT-3	Section XI inspections once per interval. VT-3, or VT-1 if in beltline region. No indications noted.
LPCI Coupling	1989, 92	VT-3	Two of three lines in 1989 and two of three lines in 1992. No indications.

Reactor Internals Inspection History

Plant: Susquehanna Units #1 and #2

Components in BWRVIP Scope	Date or Frequency of Inspection	Inspection Method Used	Summarize the Following Information: Inspection Results, Repairs, Replacements, Reinspections
Core Shroud	1993, 1995, 1996, and 1997 results.	VT-1 and UT	<p>Unit #1: Unit #1 7RFO (Fall 93), (VT-1) the OD of H3, H4, and H5, and the corresponding verticle welds in the 0 to 135 degree azimuth. No reportable indications.</p> <p>Unit #1 8RIO (Spring 95), circumferential welds H1 through H7 inspected ultrasonically using GE OD Tracker system. Cracking found in H1, H2, H4, H5, H6A, and H6B. Most significant in degrees of cracking was H2 (28⁰), H4 (104⁰), H5 (106⁰), and H6B (38⁰). Structural margins were maintained based on BWRVIP documents GENE-523-113-0894, rev 1, and Supplement 1, rev 1, and independent calculations.</p>
		UT	<p>Unit #1 9RIO (Fall 96), partial ultrasonic inspection of shroud ultrasonically for crack growth information using the OD Tracker. Weld areas inspected were 180⁰ of H1, H2, H4, H5, H6B. Structural margins were maintained based on BWRVIP documents GENE-523-113-0894, rev 1, and Supplement 1, rev 1, and independent calculations.</p>

Core Shroud (continued)			<p>Unit #2: Unit #2 7RIO, circumferential welds H1 through H7 inspected ultrasonically using the GE OD Tracker system. Cracking found in H1 (21°), H2 (94°), H4 (68°), H5 (5°), and H6B (121°). Structural margins were maintained based on BWRVIP documents GENE-523-113-0894, rev 1, and Supplement 1, rev 1, and independent calculations.</p> <p>#2 8RIO (Spring 97), no shroud inspections scheduled based on inspection results of Unit #1 Shroud in fall of 1996.</p>
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Core Spray Piping	1980's to 1995	VT-1, VT-3	Unit #1 and Unit #2 piping and welds in annulus. No recordable indications.
	1996 to present	VT-1 enhanced, UT VT-1 enhanced	Unit #1 9RIO (Fall 96) Inspect per BWRVIP-18, no relevant indications though one indication was ultrasonically examined and no depth was recorded. Unit #2 8RIO (Spring 97) Inspect per BWRVIP-18, no recordable indications.
Core Spray Sparger	1980's to 1995	VT-1, VT-3	Unit #1 and Unit #2, no recordable indications.
	1996 to present	VT-1, VT-3	Unit #1 9RIO (Fall 96) Inspect per BWRVIP-18. Cracking found visually on shroud ID at #4 Core Spray Support Bracket. Determined acceptable to Use-as-is. Unit #2 8RIO (Spring 97) Inspect per BWRVIP-18. Several Shroud Core Spray Support Bracket welds found with cracking on shroud ID. Determined acceptable to Use-as-is.

Top Guide (Rim, etc.)	To 1995	VT-3 VT-3 VT-3	<p>Unit #1 and Unit #2 (VT-3) of accessible cells up to percentage of total over the interval (lower surfaces only). Also, inspection of hold-down bolts. Minor misalignment (bowing) of several crossmembers of Unit #2 top guide.</p> <p>Unit #1 9RIO (Fall 96). No recordable indications.</p> <p>Unit #2 7RIO (Fall 95). Eight cells lower surfaces and inspected wedges. No recordable indications.</p> <p>Unit #2 8RIO (Spring 97). Ten cells lower surfaces, no recordable indications.</p>
Core Plate (Rim, etc.)	to date	<p>VT-1 of surface welds and bolt tack welds on upper surfaces</p> <p>VT-3 of bolt and upper surface and crossmembers</p>	<p>Unit #1 has not been accessible for inspection to date.</p> <p>Unit #2 6RIO (Spring 94) Inspected once 90° of plate and bolting accessible. No recordable indications. Following this inspection and the questionable value added, no further exams performed pending VIP recommendations.</p>
SLC	92	VT-3	<p>Unit #1 6RIO (Spring 92) One side of the Standby Liquid Control Standpipe inspected. Disassembly of the jet pumps for a Power Uprate modification made inspection possible. No recordable indications were found.</p> <p>Unit #2 5RIO (Fall 92) One side of the Standby Liquid Control Standpipe was inspected. Disassembly of the jet pumps for a Power Uprate modification made inspection possible. No recordable indications were found..</p>

Jet Pump Assembly	93-96	VT-1, VOL, VT-3	<p>Riser brace welds inspected every other outage. Jet pump beam volumetrics once in ten years. Remaining components (welds (VT-1), set screws (VT-3), wedges (VT-3), sensing line clamps (VT-1 & VT-3), tack welds (VT-1), etc are once per period. Jet pump beams replaced</p> <p>Unit #1 7RIO (Fall 93) Beams replaced. Non-rejectable gaps in set screws reported over several outages.</p> <p>Unit #2 6RIO (Spring 94) Beams replaced. One old beam found cracked in leg area. Non-rejectable gaps in set screws reported over several outages.</p> <p>Unit #2 6RIO (Spring 94) cracked welds on #13 and #14 instrument lines. Repaired with clamps.</p> <p>Unit #2 (Spring 97) Weld #3 baselined. No rejectable indications.</p>
Jet Pump Diffuser	included above	included above	included above
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	to date, every other outage	VT-3	No rejectable indications.
Instrument Penetrations	N/A	N/A	N/A

Vessel ID Brackets	to date	VT-1 and VT-3	<p>1989 Section XI inspections of jet pump riser brace, dryer, feedwater brackets, core spray header brackets, and surveillance capsule holder brackets, performed once per interval.</p> <p>Unit #1 Dryer Support Block C replaced due to fatigue cracking.</p> <p>Both Unit #1 and Unit #2 "Measureable but acceptable wear"</p>
LPCI Coupling	N/A	N/A	Not applicable to 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	7 Circ Welds. Significant flaws indentified in H5 & H6, less extensive in H4, performed by Framatone IAW BWRVIP-01.
	96	UT	8 Vert Welds. No flaws indicated
	96	UT	6 Vert Ring Segment Welds. No flaws indicated
	96	N/A	4 Tie Bolts Shroud Repair. Installed by Framatone
Shroud Support	96	UT	H8 & H9. Framatone inspected these Jet Pump Diffuser Plate Welds. No indications.
Core Spray Piping	96	UT in lieu of IEB 80-13 VTs	39 Internal Vessel Welds. 2 Thermal Sleeve Collar to Shroud Welds identified as Cracked.
		EVT-1	5 Internal Vessel Welds. No flaws identified, Welds not accessible for UT.
Core Spray Sparger	96	VT	100%. IEB 80-13 inspections performed each outage, clamp installed over t-boxinspection plug (cracked weld) in 1980
Top Guide (Rim, etc.)	96	VT	7 locations, made available due to blade changeouts. No flaws identified, SIL inspections performed each outage as cells are voided.
Core Plate (Rim, etc.)	96	VT	7 locations, made available due to blade changeouts. No flaws identified, SIL inspections performed each outage as cells are voided.
SLC	83	VT	Section XI exam, No indications.

Jet Pump Assembly	96	VT	5 assemblies/ 10 pumps. Performed SIL recommended inspections, no flaws identified, inspect one loop each outage, beams replaced.
Jet Pump Diffuser	96	VT	10 pumps. Limited to top end only, no flaws identified.
CRD Guide Tube	N/A	N/A	N/A
CRD Stub Tube	83	VT	2 of 89. No indications
In-Core Housing	83	VT	2 of 89. No indications
Dry Tube	95	VT	Examine every three outages, replaced in 1986 due to indications
Instrument Penetrations	96	VT	No indications, inspect 10 of 20 lines each outage (jet pump sensing lines)
Vessel ID Brackets	96	VT	(1) Dryer Support Bracket found with flawed weld in 1992, inspect IAW Section XI and SIL
LPCI Coupling	N/A	N/A	N/A
Access Hole Covers	96	VT	Each outage, no indications found.

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.
Shroud Support	1994	VT-1	ASME Section XI includes access hole covers. No indications
Core Spray Piping	1985 to 1995	VT-1 IEB 80-13	No indications of cracking. One mil wire resolution
Core Spray Sparger	1985 to 1995	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 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.
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
Dry Tube	1987-1996	VT-1	Various degrees of erosion. Evaluated acceptable
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