

Expansion Components

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Upper Internals Assembly Upper core plate	Enhanced visual examination (EVT-1)	100% of accessible surfaces (Note 2).	N/A	N/A
Comments: None				
Lower Internals Assembly Lower support forging or castings	Enhanced visual examination (EVT-1)	100% of accessible surfaces (Note 2). See Figure 4-33 of MRP-227-A.	N/A	N/A

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Comments: None				
Core Barrel Assembly Barrel-former bolts	Volumetric examination (UT)	100% of accessible bolts. Accessibility may be limited by presence of thermal shields or neutron pads (Note 2). See Figure 4-23 of MRP-227-A.	N/A	N/A
Comments: None				
Lower Support Assembly Lower support column bolts	Volumetric examination (UT)	100% of accessible bolts or as supported by plant-specific justification (Note 2). See Figures 4-32 and 4-33 of MRP-227-A.	N/A	N/A

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Comments: None				
Core Barrel Assembly Core barrel outlet nozzle welds	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 2). See Figure 4-22 of MRP-227-A.	N/A	N/A
Comments: None				
Core Barrel Assembly Upper and lower core barrel cylinder axial welds	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 2). See Figure 4-22 of MRP-227-A.	N/A	N/A

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Comments: None				
Lower Support Assembly Lower support column bodies (non cast)	Enhanced visual examination (EVT-1)	100% of accessible surfaces (Note 2). See Figure 4-34 of MRP-227-A.	N/A	N/A
Comments: None				
Lower Support Assembly Lower support column bodies (cast)	Enhanced visual examination (EVT-1)	100% of accessible support columns (Note 2). See Figure 4-34 of MRP-227-A.	N/A	N/A
Comments: None				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Bottom Mounted Instrumentation System Bottom-mounted instrumentation (BMI) column bodies	Visual examination (VT-3)	100% of BMI column bodies for which difficulty is detected during flux thimble insertion/withdrawal. See Figure 4-35 of MRP-227-A.	N/A	N/A
Comments: None				

Notes to Westinghouse Expansion Component Table:

1. Examination acceptance criteria and expansion criteria for the Westinghouse components are in Table 5-3 of MRP-227-A .
2. A minimum of 75% coverage of the entire examination area or volume, or a minimum sample size of 75% of the total population of like components of the examination is required (including both the accessible and inaccessible portions).

Existing Programs Components

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings
Core Barrel Assembly Core barrel flange	Visual examination (VT-3) to determine general condition for excessive wear.	All accessible surfaces at specified frequency.	100%	None
Comments: Inspected in RO27 (2012). Completed in conjunction with VT-3 Examination of Core Barrel Flange Flow Nozzles				
Upper Internals Assembly Upper support ring or skirt	Visual examination (VT-3)	All accessible surfaces at specified frequency.	100%	None
Comments: Completed in RO27 (2012). Examined the accessible areas of the Upper Support Assembly including CRD shafts for damage, wear, and abnormal conditions				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings
Lower Internals Assembly Lower core plate XL lower core plate (Note 1)	Visual (VT-3) examination of the lower core plates to detect evidence of distortion and/or loss of bolt integrity.	All accessible surfaces at specified frequency.	100%	None
Comments: Completed in RO27 (2012). Examined the accessible areas of the Lower Core Plate for wear, damage, and debris				
Lower Internals Assembly Lower core plate XL lower core plate (Note 1)	Visual examination (VT-3)	All accessible surfaces at specified frequency.	N/A	N/A
Comments: None				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings
Bottom Mounted Instrumentation System Flux thimble tubes	Surface examination (ET)	Eddy current surface examination as defined in plant response to IEB 88-09.	N/A	N/A
Comments: None				
Alignment and Interfacing Components Clevis insert bolts	Visual examination (VT-3)	All accessible surfaces at specified frequency.		
Comments: None				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings
Alignment and Interfacing Components Upper core plate alignment pins	Visual examination (VT-3)	All accessible surfaces at specified frequency.	100%	None
Comments: Completed in RO27 (2012). Examined the accessible areas of the Upper Core Plate alignment Keyways with Clevis at 0, 90, 180 and 270 azimuths for damage and abnormal conditions				

Notes to Westinghouse Existing Programs Components Table:

1. XL = "Extra Long" referring to Westinghouse plants with 14-foot cores.

Tables for Reporting MRP-227-A Inspection Results for Westinghouse Plants

Plant Name: Shearon Harris Utility: Duke Energy

Date of Exams: See Comments for each component Plant Age: See Comments (years) / See Comments EFPY

Primary Components

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Control Rod Guide Tube Assembly Guide plates (cards)	Visual examination (VT-3)	20% examination of the number of CRGT assemblies, with all guide cards within each selected CRGT assembly examined. See Figure 4-20 of MRP-227-A	N/A	N/A
Comments:				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Control Rod Guide Tube Assembly Lower flange welds	Enhanced visual examination (EVT-1) to determine the presence of crack-like surface flaws in flange welds	100% of outer (accessible) CRGT lower flange weld surfaces and adjacent base metal on the individual periphery CRGT assemblies. (Note 2) See Figure 4-21 of MRP-227-A.	N/A	N/A
Comments:				
Core Barrel Assembly Upper core barrel flange weld	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 4). See Figure 4-22 of MRP-227-A.	N/A	N/A
Comments:				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Core Barrel Assembly Upper and lower core barrel cylinder girth welds	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 4). See Figure 4-22 of MRP-227-A	N/A	N/A
Comments:				
Core Barrel Assembly Lower core barrel flange weld (Note 5)	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 4).	N/A	N/A
Comments:				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Baffle-Former Assembly Baffle-edge bolts	Visual examination (VT-3)	Bolts and locking devices on high fluence seams. 100% of components accessible from core side (Note 3). See Figure 4-23 of MRP-227-A.	N/A	N/A
Comments:				
Baffle-Former Assembly Baffle-former bolts	Volumetric examination (UT)	100% of accessible bolts (Note 3). Heads accessible from the core side. UT accessibility may be affected by complexity of head and locking device designs. See Figures 4-23 and 4-24 of MRP-227-A.	N/A	N/A
Comments:				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Baffle-Former Assembly Assembly (Includes: Baffle plates, baffle edge bolts and indirect effects of void swelling in former plates)	Visual examination (VT-3)	Core side surface as indicated. See Figures 4-24, 4-25, 4-26 and 4-27 of MRP-227-A.	N/A	N/A
Comments:				
Alignment and Interfacing Components Internals hold down spring	Direct measurement of spring height	Measurements should be taken at several points around the circumference of the spring, with a statistically adequate number of measurements at each point to minimize uncertainty. See Figure 4-28 of MRP-227-A.	N/A	N/A
Comments:				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Thermal Shield Assembly Thermal shield flexures	Visual examination (VT-3)	100% of thermal shield flexures. See Figures 4-29 and 4-36 of MRP-227-A.	N/A	N/A
Comments:				

Notes to Westinghouse Primary Components Table:

1. Examination acceptance criteria and expansion criteria for the Westinghouse components are in Table 5-3 of MRP-227-A.
2. A minimum of 75% of the total identified sample population must be examined.
3. A minimum of 75% of the total population (examined + unexamined), including coverage consistent with the Expansion criteria in Table 5-3 of MRP-227-A, must be examined for inspection credit.
4. A minimum of 75% of the total weld length (examined + unexamined), including coverage consistent with the Expansion criteria in Table 5-3 of MRP-227-A, must be examined from either the inner or outer diameter for inspection credit.
5. The lower core barrel flange weld may be alternatively designated as the core barrel-to-support plate weld in some Westinghouse plant designs.

Expansion Components

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Upper Internals Assembly Upper core plate	Enhanced visual examination (EVT-1)	100% of accessible surfaces (Note 2).	N/A	N/A
Comments:				
Lower Internals Assembly Lower support forging or castings	Enhanced visual examination (EVT-1)	100% of accessible surfaces (Note 2). See Figure 4-33 of MRP-227-A.	N/A	N/A
Comments:				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Core Barrel Assembly Barrel-former bolts	Volumetric examination (UT)	100% of accessible bolts. Accessibility may be limited by presence of thermal shields or neutron pads (Note 2). See Figure 4-23 of MRP-227-A.	N/A	N/A
Comments:				
Lower Support Assembly Lower support column bolts	Volumetric examination (UT)	100% of accessible bolts or as supported by plant-specific justification (Note 2). See Figures 4-32 and 4-33 of MRP-227-A.	N/A	N/A
Comments:				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Core Barrel Assembly Core barrel outlet nozzle welds	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 2). See Figure 4-22 of MRP-227-A.	N/A	N/A
Comments:				
Core Barrel Assembly Upper and lower core barrel cylinder axial welds	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 2). See Figure 4-22 of MRP-227-A.	N/A	N/A
Comments:				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Lower Support Assembly Lower support column bodies (non cast)	Enhanced visual examination (EVT-1)	100% of accessible surfaces (Note 2). See Figure 4-34 of MRP-227-A.	N/A	N/A
Comments:				
Lower Support Assembly Lower support column bodies (cast)	Enhanced visual examination (EVT-1)	100% of accessible support columns (Note 2). See Figure 4-34 of MRP-227-A.	N/A	N/A
Comments:				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Bottom Mounted Instrumentation System Bottom-mounted instrumentation (BMI) column bodies	Visual examination (VT-3)	100% of BMI column bodies for which difficulty is detected during flux thimble insertion/withdrawal. See Figure 4-35 of MRP-227-A.	N/A	N/A
Comments: 				

Notes to Westinghouse Expansion Component Table:

1. Examination acceptance criteria and expansion criteria for the Westinghouse components are in Table 5-3 of MRP-227-A .
2. A minimum of 75% coverage of the entire examination area or volume, or a minimum sample size of 75% of the total population of like components of the examination is required (including both the accessible and inaccessible portions).

Existing Programs Components

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings
Core Barrel Assembly Core barrel flange	Visual examination (VT-3) to determine general condition for excessive wear.		To the maximum extent practical and within the limitation of component geometry.	No loss of material
Comments: Date of exams: May 2012 / RFO-17 Plant age: 25.5 years / 21.7 EFPY HNP RMS Record No. 5199601				
Upper Internals Assembly Upper support ring or skirt	Visual examination (VT-3)	All accessible surfaces at specified frequency.	To the maximum extent practical and within the limitation of component geometry.	No loss of material
Comments: Date of exams: May 2012 / RFO-17 Plant age: 25.5 years / 21.7 EFPY HNP RMS Record No. 5199601				
Lower Internals Assembly Lower core plate XL lower core plate (Note 1)	Visual (VT-3) examination of the lower core plates to detect evidence of distortion and/or loss of bolt integrity.	All accessible surfaces at specified frequency.	To the maximum extent practical and within the limitation of component geometry.	No cracking
Comments: Date of exams: May 2012 / RFO-17 Plant age: 25.5 years / 21.7 EFPY HNP RMS Record No. 5199601				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings
Lower Internals Assembly Lower core plate XL lower core plate (Note 1)	Visual examination (VT-3)	All accessible surfaces at specified frequency.	To the maximum extent practical and within the limitation of component geometry.	No loss of material
Comments: Date of exams: May 2012 / RFO-17 Plant age: 25.5 years / 21.7 EFPY HNP RMS Record No. 5199601				
Bottom Mounted Instrumentation System Flux thimble tubes	Surface examination (ET)	Eddy current surface examination as defined in plant response to IEB 88-09.	100%, with the exception of Thimble No. 36 (obstruction was encountered, and Thimble No 36 was removed from service)	Wear, when observed, was within expectations for all thimbles except for Thimble No. 13, in which wear rates were greater than predicted. Wear predictions were determined for all thimbles except for Thimble No. 36. With the exception of Thimble No. 36, all thimbles were found to be satisfactory for continued service until the next scheduled inspection (RFO-19).
Comments: Date of exams: October 2010 / RFO-16 Plant age: 24 years / 20.3 EFPY Thimble Nos. 1, 7, 11, 28, 29, 39, 40, 41, 42, 44, 48, and 50 were replaced during RFO-16. HNP RMS Record No. 4583077 Procedure No. EPT-114				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings
Alignment and Interfacing Components Clevis insert bolts	Visual examination (VT-3)	All accessible surfaces at specified frequency.	To the maximum extent practical and within the limitation of component geometry.	No loss of material
Comments: Date of exams: May 2012 / RFO-17 Plant age: 25.5 years / 21.7 EFPY HNP RMS Record No. 5199601				
Alignment and Interfacing Components Upper core plate alignment pins	Visual examination (VT-3)	All accessible surfaces at specified frequency.	To the maximum extent practical and within the limitation of component geometry.	No loss of material
Comments: Date of exams: May 2012 / RFO-17 Plant age: 25.5 years / 21.7 EFPY HNP RMS Record No. 5199601				

Notes to Westinghouse Existing Programs Components Table:

1. XL = "Extra Long" referring to Westinghouse plants with 14-foot cores.

Tables for Reporting MRP-227-A Inspection Results for Westinghouse Plants

Plant Name: Surry Unit 1 Utility: Dominion Generation

Date of Exams: October 27th – November 5th, 2013 Plant Age: 41 (May 26, 1972) (years) / 30.98 EFPY

Primary Components

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Control Rod Guide Tube Assembly Guide plates (cards)	Visual examination (VT-3)	20% examination of the number of CRGT assemblies, with all guide cards within each selected CRGT assembly examined. See Figure 4-20 of MRP-227-A	100% of the 20% examination requirement. 10 CRGTs were selected, and a discussion of these CRGT assemblies is below.	No findings – all examinations were satisfactory. Ligament wear was \leq 5%. These exams were completed during 1R24 (Spring 2012) and the Inspection Results report was submitted 2/5/2013.
Comments: This inspection was completed during 1R24 (Spring 2012).				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Control Rod Guide Tube Assembly Lower flange welds	Enhanced visual examination (EVT-1) to determine the presence of crack-like surface flaws in flange welds	100% of outer (accessible) CRGT lower flange weld surfaces and adjacent base metal on the individual periphery CRGT assemblies. (Note 2) See Figure 4-21 of MRP-227-A.	Accessible Lower Flange Welds (Upper and Lower) 24 CRGT assemblies were inspected during the 1R24 outage. 128 welds achieved some level of EVT-1 access. Of these, some did not have 100% coverage. The average coverage for the 128 welds was 96.8% which exceeds the minimum 75% requirement of MRP-227-A.	All accessible welds were examined, and the MRP-227-A inspection requirement was satisfied. No relevant indications were noted. These exams were completed during 1R24 (Spring 2012) and the Inspection Results report was submitted 2/5/2013.
Comments: This inspection was completed during 1R24 (Spring 2012).				
Core Barrel Assembly Upper core barrel flange weld	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 4). See Figure 4-22 of MRP-227-A.	100% of the accessible weld received an EVT – 1 examination.	The EVT – 1 examination of the one upper core barrel weld was SAT; the weld was examined from the ID surface as required per the MRP guidance. There were no indications. The exam fulfilled the requirements of MRP-227-A. These exams were completed during 1R24 (Spring 2012) and the Inspection Results report was submitted 2/5/2013.
Comments: This inspection was completed during 1R24 (Spring 2012). 100% of this weld was inspected to the EVT – 1 requirement presented in MRP – 227 – A. No issues were noted for this visual examination.				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Core Barrel Assembly Upper and lower core barrel cylinder girth welds	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 4). See Figure 4-22 of MRP-227-A	85% of the total combined weld length was inspected. See comments.	The EVT – 1 examination of the one lower core barrel weld was SAT. The weld was inspected from the exterior of the core barrel between the core barrel and the thermal shield.
Comments: This inspection was completed during 1R25 (Fall 2013). 100% of the upper girth weld (UGW) was inspected from inside the vessel to the EVT – 1 requirement presented in MRP – 227 – A. No issues were noted for this visual examination. 70.4% of the lower girth weld (LGW) was inspected from inside the vessel to the EVT – 1 requirement presented in MRP – 227 – A. No issues were noted for this visual examination. The lower girth weld coverage was limited by obstructions between the core barrel and the thermal shield. Other limitations occurred due to the narrow gap between the core barrel and reactor cavity wall. Within Table 4-3 of MRP-227-A, the UGW and the LGW are identified as having the same effect – cracking due to stress corrosion cracking (SCC), irradiated – assisted stress corrosion cracking (IASCC) and fatigue. A minimum of 75% of the total weld length must be examined in accordance with Note 4 of the Table 4 – 3. The total combined length for the UGW and the LGW is 866.696 inches. A total of 725.86 inches was examined which results in 85.0% coverage. The requirements of MRP-227-A, Table 4-3, Note 4 have been met.				
Core Barrel Assembly Lower core barrel flange weld (Note 5)	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 4).	82% of the LFW was examined during 1R25. See comments.	The EVT – 1 examination of the one lower core barrel weld was SAT. The weld was inspected from the exterior.

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
<p>Comments: This Lower Flange Weld was inspected from the exterior of the core barrel; therefore, the weld inspection length is determined from the outer core barrel diameter. Cleaning of the weld was not required. The total weld length is 433.348 inches computed from the calculated outer diameter of 137.939 inches. A total of 355.19 inches were examined resulting in 82% coverage. Coverage limitations occurred due to the narrow gap between the core barrel and reactor cavity wall. No issues were identified.</p>				
Baffle-Former Assembly Baffle-edge bolts	Visual examination (VT-3)	<p>Bolts and locking devices on high fluence seams. 100% of components accessible from core side (Note 3).</p> <p>See Figure 4-23 of MRP-227-A.</p>	During 1R23 (Fall 2010), 936 accessible baffle – edge bolts received VT – 3 inspection.	One baffle edge bolt was found to have a missing weld on one side of its lock bar. This was attributed to a fabrication error, not aging effects, and is acceptable for continued safe operation. Re-inspected during 1R25.
<p>Comments: These exams were completed before EPRI had prepared a MRP – 227 reporting template. EPRI was notified of these data through a detailed narrative summary submitted to the MRP.</p> <p>During 1R25 (Fall 2013), the one baffle-edge bolt with the known indication was visually re – inspected per VT-3 requirements. The visual examination was satisfactory; no changes in the condition were noted.</p>				
Baffle-Former Assembly Baffle-former bolts	Volumetric examination (UT)	<p>100% of accessible bolts (Note 3). Heads accessible from the core side. UT accessibility may be affected by complexity of head and locking device designs.</p> <p>See Figures 4-23 and 4-24 of MRP-227-A.</p>	During 1R23 (Fall 2010), 1088 baffle – to – former bolts received UT examination and the locking bars received VT – 3 examinations.	The most significant examination result was detection of a likely flaw in one bolt, identified as "C113". The depth of the flaw in C113 is not quantified; however, it is located at the head to shank region of the bolt. Also, some channels of the UT signals showed a significant "back wall" reflection from the end of the bolt, so the bolt is not completely severed. The lock bar for this bolt has no relevant conditions and is considered capable of performing its retention function.

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
<p>Comments:</p> <p>These were completed during 1R23 (Fall 2010).</p> <p>These exams were completed before EPRI had prepared a MRP – 227 reporting template. EPRI was notified of these data through a detailed narrative summary submitted to the MRP.</p> <p>Visual re – examinations were completed during 1R25 to confirm no changes in conditions; visual examination was confirmation that lock – bar and welds remained intact.</p>				
Baffle-Former Assembly Assembly (Includes: Baffle plates, baffle edge bolts and indirect effects of void swelling in former plates)	Visual examination (VT-3)	Core side surface as indicated. See Figures 4-24, 4-25, 4-26 and 4-27 of MRP-227-A.	The inspection for gaps and distortion due to void swelling has not been done yet. The edge bolt inspection is reported above.	Examinations were SAT – no relevant conditions were noted.
<p>Comments:</p> <p>During 1R25 (Fall 2013), all of the baffle seams and plate inside the Unit 1 Core Barrel were inspected, and the inspections met the VT – 3 requirements. All VT – 3 inspections of the Baffle – Former Assembly Baffle Plates and Seams were Satisfactory.</p> <p>During 1R25 (Fall 2013), the four baffle-former bolts with the known indications were visually re – inspected per VT-3 requirements to ensure all locking bars and locking bar welds were intact. The visual examinations were satisfactory; no changes in the conditions were noted.</p>				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Alignment and Interfacing Components Internals hold down spring	Direct measurement of spring height	Measurements should be taken at several points around the circumference of the spring, with a statistically adequate number of measurements at each point to minimize uncertainty. See Figure 4-28 of MRP-227-A.	Direct measurement of the Reactor Vessel HDS was completed during 1R24 – measurements were taken at 8 locations in the same general areas as the as – built measurements. Unit 1's HDS is 304 – SS.	The estimated average spring height was 3.6312 ± 0.0002 inches. This result is greater than the minimum requirement of 3.610 inches; therefore, the final result is acceptable. This result confirms adequate hold down capability through at least 60 total years of reactor operation. These exams were completed during 1R24 (Spring 2012) and the Inspection Results report was submitted 2/5/2013.
<p>Comments: Because Unit 1 has an austenitic (304 – SS) stainless steel hold down spring, measurements of its relaxation was required per the MRP-227-A guidance. Per analysis, considering Surry Unit 1 as-built dimensions and the required hold down force for design conditions, the minimum acceptable height for assuring a minimum for 60 year service life was computed.</p> <p>During 1R24 (Spring 2012), spring height measurements were taken at eight locations (every 45°) with three individual measurements taken at each location.</p> <p>The estimated average spring height was 3.6312 ± 0.0002 inches. This result is greater than the minimum requirement; therefore, the final result is acceptable. This result confirms adequate hold down capability through at least 60 total years of reactor operation, and no further measurements are required.</p>				
Thermal Shield Assembly Thermal shield flexures	Visual examination (VT-3)	100% of thermal shield flexures. See Figures 4-29 and 4-36 of MRP-227-A.	Examination completed during 1R25 (Fall 2013) – examination satisfactory.	Examinations were SAT – no relevant conditions were noted.
<p>Comments:</p> <p>The Thermal Shield Flexures were examined for evidence of cracking (fatigue) or loss of material (wear) which could result in thermal shield flexure excessive wear, fracture, or complete thermal shield flexure separation from the core barrel. The VT – 3 examinations of the thermal shield flexures are summarized in Table 2, and all visual exams were satisfactory.</p>				

Notes to Westinghouse Primary Components Table:

1. Examination acceptance criteria and expansion criteria for the Westinghouse components are in Table 5-3 of MRP-227-A.
2. A minimum of 75% of the total identified sample population must be examined.
3. A minimum of 75% of the total population (examined + unexamined), including coverage consistent with the Expansion criteria in Table 5-3 of MRP-227-A, must be examined for inspection credit.
4. A minimum of 75% of the total weld length (examined + unexamined), including coverage consistent with the Expansion criteria in Table 5-3 of MRP-227-A, must be examined from either the inner or outer diameter for inspection credit.
5. The lower core barrel flange weld may be alternatively designated as the core barrel-to-support plate weld in some Westinghouse plant designs.

Expansion Components

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Upper Internals Assembly Upper core plate	Enhanced visual examination (EVT-1)	100% of accessible surfaces (Note 2).	N/A	N/A
Comments:				
Lower Internals Assembly Lower support forging or castings	Enhanced visual examination (EVT-1)	100% of accessible surfaces (Note 2). See Figure 4-33 of MRP-227-A.	N/A	N/A
Comments:				
Core Barrel Assembly Barrel-former bolts	Volumetric examination (UT)	100% of accessible bolts. Accessibility may be limited by presence of thermal shields or neutron pads (Note 2). See Figure 4-23 of MRP-227-A.	N/A	N/A

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Comments:				
Lower Support Assembly Lower support column bolts	Volumetric examination (UT)	100% of accessible bolts or as supported by plant-specific justification (Note 2). See Figures 4-32 and 4-33 of MRP-227-A.	N/A	N/A
Comments:				
Core Barrel Assembly Core barrel outlet nozzle welds	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 2). See Figure 4-22 of MRP-227-A.	N/A	N/A
Comments:				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Core Barrel Assembly Upper and lower core barrel cylinder axial welds	Enhanced visual examination (EVT-1)	100% of one side of the accessible surfaces of the selected weld and adjacent base metal (Note 2). See Figure 4-22 of MRP-227-A.	N/A	N/A
Comments:				
Lower Support Assembly Lower support column bodies (non cast)	Enhanced visual examination (EVT-1)	100% of accessible surfaces (Note 2). See Figure 4-34 of MRP-227-A.	N/A	N/A
Comments:				
Lower Support Assembly Lower support column bodies (cast)	Enhanced visual examination (EVT-1)	100% of accessible support columns (Note 2). See Figure 4-34 of MRP-227-A.	N/A	N/A

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings (Note 1)
Comments:				
Bottom Mounted Instrumentation System Bottom-mounted instrumentation (BMI) column bodies	Visual examination (VT-3)	100% of BMI column bodies for which difficulty is detected during flux thimble insertion/withdrawal. See Figure 4-35 of MRP-227-A.	N/A	N/A
Comments:				

Notes to Westinghouse Expansion Component Table:

1. Examination acceptance criteria and expansion criteria for the Westinghouse components are in Table 5-3 of MRP-227-A .
2. A minimum of 75% coverage of the entire examination area or volume, or a minimum sample size of 75% of the total population of like components of the examination is required (including both the accessible and inaccessible portions).

Existing Programs Components

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings
Core Barrel Assembly Core barrel flange	Visual examination (VT-3) to determine general condition for excessive wear.	All accessible surfaces at specified frequency.	Examination completed during 1R25 – Fall of 2013. No issues were noted. 100% coverage.	No findings – examination satisfactory.
Comments:				
Upper Internals Assembly Upper support ring or skirt	Visual examination (VT-3)	All accessible surfaces at specified frequency.	Examination completed during 1R25 – Fall of 2013. No issues were noted. 100% coverage.	No findings – examination satisfactory.
Comments:				
Lower Internals Assembly Lower core plate XL lower core plate (Note 1)	Visual (VT-3) examination of the lower core plates to detect evidence of distortion and/or loss of bolt integrity.	All accessible surfaces at specified frequency.	Examination completed during 1R25 – Fall of 2013. No issues were noted. 100% coverage.	No findings – examination satisfactory.
Comments:				

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings
Lower Internals Assembly Lower core plate XL lower core plate (Note 1)	Visual examination (VT-3)	All accessible surfaces at specified frequency.	Examination completed during 1R25 – Fall of 2013. No issues were noted. 100% coverage	No findings – examination satisfactory.
Comments:				
Bottom Mounted Instrumentation System Flux thimble tubes	Surface examination (ET)	Eddy current surface examination as defined in plant response to IEB 88-09.	1R24 (May 2012) 49 of 50 flux thimble tubes for SPS Unit 1. 1 flux thimble tube is capped – removed from service (tube F-4).	No issues were noted.
Comments: The following flux thimble tubes were replaced prior to the May 2012 inspection: B10, D12, E5, F2, H1, H13, J3, J12, L4, L5, L14, N12, & R8. Flux Thimble tube B7 had 43% OUTER WALL DEGRADATION. Flux Thimble tube E11 had 10% INNER WALL DEGRADATION. No inspection during 1R25 (Fall 2013).				
Alignment and Interfacing Components Clevis insert bolts	Visual examination (VT-3)	All accessible surfaces at specified frequency.	Examination completed during 1R25 – Fall of 2013. No issues were noted. 100% coverage	No findings – examination satisfactory.

Item	Examination Method	Required Examination Coverage	Coverage Achieved	Examination Findings
Comments: For Surry Unit 1, the bolting was specifically examined (VT-1 was used since VT-1 was also being performed of the weld to the vessel) with no relevant conditions for the bolting.				
Alignment and Interfacing Components Upper core plate alignment pins	Visual examination (VT-3)	All accessible surfaces at specified frequency.	Examination completed during 1R25 – Fall of 2013. No issues were noted. 100% coverage.	No findings – examination satisfactory.
Comments:				

Notes to Westinghouse Existing Programs Components Table:

1. XL = "Extra Long" referring to Westinghouse plants with 14-foot cores.