



LR-N17-0192

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

Salem Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-70 and DPR-75
NRC Docket Nos. 50-272 and 50-311

Subject: Anchor Darling Double Disc Gate Valve Information and Status

- References:
- 1) Letter from Greg Krueger (NEI) to John Lubinski (U.S. Nuclear Regulatory Commission), Anchor Darling Double Disc Gate Valve Industry Resolution Plan Update (Project 689), dated August 4, 2017
 - 2) Letter from Joe Pollock (NEI) to Brian Holian (U.S. Nuclear Regulatory Commission), NSIAC Concurrence on Anchor Darling Double Disc Gate Valve Industry Response Actions (Project 689), dated October 26, 2017
 - 3) BWROG Topical Report TP-16-1-112, Revision 4, Recommendations to Resolve Flowserve 10CFR Part 21 Notification Affecting Anchor Darling Double Disc Gate Valve Wedge Pin Failure

In Reference 1, the Nuclear Energy Institute (NEI) provided the NRC a resolution plan for the U.S. Nuclear Industry to address the known Anchor Darling Double Disk Gate Valve (ADDDGV) issues. Reference 2 indicated each utility will provide a listing of their Anchor Darling valve population with active safety functions along with relevant valve information, including the results of susceptibility evaluations, repair status, and a repair schedule for each susceptible valve not yet repaired. This letter serves to provide this information for Salem Generating Station, Units 1 and 2.

The Attachment to this letter contains the following information for each ADDDGV:

- Plant Name, Unit, and Valve ID.
- System.
- Valve Functional Description.
- Valve Size.
- Active Safety Function (open, close, both).

- Are multiple design basis post-accident strokes are required (yes/no).
- Expert Panel Risk Ranking (high, medium, low).
- Result of susceptibility evaluation (susceptible or not susceptible).
- Is the susceptibility evaluation in general conformance with TP16-1-112R4 (Reference 3)?
- Does the susceptibility evaluation rely on thread friction? If yes, was the COF greater than 0.10? For cases where thread-friction was relied upon, information is provided whether the coefficient of friction was above or below 0.1.
- Was an initial stem-rotation check performed? If yes, include rotation criteria (i.e. ≤ 10 degrees or ≤ 5 degrees).
- Was the diagnostic test data reviewed for failure precursors described in TP16-1-112R4 (Reference 3)?
- The valve's repair status (i.e. repaired or not repaired).
- A repair schedule for each susceptible valve.

There are no regulatory commitments in this letter.

Should you have any questions or require additional information, please contact Mr. Justin Wearne at 856-339-1351.

Sincerely,



Paul J. Davison
VP Nuclear Engineering
PSEG Nuclear

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Attachment 1: Salem Units 1 and 2 ADDDGV Listing

cc: Mr. David Lew, Regional Administrator - NRC Region 1
Ms. Carleen Parker, Project Manager - USNRC
Mr. Patrick Finney, USNRC Senior Resident Inspector - Salem
Mr. Patrick Mulligan, Manager IV, NJBNE
Mr. Lee Marabella, Corporate Commitment Tracking Coordinator
Mr. Thomas Cachaza, Salem Commitment Tracking Coordinator

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Attachment 1

Salem Units 1 and 2 ADDDGV Listing

LR-N17-0192 Salem Units 1 and 2 ADDDGV Listing

Plant Name	Unit	Valve ID Functional Location (MOV)	System	Valve Functional Description	Valve Size (inches)	Active Safety Function (Open, Close, Both)	Are multiple design basis post accident strokes required? (Yes/No)	Expert Panel Risk Ranking (High, Medium, Low)	Result of susceptibility evaluation (susceptible or not susceptible)	Is the susceptibility evaluation in general conformance with TP16-1-112R4?(A) (Yes/No)	Does the susceptibility evaluation rely on thread friction? If yes, was the COF greater than 0.10? (No), (Yes, >0.10), (Yes, ≤0.10)	Was an initial stem-rotation check performed? If yes, include rotation criteria (No), (Yes, ≤10 deg.), (Yes, ≤5 deg.)	Was diagnostic test data reviewed for failure precursors described in TP 16-1-112 R4? (Yes/No)	Valve repair status (repaired or not repaired)	Comments
Salem	2	S2SJ -21SJ44-MTRY	Safety Injection	CONT SUMP SUCT VALVE	14"	Both	Yes	Medium	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	Repair scoped into 2R23
Salem	2	S2SJ -22SJ44-MTRY	Safety Injection	CONT SUMP SUCT VALVE	14"	Both	Yes	Medium	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	Repair scoped into 2R23
Salem	1	S1SJ -11SJ44-MTRY	Safety Injection	CONT SUMP SUCT VALVE	14"	Both	Yes	Medium	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Repaired	No Further action required. Note 1
Salem	1	S1SJ -12SJ44-MTRY	Safety Injection	CONT SUMP SUCT VALVE	14"	Both	Yes	Medium	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Repaired	No Further action required. Note 1
Salem	1	S1SJ -1SJ12-MTRY	Safety Injection	BIT OUTLET MOV	4"	Both	Yes	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	1R26 or 1R27
Salem	1	S1SJ -1SJ13-MTRY	Safety Injection	BIT OUTLET MOV	4"	Both	Yes	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	1R26 or 1R27
Salem	1	S1SJ -1SJ4-MTRY	Safety Injection	BIT INLET MOV	4"	Both	Yes	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	1R26 or 1R27
Salem	1	S1SJ -1SJ5-MTRY	Safety Injection	BIT INLET MOV	4"	Both	Yes	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	1R26 or 1R27
Salem	1	S1SJ -11SJ45-MTRY	Safety Injection	RHR TO SI PMPS STOP MOV	8"	Open	No	Medium	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	Medium Risk must be repaired in 1R26
Salem	1	S1SJ -12SJ45-MTRY	Safety Injection	RHR TO CHG SI PMPS STOP MOV	8"	Open	No	Medium	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Repaired	No Further action required. Note 1
Salem	1	S1CS -11CS36-MTRY	Containment Spray	RHR CS STOP VALVE	8"	Both	Yes	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	1R26 or 1R27
Salem	1	S1CS -12CS36-MTRY	Containment Spray	RHR CS STOP VALVE	8"	Both	Yes	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	1R26 or 1R27
Salem	1	S1SJ -11SJ40-MTRY	Safety Injection	SJ HDR STOP VALVE	4"	Both	Yes	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	Due for Diagnostic testing in 1R26
Salem	1	S1SJ -12SJ40-MTRY	Safety Injection	SJ HDR STOP VALVE	4"	Both	Yes	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Repaired	No Further action required. Note 1
Salem	2	S2SJ -21SJ40-MTRY	Safety Injection	SJ HDR STOP VALVE	4"	Both	Yes	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	Repair scoped into 2R23
Salem	2	S2SJ -22SJ40-MTRY	Safety Injection	SJ HDR STOP VALVE	4"	Both	Yes	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	Repair scoped into 2R23
Salem	1	S1RHR-11RH4-MTRY	Residual Heat Removal	RHR PUMP SUCT MOV	14"	Close	No	Medium	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	1	S1RHR-12RH4-MTRY	Residual Heat Removal	RHR PUMP SUCT MOV	14"	Close	No	Medium	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	2	S2RHR-21RH4-MTRY	Residual Heat Removal	RHR PUMP SUCT MOV	14"	Close	No	Medium	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	Internal Inspection performed Apr-2017. No issue identified during internal inspection.
Salem	2	S2RHR-22RH4-MTRY	Residual Heat Removal	RHR PUMP SUCT MOV	14"	Close	No	Medium	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	1	S1RHR-11RH19-MTRY	Residual Heat Removal	RHR HX DISCH CROSS CONN MOV	8"	Close	No	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Not Repaired	1R26 or 1R27
Salem	1	S1RHR-12RH19-MTRY	Residual Heat Removal	RHR HX DISCH CROSS CONN MOV	8"	Close	No	Low	No	Y (using thread friction) Note 2	Yes COF > 0.10	Yes, < 5 deg.	Yes	Repaired	No Further action required. Note 1
Salem	1	S1CC -1CC117-MTRY	Component Cooling	RCP CC INLET MOV	6"	Close	No	Low	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	1	S1CC -1CC118-MTRY	Component Cooling	RCP CC INLET MOV	6"	Close	No	Low	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	1	S1CC -1CC136-MTRY	Component Cooling	RCP BRG MOV	6"	Close	No	Low	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	1	S1CC -1CC187-MTRY	Component Cooling	RCP MOT BRG CC MOV	6"	Close	No	Low	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	1	S1SJ -1SJ135-MTRY	Safety Injection	SJ DISCH TO COLD LEGS VLV	4"	Close	No	Low	No	Y (Pin shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	2	S2CC -2CC117-MTRY	Component Cooling	RCP CC INLET MOV	6"	Close	No	Low	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	2	S2CC -2CC118-MTRY	Component Cooling	RCP CC INLET MOV	6"	Close	No	Low	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	2	S2CC -2CC136-MTRY	Component Cooling	RCP BRG MOV	6"	Close	No	Low	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	2	S2CC -2CC187-MTRY	Component Cooling	RCP MOT BRG CC MOV	6"	Close	No	Low	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	
Salem	2	S2SJ -2SJ135-MTRY	Safety Injection	SJ DISCH TO COLD LEGS VLV	4"	Close	No	Low	No	Y (Pin Shear only)	No - Note 3	Yes, < 5 deg.	Yes	Not Repaired	

(A) Applied Wedge Pin Torque must bound anticipated design basis operating torque requirements and current maximum total torque.

- NOTES:**
- The Repair method for the MOV's includes replacing the stem with a new stem with a integral collar, torquing the stem/wedge connection to 120 percent of the maximum anticipated design basis operating torque (assuming a 0.20 COF), and pinning the connection with new Inconel 718 pins.
 - For all MOVs which required thread friction to validate the current operational capability, PSEG plans to repair all 18 valves IAW the schedule above (within the next two refuel outages at each unit)
 - For the remaining 14 MOVs which screened out as acceptable based on PIN shear capability alone, PSEG plans to monitor using normally scheduled diagnostic testing and stem rotation checks per the MOV program requirements IAW NRC GL 96-05.