



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

January 30, 2017

10 CFR 50.73

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

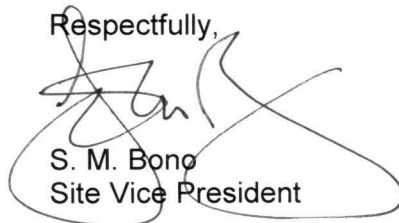
Browns Ferry Nuclear Plant, Unit 1
Renewed Facility Operating License No. DPR-33
NRC Docket No. 50-259

Subject: **Licensee Event Report 50-259/2016-005-00**

The enclosed Licensee Event Report provides details of the inoperability of three Main Steam Relief Valves for longer than allowed by plant Technical Specifications. The Tennessee Valley Authority is submitting this report in accordance with Title 10 of the Code of Federal Regulations 50.73(a)(2)(i)(B), as any operation or condition which was prohibited by the plant's Technical Specifications.

There are no new regulatory commitments contained in this letter. Should you have any questions concerning this submittal, please contact M. W. Oliver, Nuclear Site Licensing Manager, at (256) 729-2636.

Respectfully,

A handwritten signature in black ink, appearing to read 'S. M. Bond', written over a circular stamp or seal.

S. M. Bond
Site Vice President

Enclosure: Licensee Event Report 50-259/2016-005-00 – Main Steam Relief Valves Lift Settings Outside of Technical Specifications Required Setpoints

cc (w/ Enclosure):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Browns Ferry Nuclear Plant

ENCLOSURE

**Browns Ferry Nuclear Plant
Unit 1**

Licensee Event Report 50-259/2016-005-00

Main Steam Relief Valves Lift Settings Outside of Technical Specifications Required Setpoints

See Enclosed



LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME

Browns Ferry Nuclear Plant, Unit 1

2. DOCKET NUMBER

05000259

3. PAGE

1 OF 7

4. TITLE

Main Steam Relief Valves Lift Settings Outside of Technical Specifications Required Setpoints

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	30	2016	2016	- 005	- 00	01	30	2017	N/A	N/A
9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)							
1			<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)		<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)		
			<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)		
			<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)		<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)		
			<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)		
10. POWER LEVEL			<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)		
			<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)		
			<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> 73.77(a)(1)		
			<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(D)		<input type="checkbox"/> 73.77(a)(2)(i)		
			<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)		<input type="checkbox"/> 50.73(a)(2)(vii)		<input type="checkbox"/> 73.77(a)(2)(ii)		
			<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input type="checkbox"/> OTHER		Specify in Abstract below or in NRC Form 366A			

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT

Ryan Coons, Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

256-729-2070

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	SB	RV	T020	Y	N/A	N/A	N/A	N/A	N/A

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR
N/A	N/A	N/A

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On November 30, 2016, the Tennessee Valley Authority was presented with as-found testing results indicating that three of the thirteen Main Steam Relief Valves (MSRVs) from Browns Ferry Nuclear, Unit 1, exceeded the +/- 3 percent setpoint required for their operability. Troubleshooting determined that the MSRV discs failed by corrosion bonding to their valve seats. The valve discs were previously platinum coated to prevent this, but the valve seat's rough Stellite surface caused the coating to delaminate.

These three MSRVs were found to have been inoperable for an indeterminate period of time between October 29, 2014, and October 1, 2016, and longer than permitted by Technical Specifications. The affected valves remained capable of maintaining reactor pressure within American Society of Mechanical Engineers code limits. Additionally, the valves' ability to open under remote-manual operation, activation through the Automatic Depressurization System, or MSRV Automatic Actuation Logics was not affected. The valves remained capable of performing their required safety function.

Corrective Actions were to replace all Unit 1 MSRV pilot valves, to analyze the pilot valves of the inoperable MSRVs, and to revise procedures to verify the pilot disc finish meets its requirements prior to valve assembly.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME

Browns Ferry Nuclear Plant, Unit 1

2. DOCKET NUMBER

05000259

3. LER NUMBER

YEAR	SEQUENTIAL NUMBER	REV NO.
2016	- 005	- 00

NARRATIVE**I. Plant Operating Conditions Before the Event**

At the time of discovery, Browns Ferry Nuclear Plant (BFN), Unit 1, was in Mode 1 at 100 percent power.

II. Description of Event**A. Event Summary**

On November 30, 2016, National Technical Systems (NTS) Laboratories provided Tennessee Valley Authority (TVA) with the as-found testing results of the thirteen Main Steam Relief Valves (MSRVs) [RV] which were removed during the Fall 2016 Unit 1 Refueling Outage 11 (U1R11). Three of the Main Steam Line C and D Relief Valves (BFN-1-PCV-001-0030, BFN-1-PCV-001-0041, and BFN-1-PCV-001-0180) had as-found lift settings which exceeded the +/- 3 percent setpoint required for their operability.

Technical Specification (TS) 3.4.3 requires twelve of the thirteen Safety/Relief Valves (S/RVs) to be operable for S/RV system operability. These three MSRVs were found to have been inoperable for an indeterminate period of time between October 29, 2014, and October 1, 2016, and longer than permitted by TS 3.4.3.

MSRV operability was restored on November 4, 2016, upon completion of a post-maintenance testing (PMT) following the biennial scheduled replacement of the MSRV pilot valves with refurbished valves which were certified to lift within +/- 1 percent of their setpoints.

Throughout this event, the two-stage MSRV pilot valves remained capable of maintaining the reactor pressure below 1375 psig, which is the American Society of Mechanical Engineers (ASME) code limit of 110 percent of the vessel design pressure. The valves remained capable of performing their required safety function.

B. Status of structures, components, or systems that were inoperable at the start of the event and that contributed to the event

There were no structures, systems, or components (SSCs) whose inoperability contributed to this event.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Browns Ferry Nuclear Plant, Unit 1	05000259	2016	- 005	- 00

NARRATIVE**C. Dates and approximate times of occurrences**

<u>Dates & Approximate Times</u>	<u>Occurrence</u>
October 9, 2014	The MSRV pilot valves are replaced, as part of the Unit 1 Refueling Outage 10. PMT was delayed until after the outage ends, since the surveillance used as a PMT requires a minimum reactor pressure of 935 psig.
October 29, 2014	Unit 1 enters Mode 1, beginning the fuel cycle.
October 30, 2014	The MSRVs complete their PMT.
October 1, 2016	BFN, Unit 1 enters Mode 5, to begin the U1R11 refueling outage.
November 4, 2016	Replacement of MSRV pilot valves and their associated post maintenance testing is completed, as part of the U1R11 refueling outage.
November 30, 2016	NTS Laboratories provided TVA with the as-found testing results of the thirteen Unit 1 MSRV pilot valves removed during the U1R11 outage.

D. Manufacturer and model number of each component that failed during the event

The failed components were all Target Rock Corporation two-stage pressure control valves, model number 7567F.

E. Other systems or secondary functions affected

No other systems or secondary functions were affected by this event.

F. Method of discovery of each component or system failure or procedural error

Failure was discovered at NTS Laboratories, during their as-found testing of the thirteen MSRV two-stage pilot valves which were removed during the Fall 2016 U1R11.

G. The failure mode, mechanism, and effect of each failed component

The two-stage pilot valves failed due to the corrosion bonding of the valve disc to the valve seat.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Browns Ferry Nuclear Plant, Unit 1	05000259	2016	- 005	- 00

NARRATIVE**H. Operator actions**

There were no operator actions associated with this event.

I. Automatically and manually initiated safety system responses

There were no automatic or manual safety system responses associated with this event.

III. Cause of the event**A. Cause of each component or system failure or personnel error**

The two-stage pilot valves failed due to the valve disc corrosion bonding to the valve seat.

B. Cause(s) and circumstances for each human performance related root cause

No human performance related root causes were identified.

IV. Analysis of the event

The Tennessee Valley Authority is submitting this report in accordance with Title 10 of the Code of Federal Regulations 50.73(a)(2)(i)(B), as any operation or condition which was prohibited by the plant's TS. It was determined that the MSRV pilot valve inoperability resulted from their setpoints gradually drifting during the course of their operating cycle, which began on October 29, 2014, and lasted until October 1, 2016, when Unit 1 entered Mode 4.

BFN, Unit 1, TS Limiting Condition for Operation (LCO) 3.4.3 requires twelve Operable S/RVs during Modes 1, 2, and 3. If one or more required S/RVs becomes inoperable, Required Action A.1 requires BFN, Unit 1, to enter Mode 3 within 12 hours, and Required Action A.2 requires entering Mode 4 within 36 hours. S/RV Operability is defined as being within +/- 3 percent of their setpoint values, in accordance with Surveillance Requirement (SR) 3.4.3.1. BFN, Unit 1, has thirteen MSRVs to satisfy this requirement with margin.

After their installation on October 9, 2014, the as-left lift setpoint for Main Steam Line C Relief Valve was 1145 psig, and the Main Steam Line D Relief Valves had as-left lift setpoints of 1155 psig. However, during as-found testing at NTS Laboratories, the lift setpoint for Main Steam Line C Relief Valve BFN-1-PCV-001-0030 was found to be 1181 psig (+ 3.14 percent), and the setpoints for Main Steam Line D Relief Valves BFN-1-PCV-001-0041 and BFN-1-PCV-001-0180 were found to be 1278 psig (+10.65 percent) and 1209 psig (+4.68 percent), respectively. During the fuel cycle, these valve lift setpoints gradually drifted outside of the +/- 3 percent margin which is required for their operability. This failure was due to corrosion bonding between the valve discs and their seats which occurred after their installation but before Unit 1 entered Mode 4 on October 1, 2016. Therefore, BFN, Unit 1, operated with inoperable S/RVs for longer than what is allowed by TS.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Browns Ferry Nuclear Plant, Unit 1	05000259	2016	- 005	- 00

NARRATIVE

On October 9, 2014, all thirteen BFN, Unit 1 MSRV pilot valves were replaced with refurbished valves which were certified to lift within +/- 1 percent of their setpoint. Operating experience (OE) has shown that Target Rock two-stage MSRV setpoint drift is not a uniform, linear process. The corrosion bonding increases at a random rate. Without an accurate and reliable model for predicting or estimating the setpoint drift development, the point in time where the setpoint exceeded the +/- 3 percent limit cannot be reliably determined. Since this drift occurred between the beginning of the fuel cycle on October 29, 2014, and October 1, 2016, when Unit 1 entered Mode 4, the MSRV inoperability was conservatively declared to have been inoperable for an indeterminate period of time between October 29, 2014, and October 1, 2016, and longer than permitted by plant TS 3.4.3.

V. Assessment of Safety Consequences

System availability was not impacted by this event. The failure of BFN-1-PCV-001-0030, an Automatic Depressurization System (ADS) valve, to meet the mechanical setpoint identified in TS 3.4.3 does not impact its remote-manual operation, or activation through the ADS or MSRV Automatic Actuation Logics since these operating modes and functions rely upon an electrical signal to energize the MSRV control air solenoid which electrically opens the pilot valve.

TS Bases 3.4.3 states that the overpressure protection system must accommodate the most severe pressurization transient. The MSRVs remained capable of maintaining the reactor pressure below 1375 psig, which is the ASME code limit (110 percent of the vessel design pressure). The valves remained capable of performing their required safety function.

The bounding maximum over-pressurization analyses are performed each fuel cycle to show that the requirements of the ASME code regarding overpressure protection are met. The analyses are performed specifically to show that the dome pressure TS limit of 1325 psig is not exceeded and that the vessel pressure does not exceed the limit of 1375 psig. In addition, the Anticipated Transient Without Scram (ATWS) pressurization analyses are also performed to demonstrate that the 1500 psig peak vessel pressure limit is not exceeded.

NUREG-0800 defines bases the acceptance criteria for reactor coolant pressure on the ASME Service Level C limits, which are approximately 10.3 MPa (1500 psig) for BWRs. For the ATWS analysis, the setpoint groupings conservatively bound the ten lowest as-found MSRV opening setpoints; however, the three highest valve setpoints fall outside the bounds of the valve groupings. Therefore the limiting ATWS overpressurization event, identified as the ATWS pressure regulator failed open at 100% rated power and 81% rated flow at the beginning of cycle exposure, was re-analyzed by AREVA. The results from this analysis indicate that despite the three MSRV pilot valves which exceeded their as-found setpoint, the maximum vessel pressure and maximum dome pressure reaches a maximum of 1398 psig, and therefore does not exceed the ATWS vessel pressure limit of 1500 psig. Therefore, there was no impact on the MSRVs to perform their specified safety function.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Browns Ferry Nuclear Plant, Unit 1	05000259	2016	- 005	- 00

NARRATIVE

Based on the above, TVA has concluded that sufficient systems were available to provide the required safety functions needed to protect the health and safety of the public.

A. Availability of systems or components that could have performed the same function as the components and systems that failed during the event

Each BFN operating unit has a non-safety related, electrical logic system (MSRV Actuation Logic) installed, which provides defense-in-depth against MSRV setpoint drift by electrically opening MSRV groups based upon setpoints at 1135 psig, 1145 psig and 1155 psig. Therefore, during a reactor pressure transient event, the four 1135 psig group MSRVs, followed by the four 1145 psig group MSRVs, and finally the five 1155 psig group MSRVs would receive an electrical open signal, providing a defense-in-depth function to allow the valves to perform their safety function.

B. For events that occurred when the reactor was shut down, availability of systems or components needed to shutdown the reactor and maintain safe shutdown conditions, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident

This event did not occur when the reactor was shutdown.

C. For failure that rendered a train of a safety system inoperable, estimate of the elapsed time from discovery of the failure until the train was returned to service

TS 3.4.3 requires twelve of the thirteen S/RVs to be operable for S/RV system operability. The three failed MSRV pilot valves rendered the entire S/RV system inoperable for the duration of the fuel cycle, from October 29, 2014, to October 1, 2016.

VI. Corrective Actions

Corrective Actions are being managed by TVA's corrective action program under Condition Report (CR) 962223.

A. Immediate Corrective Actions

All thirteen of the Unit 1 MSRV pilot valves were replaced with refurbished valves during the U1R11 Refueling Outage. As-left testing verified that these refurbished pilot valves were within 1 percent of their name plate setpoints.

B. Corrective Actions to Prevent Recurrence or to reduce the probability of similar events occurring in the future

The discs from the previous failed pilot valves were analyzed, and their results were documented under CR 962223.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Browns Ferry Nuclear Plant, Unit 1	05000259	2016	- 005	- 00

NARRATIVE

Steps were added to procedure MCI-0-001-VLV002, Main Steam Relief Valves Target Rock Model 7567 Disassembly, Inspection, Rework and Reassembly, to use a borescope, microscope and a Root Mean Square (RMS) optical comparator and a microscope to verify that the pilot disc finish quality is 32 RMS or better, optimally 16 RMS, prior to platinum coating

VII. Previous Similar Events at the Same Site

A search of BFN LERs for Units 1, 2, and 3, identified eight LERs for this same issue within the last eight years. This is a common issue throughout the industry, as corrective actions have only been able to mitigate the problem. By documenting and trending the issue, incremental improvement is being made towards a resolution.

A search of the Corrective Action Program for BFN, Units 1, 2, and 3, identified seventeen MSRV failure events since 1999. These failures were captured by CRs 37328, 59786, 50084, 61823, 81376, 102298, 124944, 146189, 175990, 159200, 226627, 294506, 372047, 558488, 962223, 1157981 and 1237184. These individual failures were collectively evaluated and addressed by CR 112190.

CR 55557 identified that corrosion bonding between the valve discs and their seat surfaces were strong enough to cause significant drifts in their opening pressure and reset setpoints. As a corrective action, a design change was implemented to update/install a safety related pressure switch logic that was endorsed by the BWR Owners Group to resolve setpoint drift issues.

CR 56793 identifies the corrosion-prone materials used in the construction of Target Rock two-stage safety-relief valves presented a fundamental design deficiency. An alternate MSRV design/logic/manufacture was sought, but industry OE demonstrated that the use of platinum coated valve discs provided the best results.

The Corrective Actions for CR 146189 required platinum coated MSRV discs to be installed in future outages to prevent reoccurrence. CR 166147 verified that these platinum coatings were in place.

While the use of platinum coated valve discs has mitigated the occurrence of corrosion-induced setpoint, drift, it continues to occur. Industry OE shows that this is a result of platinum coatings flaking off due to the rough Stellite surfaces of valve discs.

VIII. Additional Information

There is no additional information.

IX. Commitments

There are no new commitments.