



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 4, 2018

MEMORANDUM TO: Robert J. Pascarelli, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Margaret W. O'Banion, Project Manager */RA/*
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF SEPTEMBER 12, 2018, PUBLIC MEETING WITH
THE BOILING WATER REACTOR OWNERS' GROUP ON THE
TARGET ROCK SAFETY RELIEF VALVE SETPOINT DRIFT
ISSUE (EPID L-2018-LRL-0001)

On September 12, 2018, a Category 2 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of the Boiling Water Reactor (BWR) Owners' Group (BWROG). The purpose of the meeting was to discuss the Target Rock safety relief valve (SRV) setpoint drift issue, specifically the potential technical specification (TS) non-compliance concern. The meeting notice and agenda, dated August 29, 2018, are available in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML18241A038. During the meeting, the NRC staff and BWROG representatives presented slides, which are available at ADAMS Accession Nos. ML18255A010 and ML18255A014, respectively. The enclosure to this document contains the meeting attendance list.

The NRC staff presented an overview of the background on the Target Rock SRV setpoint drift issue, the SRV design function, safety significance, TS non-compliance concerns, past industry actions, and next steps. The NRC staff stated that the focus of the discussion was on the 2-stage Target Rock SRV setpoint drift issue experienced at several BWRs. The SRVs are part of the nuclear pressure relief system and are designed to prevent overpressurization in the reactor coolant system. The SRV setpoint drift issue was originally addressed by NRC Generic Safety Issue B-55, "Improved Reliability of Target Rock Safety Relief Valves," but licenses are continuing to experience a large number of surveillance test failures today. The BWR TSs typically allow an SRV to open within a setpoint drift of up to 3 percent, but a number of licensees are experiencing setpoint drift from 3 to 10 percent, with the highest recorded at 18.5 percent. The NRC staff stated that it had reviewed the licensee event reports (LERs) and considered several design aspects to determine the safety significance of the issue. Based on the NRC staff's analysis of the LERs, the staff determined the safety significance of the 2-stage Target Rock setpoint drift issue to be low.

The NRC staff then discussed its TS non-compliance concerns associated with the 2-stage Target Rock SRV setpoint drift issue, as described on slides 8 and 9 of the NRC's presentation. The staff stated that it considers the repeated failure of 2-stage Target Rock SRVs a challenge

to a reasonable expectation of operability. The staff stated that it understands that the industry has identified corrosion-induced oxide bonding as the cause of the issue and has tried many corrective actions with limited success. The staff ended its presentation with several questions for the BWROG representatives, including:

- What potential corrective actions are being considered for a timely resolution?
- What is the confidence level that the corrective actions being considered are likely to succeed?
- What is the expected timeframe for industry to demonstrate reasonable assurance of operability and TS compliance?

The BWROG began its presentation by giving an overview on its BWROG Target Rock SRV Performance Improvement Committee and background on the actions taken thus far to resolve the 2-stage Target Rock SRV setpoint drift issue. The presentation and presenters were solely there to discuss work related to surfacing materials and application techniques on the Target Rock 2-stage valves in question. They were not prepared to address any actions related to licensing or operability issues.

The BWROG representatives stated that the industry has been focused on the application of platinum as a coating on the pilot discs as a possible solution to the corrosion-induced oxide bonding on the SRVs. The BWROG representatives further stated that in 2017 and 2018, the industry used an IBAD process to apply the platinum coating. The BWROG representatives stated that the industry is now testing a new sputtering application process for platinum and testing additional materials. More information on the industry's activities are on slides 3 and 4 of the licensee's presentation. The BWROG representatives concluded their presentation by stating their plan to engage the affected BWR licensees to better understand the issue and to develop a path forward for resolution.

After the BWROG's presentation, the NRC staff asked a series of questions to better understand the activities the BWROG and industry have taken to address the 2-stage Target Rock setpoint drift issue. The BWROG representatives responded with the following clarifying information:

- The industry believes corrosion bonding is the root cause, not delamination.
- The electrical lift function on the pilot valve of the Target Rock SRVs is not in widespread use by licensees and is not credited by TSs.
- The sputtering application process for platinum has not been used before on 2-stage Target Rock SRVs so there is no operating experience.
- This application process is a different way of applying the same surfacing material that has been used before, and allows different material thicknesses to be applied.
- If the sputtering application process passes the autoclave testing, it is estimated that the industry can use this process starting in fall 2019. The sputtering process would need to be used to apply platinum each operating cycle to reduce corrosion bonding.
- Due to the robust autoclave testing technique, the BWROG has confidence that a material that passes the autoclave testing (sputtered platinum or other materials) would not be adversely affected by the reactor environment.

The NRC staff stated that it is open to various solutions, as long as the end result is an alignment between the TSs and SRV performance. While the sputtering technique might be an adequate long-term solution, the NRC staff needs assurance of the operability of the 2-stage

Target Rock SRVs in the short-term. The BWROG representatives stated that there is an internal meeting of the BWROG later in September 2018 and one of the topics of discussion is the 2-stage Target Rock setpoint drift issue. It was agreed that the NRC staff and BWROG representatives will have a subsequent public meeting, after the BWROG internal meeting, to discuss in more detail the path forward for near-term resolution of the potential TS non-compliance issue with the 2-stage Target Rock SRVs.

No regulatory decisions were made during the meeting. One member of the public attended the meeting via telephone. No questions or comments were received during the meeting.

Enclosure:
List of Attendees

SUBJECT: SUMMARY OF SEPTEMBER 12, 2018, PUBLIC MEETING WITH THE BOILING WATER REACTOR OWNERS' GROUP ON THE TARGET ROCK SAFETY RELIEF VALVE SETPOINT DRIFT ISSUE (EPID L-2018-LRL-0001) DATED OCTOBER 4, 2018

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***by email**

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DATE	9/28/18	9/25/18	9/28/18
OFFICE	NRR/DSS/STSB/BC*	NRR/DORL/LPL4/BC	NRR/DORL/LPL4/PM
NAME	VCusumano	RPascarelli	MO'Banion
DATE	10/03/18	10/04/18	10/04/18

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LIST OF ATTENDEES

SEPTEMBER 12, 2018, PUBLIC MEETING WITH THE

BOILING WATER REACTOR OWNERS' GROUP

ON THE TARGET ROCK SAFETY RELIEF VALVE SETPOINT DRIFT ISSUE

Name	Affiliation
Margaret O'Banion	U.S. Nuclear Regulatory Commission (NRC)
Robert Pascarelli	NRC
Stewart Bailey	NRC
Vic Cusumano	NRC
Jane Marshall	NRC
Ross Telson	NRC
Mark King	NRC
Diana Woodyatt	NRC
Ian Tseng	NRC
Jerrold Demers	NRC
Jeremy Groom	NRC
Jeremy Bowen	NRC
Gerry Gulla	NRC
Sunil Weerakkody	NRC
Jim Hickey	NRC
Margaret Chernoff	NRC
Greg Croon	NRC
Jimmy Yerokun	NRC
Blake Welling	NRC
Kevin Mangan	NRC
Justin Hawkins	NRC
Dave Roth	NRC
Gregory Krueger	Boiling Water Reactor Owners' Group (BWROG)
Craig Shepherd	BWROG
Gregory Holmes	BWROG
Robert Hartwick	BWROG
Adam Deatherage	Public