Wolf Creek
Nuclear Operating Corporation

Jaime H. McCoy
Site Vice President

January 11, 2023
WO 23-0002

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

Subject: Docket No. 50-482: Written Part 21 Notification of a Defect Associated with IMI CCI Supplied Main Steam and Main Feedwater Isolation Valves

Commissioners and Staff:

In accordance with the requirements of 10 CFR 21.21(d)(3)(ii), Wolf Creek Nuclear Operating Corporation (WCNOC) hereby submits the attached Wolf Creek Generating Station (WCGS) written notification of a defect or failure to comply. This information was initially reported to the Nuclear Regulatory Commission (NRC) Operations Center on December 12, 2022 (Event Notification 56269). The information provided in the attachment meets the reporting requirements of 10 CFR 21.21(d)(4).

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4156, or Dustin Hamman at (620) 364-4204.

Sincerely,

Jaime H. McCoy

JHM/jkt

Attachment: 10 CFR Part 21 Notification: Defect Associated with IMI CCI Supplied Main Steam and Main Feedwater Isolation Valves

cc: S. S. Lee (NRC), w/a
S. A. Morris (NRC), w/a
G. E. Werner (NRC), w/a
Senior Resident Inspector (NRC), w/a

10 CFR Part 21 Notification:

Defect Associated with ISI CCI Supplied Main Steam and Main Feedwater Isolation Valves

The following information is provided pursuant to 10 CFR 21.21(d)(4).

i. Name and address of the individual or individuals informing the Commission.

Jaime H. McCoy
Site Vice President
Wolf Creek Generating Station
P.O. Box 411
Burlington, KS 66839

ii. Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

Facility: Wolf Creek Generating Station (WCGS)
Docket No. 50-482
License No. NPF-42
Basic Component: Main Steam Isolation Valves (MSIVs) (Valve Type PPS-A 700) and Main Feedwater Isolation Valves (MFIVs) (Valve Type PPS-A 300)

iii. Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

IMI CCI designed and supplied the MSIVs and MFIVs, along with the corresponding maintenance instructions to Wolf Creek Generating Station.
IMI CCI
22591 Avenida Empresa
Rancho Santa Margarita, CA 92688

iv. Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

The MSIVs and MFIVs at WCGS are both similar designs. These MSIVs and MFIVs have a back seat compression ring which is secured internally with 16 bolts. During Refueling Outage 25 (Fall of 2022) two of these bolts were discovered in a steam line strainer basket downstream from that steam line's MSIV. An inspection was performed on the upstream MSIV which confirmed that these two bolts came from that MSIV and that 10 additional bolts had lost their preload and were self-loosening. Borescope inspections were then performed on the other MSIVs and showed that one bolt was missing from a second MSIV, which was subsequently located in the downstream strainer. Because of the similar design, all four MFIVs in the main feedwater lines were then inspected, and no bolts were found to be missing from any of them.

It was determined that the torque values provided by IMI CCI were insufficient to effectively secure the bolts in place. This condition was identified after two operating cycles following rework of the MSIV which lost two bolts, and after one operating cycle following rework for the MSIV that lost one bolt. In the case of the MSIVs, the bolts which came free from the valve body entirely and traveled downstream would not have impacted any safety-related equipment as the MSIVs represent the boundary between safety-related and non-safety related equipment on the main steam lines.

For the MFIVs however, any bolts which came free from the MFIVs could travel unimpeded to the steam generators. The presence of bolts in the steam generator during operation represent foreign material which could damage steam generator tubes and degrade the reactor coolant system barrier. This condition would represent a substantial safety hazard. Therefore, this was determined to be a defect reportable in accordance with 10 CFR 21. Further, if all bolts were to self-loosen and fall from the back seat compression ring, it is unclear if the MSIVs or MFIVs would have been able to adequately perform their isolation safety function.

v. The date on which the information of such defect or failure to comply was obtained.

The issue was entered into the Corrective Action Program on 10/13/2022 (point of discovery). On 12/12/2022, an evaluation was completed that determined that this condition represented a defect or failure to comply which is reportable in accordance with 10 CFR 21. EN #56269 provided the initial notification and was submitted to the NRC Operations Center on 12/12/2022.

vi. In the case of a basic component which contains a defect or failure to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

There are four MSIVs and four MFIVs installed at WCGS. The same valves are also in use in the same locations at Callaway. It is unknown if this design is currently in use at any other sites.

vii. The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

This defect was documented in the WCGS corrective action program. The corrective actions were determined to be to increase the torque values for these bolts and use Nord-lock washers to help prevent bolt loosening. An additional enhancement was also approved to apply thread sealant to these bolts if it is available. Two of the MSIVs (the ones that had missing bolts) have had these actions completed, and all four of the MFIVs have been completed. These actions for the remaining two MSIVs (the two which did not have any missing bolts) are planned to be performed during Refueling Outage 26 (Spring 2024). Regarding the two remaining MSIVs not worked on in Refueling Outage 25, a borescope was utilized in Refueling Outage 25 to validate that no bolts had loosened. Additionally, operating experience indicates that bolts loosen when not tightened to sufficient torque during valve rebuilds. The two remaining MSIVs were tightened during original

manufacturing, have been in service for 14 years, and have not yet been rebuilt at the site (in contrast to the two MSIVs with loose bolts).

viii. Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

None.

ix. In the case of an early site permit, the entities to whom an early site permit was transferred.

This event does not involve an early site permit.