WOLF CREEK
NUCLEAR OPERATING CORPORATION

Cleveland Reasoner
Site Vice President

September 30, 2014
WO 14-0080

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

Reference: 1) Letter ET 14-0018, dated June 26, 2014, from C. Reasoner, WCNOC, to USNRC
2) Letter dated August 21, 2014, from C. F. Lyon, USNRC, to A. C. Heflin, WCNOC

Subject: Docket No. 50-482: Response to Request for Additional Information Regarding Request for Alternative I3R-10

Gentlemen:

Reference 1 provided Wolf Creek Nuclear Operating Corporation's (WCNOC) 10 CFR 50.55a Request Number I3R-10 for the Third Ten-Year Interval of WCNOC's Inservice Inspection (ISI) Program. Request I3R-10 requests relief from the pressure test requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, IWB-5220.

Reference 2 provided a Nuclear Regulatory Commission (NRC) request for additional information (RAI) regarding 10 CFR 50.55a Request Number I3R-10. The attachment provides WCNOC's response to the questions in the RAI.

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4171, or Mr. Steven R. Koenig at (620) 364-4041.

Sincerely,

Cleveland Reasoner

COR/rlt

Attachment

cc: M. L. Dapas (NRC), w/a
C. F. Lyon (NRC), w/a
N. F. O'Keefe (NRC), w/a
Senior Resident Inspector (NRC), w/a

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NRR

Response to Request for Additional Information Regarding Request for Alternative I3R-10 to ASME Code Requirements

Reference 1 provided Wolf Creek Nuclear Operating Corporation's (WCNOC) 10 CFR 50.55a Request Number I3R-10 for the Third Ten-Year Interval of WCNOC's Inservice Inspection (ISI) Program. Request I3R-10 requests relief from the pressure test requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section XI, IWB-5220. Reference 2 provided a Nuclear Regulatory Commission (NRC) request for additional information (RAI) regarding 10 CFR 50.55a Request Number I3R-10. The specific NRC questions are provided below in italics followed by the WCNOC response.

1. *For each pipe segment under consideration (i.e., Portion 1 through Portion 6 piping listed in Section 1.0 of Attachment to I3R-10), please provide the applicable examination category and item number as specified in Table IWB-2500-1, Section XI of the ASME Code.*

Response: Per the ASME Section XI 1998 Edition through 2000 Addenda, Table IWB-2500-1, the applicable Examination Category is B-P, All Pressure Retaining Components, and the item numbers are B15.50 and B15.70 for Portions 1 through 6 presented in I3R-10. Item B15.50 is applicable to the piping and B15.70 is applicable to the valves.

2. *Please clarify if any area(s) of Portion 1 through 6 piping in I3R-10 are insulated or inaccessible. If yes, discuss whether IWA-5241(b) and IWA-5242(b) will be followed. If these two subarticles will not be followed, discuss how the licensee will perform the VT-2 visual examination of the insulated or inaccessible area(s).*

Response: Portions 1 through 5 are insulated. The drain lines in Portion 6 are insulated. The vent lines in Portion 6 are non-insulated.

All of the identified line segments in Portions 1 through 6 are accessible for VT-2 examination in accordance with Code requirements.

ASME Section XI, 1998 Edition through 2000 Addenda paragraph IWA-5241(b) will be met during the performance of the VT-2 examinations on the non-insulated piping segments and paragraph IWA-5242(b) will be met during the performance of the VT-2 examinations on the insulated piping segments.

3. *Please discuss whether there are any welded connections (e.g., butt or socket) in the pipe segments under consideration (i.e., Portion 1 through Portion 6 piping listed in Section 1.0 of Attachment to I3R-10). If yes, (a) discuss whether any of the welds have been examined by volumetric or surface examinations during the current 10-year ISI interval, and whether any weld(s) is in the risk-informed ISI program and has been or will be examined in the current 10-year ISI interval. (b) Discuss whether any pressure boundary leakage was identified during the current 10-year ISI interval in each pipe segment under consideration regardless of how the leakage was identified (e.g., from the ASME Code, Section XI, required pressure testing, boric acid corrosion control program walkdowns, reactor restart walkdowns, etc.).*

Response: All of the line segments identified in Portions 1 through 6 have butt welds. No socket welds are present within the boundaries identified for I3R-10.

(a) There are 258 butt welds identified within the line segments identified for Portions 1 through 6. There are 254 of those welds included in the risk-informed inservice inspection program. The 4 welds not included are on the 1 inch line segments in Portion 6 for the reactor vessel head vent. Of the risk-informed welds that are identified 8 welds are included for examination in the current 10-year ISI Interval. Five (5) of these welds have been previously examined and three (3) are scheduled to be examined in RF20 in the spring of 2015. All of these weld examinations are volumetric examinations.

(b) There has been no Class 1 pressure boundary leakage identified during the current 10-year ISI Interval for the segments under consideration in Portions 1 through 6.

4. *Please discuss reactor coolant system (RCS) leakage detection capabilities at the plant, or any measure(s) taken, to monitor and identify leakage during operation in an unlikely event of a through-wall leak in the pipe segments under consideration.*

Response: In the unlikely event of a through wall leak in the piping components in the identified segments in Portions 1 through 6 during normal operation, the leak would result in unidentified RCS leakage. RCS leakage detection instrumentation have been designed to aid operating personnel in differentiating between possible sources of detected leakage within the containment and identifying the physical location of the leak. The RCS leakage detection instrumentation consists of the sump level and flow monitoring system, the containment atmosphere particulate radioactivity monitors, the containment cooler condensate monitoring system, containment gaseous radioactivity monitors, the containment humidity monitoring system, and containment temperature and pressure monitoring. Technical Specification (TS) 3.4.15, "RCS Leakage Detection Instrumentation," only requires the containment sump level and flow monitoring system, one containment atmosphere particulate radioactivity monitor, and one containment air cooler condensate monitoring system.

The containment atmosphere particulate radioactivity monitors (GT RE-31 and GT RE-32) provide the primary means of remotely determining the presence of reactor coolant leakage within the containment. Increases in containment airborne activity levels detected by either of the monitors indicate the reactor coolant pressure boundary as the source of leakage. An evaluation performed in 2003 determined that the containment atmosphere particulate radioactivity monitors are quite sensitive even under very low RCS activity conditions. The particulate monitors will respond and alarm within 60 minutes to a one gallon per minute (gpm) leak with low RCS activity.

The containment sump level and flow monitoring system includes the instrument tunnel sump and the containment normal sumps. This system detects a leak in the RCS by level changes in the containment normal or instrument tunnel sumps. Indication of increasing sump level is transmitted from the sump to the control room level indicator by means of a sump level transmitter. The system provides measurements of low leakages by monitoring level increase versus time. The sump level is scanned by the balance of plant (BOP) computer over a specified time interval and the leak rate calculation is executed every 15 minutes.

The containment air cooler condensate monitoring system permits measurements of the liquid runoff from the containment cooler units. It consists of a containment cooler drain collection header, a vertical standpipe, valving, and standpipe level instrumentation for each cooler. The condensation from the containment coolers flows via the collection header to the vertical standpipe. A differential pressure transmitter provides standpipe level signals. The system provides measurements of low leakages by monitoring standpipe level increase versus time.

TS 3.4.13, "RCS Operational LEAKAGE," specifies leakage limits to limit system operation in the presence of leakage from RCS components to amounts that do not compromise safety. Surveillance Requirement (SR) 3.4.13.1 requires the performance of a RCS water inventory balance once per 72 hours. Procedure STS BB-006, "RCS Water Inventory Balance Using the NPIS

Computer," or STS BB-004, "RCS Water Inventory Balance," is used to satisfy SR 3.4.13.1 and is performed once per 24 hours as an industry best practice. Procedure STS CR-001, "Shift Log for Modes 1, 2, & 3," monitors the Nuclear Plant Information System (NPIS) containment total unidentified leak rate point (LFU0769) three times per day. If the containment total unidentified leak rate is greater than one gpm, then a RCS water inventory balance is performed per procedure STS BB-006 or STS BB-004. Within procedures STS BB-006 and STS BB-004, there are actions for a leak of > 0.1 gpm (7 day rolling average), > 0.15 gpm (two consecutive measurements), and > 0.3 gpm (one measurement). The actions include checking for abnormal trends on other leakage detection instrumentation and systems, commence a leakage investigation to identify and quantify the leak, perform a containment inspection for leakage, and isolate/stop the leak. Additionally, procedure OFN BB-007, "RCS Leakage High," is entered when indications of increased RCS leakage exist. Entry conditions specific to leakage into containment include increased containment humidity, pressure, or temperature; increased activity on the containment particulate or gaseous radioactivity monitors and containment area radiation monitors; and an indicated increase of the NPIS monitored containment total unidentified leak rate. Diverse operational monitoring principles are necessary because one monitored parameter will always lead the others depending on the actual or postulated plant conditions.

5. *As a basis for hardship for Portion 6 piping, the licensee stated, in part, that,*

> *Manually opening and closing these inboard valves at RCS pressure and temperature creates potential personnel safety issues.*

Please discuss whether hardship is due to Technical Specification limiting conditions, or a radiological dose (as low as is reasonably achievable (ALARA)) concern, or both. If ALARA is a concern, provide estimate for person roentgen equivalent man (rem).

Response: The hardship is a personnel safety issue. The purpose of the end of interval system leakage test is to look for pressure boundary leakage with the test boundaries extended to include all Class 1 components. For vents and drains (Portion 6), this includes the piping and valves between the two closed isolation valves. These isolation valves are manual valves that remain closed except during venting and partial draining of the RCS during refueling outages. In the event that valve packing leakage or valve seat leakage were to occur during the opening of a manual valve at normal operating pressure and temperature, there is a risk of potentially severe burns to the person operating the valve. The performance of this VT-2 examination at a lower pressure and temperature will still achieve the same result of identifying leakage and will reduce the personnel hazards associated with these VT-2 examinations.

The radiological dose will be approximately the same, whether performed as requested in I3R-10 or at normal operating pressure and temperature.

6. *For Portion 1 through 5 piping, please discuss whether the hardship is also due to a radiological dose (ALARA) concern. If yes, provide estimate for person roentgen equivalent man (rem).*

Response: The primary hardships for Portion 1 through 5 are as listed in Request I3R-10. However, I3R-10 sets conditions to perform the VT-2 examinations that would not require a hydrostatic test skid. Performing the VT-2 examinations without the requirement to set up, operate, and remove the hydrostatic test skid would result in some radiological dose reduction. It is estimated that eliminating the setup, operation, and removal of the hydrostatic test skid would save approximately 60 millirem of radiological dose.

References:

1. WCNOC Letter ET 14-0018, "10 CFR 50.55a Request I3R-10 for the Third Inservice Inspection Program Interval," June 26, 2014. ADAMS Accession No. ML14182A087

2. Letter from C. F. Lyon, USNRC, to A. C. Heflin, WCNOC, "Wolf Creek Generating Station – Request for Additional Information Re: Request for Alternative I3R-10 (TAC No. MF4305)," August 21, 2014. ADAMS Accession No. ML14230A757