NRR-PMDAPEm Resource

From:	Wideman Steve G [stwidem@WCNOC.com]
Sent:	Wednesday, September 10, 2014 8:01 PM
To:	Lyon, Fred
Cc:	Koenig Steve R; Muilenburg William T
Subject:	ET 14-0032 - Exigent LAR for TS 3.4.15, "RCS Leakage Detection Instrumentation" Completion Time
Attachments:	ET 14-0032.pdf
Importance:	High

Fred – attached is WCNOC letter ET 14-0032, "Exigent License Amendment Request for Technical Specification 3.4.15, "RCS Leakage Detection Instrumentation" Completion Time Extension." WCNOC is requesting approval by 9/26/14. This date is based on if the exigent LAR is unsuccessful, it would still allow sufficient time to shutdown the plant to MODE 3 (instead of the TS required MODE 5 after October 1 at 1816 CDT) to perform the necessary repairs.

I will be in for a while tomorrow. I will be checking email throughout the week.

Steve Wideman
WCNOC Licensing
620-364-4037
Cell – 620-490-0449

Hearing Identifier: NRR_PMDA
Email Number: 1562

Mail Envelope Properties (3258E47FA4A47747BFA39985EE2B35413A3378)

Subject: ET 14-0032 - Exigent LAR for TS 3.4.15, "RCS Leakage Detection Instrumentation" Completion Time
Sent Date: 9/10/2014 8:01:19 PM
Received Date: 9/10/2014 8:01:26 PM
From: Wideman Steve G

Created By: stwidem@WCNOC.com

Recipients:
"Koenig Steve R" <stkoeni@WCNOC.com>
Tracking Status: None
"Muilenburg William T" <wimuile@WCNOC.com>
Tracking Status: None
"Lyon, Fred" <Fred.Lyon@nrc.gov>
Tracking Status: None

Post Office: WC-E2010.wcnoc.com

Files	**Size**	**Date & Time**
MESSAGE	649	9/10/2014 8:01:26 PM
ET 14-0032.pdf	909232	

Options
Priority: High
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

WOLF CREEK
NUCLEAR OPERATING CORPORATION

Cleveland Reasoner
Vice President Engineering

September 10, 2014
ET 14-0032

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

Subject: Docket No. 50-482: Exigent License Amendment Request for Technical Specification 3.4.15, "RCS Leakage Detection Instrumentation" Completion Time Extension

Gentlemen:

Pursuant to 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," and 10 CFR 50.91, "Notice for public comment; State consultation," Wolf Creek Nuclear Operating Corporation (WCNOC) hereby requests an exigent amendment to Renewed Facility Operating License No. NPF-42 for the Wolf Creek Generating Station (WCGS) to incorporate a one-time Completion Time extension in Technical Specification (TS) 3.4.15, "RCS Leakage Detection Instrumentation." The proposed amendment would add a Note to the 30 day Completion Time of Required Action A.2 to extend the Completion Time to allow the continued operation for Cycle 20 with the instrument tunnel sump level transmitter inoperable until startup from a plant shutdown or startup from Refueling Outage 20 (Spring 2015).

On August 31, 2014 at 2317 Central Daylight Time (CDT) the instrument tunnel sump level transmitter was declared inoperable when the transmitter failed high and was found in the "failsafe" mode. After troubleshooting the transmitter the fault was cleared and returned to "normal" mode. The transmitter failed high an additional four times between September 1, 2014 and September 3, 2014. After the last failure on September 3, 2014, the transmitter was no longer able to be reset. With the instrument tunnel sump level transmitter declared inoperable on September 1, 2014 at 1816 CDT, Condition A of Limiting Condition for Operation (LCO) 3.4.15 was entered with Required Action A.2 requiring restoration of the containment sump level and flow monitoring system to OPERABLE status in 30 days.

Completion of troubleshooting on the level transmitter on September 3, 2014, determined that a complete failure of the level transmitter had occurred and that replacement of the level transmitter is required to restore the containment sump level and flow monitoring system to OPERABLE status. As the instrument tunnel sump level transmitter is in close proximity to the bottom of the reactor vessel, replacement of the level transmitter at power within the 30 day Completion Time of Required Action A.2 cannot be performed due to radiological conditions in this area that prohibit access by plant personnel.

The plant design and leakage detection capabilities provide acceptable means of protecting against large RCS leaks by providing a high degree of confidence that small RCS leaks are detected in time to allow actions to place the plant in a safe condition as required by TS 3.4.13, "RCS Operational LEAKAGE." The proposed one-time extension of the 30 day Completion Time until startup from a plant shutdown or prior to startup from Refueling Outage 20 to allow the plant to continue operation with the instrument tunnel sump level transmitter inoperable is acceptable based on the following. The containment normal sump receives the directed water sources, and only a very small fraction of area in the RCS loop area is available for any spray source to enter the instrument tunnel sump. Other diverse methods of detecting a RCS leak of one gallon per minute in one hour are OPERABLE and/or available. These include the containment normal sump level and flow monitoring, containment atmosphere particulate radioactivity monitor, containment air cooler condensate monitoring system, containment gaseous radioactivity monitors, containment humidity monitoring system, containment temperature and pressure monitoring. The containment atmosphere particulate radioactivity monitors are the leading indicating parameter and are still effective under low RCS activity conditions. A RCS leak of one gpm can be detected within four hours by monitoring the frequency of operation of the containment instrument tunnel sump pumps.

WCNOC requests the proposed change be processed as an exigent change to prevent an unnecessary plant shutdown to effect repair of the instrument tunnel sump level transmitter. The 30 day Completion Time for Required Action A.2 of LCO 3.4.15 will expire on October 1, 2014 at 1816 CDT. Approval of this license amendment request is requested by September 26, 2014. If a plant shutdown is required to replace the instrument tunnel sump level transmitter, this would allow sufficient time for the repair in MODE 3 and not require a plant cooldown to MODE 5.

Attachments I through IV provide the Evaluation, Markup of TSs, Retyped TS pages, and proposed TS Bases changes, respectively, in support of this amendment request. Attachment IV is provided for information only. Final TS Bases changes will be implemented pursuant to TS 5.5.14, "Technical Specification (TS) Bases Control Program," at the time the amendment is implemented.

It has been determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92, "Issuance of amendment." Pursuant to 10 CFR 51.22, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," Section (b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of this amendment.

This amendment application was reviewed by the Plant Safety Review Committee. In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," Section (b)(1), a copy of this amendment application, with attachments, is being provided to the designated Kansas State official.

Attachment V provides a list of regulatory commitments associated with this submittal. It is anticipated that the license amendment, as approved, will be effective upon issuance with implementation to occur upon NRC approval. Please contact me at (620) 364-4171 or Mr. Steven R. Koenig at (620) 364-4041 for any questions you may have regarding this application.

Sincerely,

Cleveland Reasoner

COR/rlt

Attachments: I Evaluation
II Proposed Technical Specification Change (Mark-up)
III Revised Technical Specification Page
IV Proposed TS Bases Change (for information only)
V List of Regulatory Commitments

cc: T. A. Conley (KDHE), w/a
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

STATE OF KANSAS)
) SS
COUNTY OF COFFEY)

Cleveland Reasoner, of lawful age, being first duly sworn upon oath says that he is Vice President Engineering of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the contents thereof; that he has executed the same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By Cleveland Reasoner
Cleveland Reasoner
Vice President Engineering

SUBSCRIBED and sworn to before me this 10th day of September, 2014.

RHONDA L. TIEMEYER
My Appointment Expires
January 11, 2018

Rhonda L. Tiemeyer
Notary Public

Expiration Date January 11, 2018

EVALUATION

1.0 SUMMARY DESCRIPTION

Wolf Creek Nuclear Operating Corporation (WCNOC) is proposing to revise the Wolf Creek Generating Station (WCGS) Technical Specification (TS) 3.4.15, "RCS Leakage Detection Instrumentation," by adding a Note to the 30 day Completion Time of Required Action A.2 to extend the Completion Time until startup from a plant shutdown or startup from Refueling Outage 20 (Spring 2015). Refueling Outage 20 is currently scheduled to begin on February 28, 2015. The addition of the Note would allow the continued operation for Cycle 20 with the instrument tunnel sump level transmitter inoperable until plant conditions would support replacement of the level transmitter. This request is necessary as WCNOC determined on September 1, 2014 at 1816 Central Daylight Time (CDT) that the instrument tunnel sump level transmitter was inoperable and attempts to restore the level transmitter were unsuccessful.

With the instrument tunnel sump level transmitter inoperable, Condition A of Limiting Condition for Operation (LCO) 3.4.15 was entered with Required Action A.2 requiring restoration of the containment sump level and flow monitoring system to OPERABLE status in 30 days. As the instrument tunnel sump level transmitter is in close proximity to the bottom of the reactor vessel, replacement of the level transmitter at power within the 30 day Completion Time of Required Action A.2 cannot be performed due to radiological conditions in this area that prohibit access by plant personnel.

The plant design and leakage detection capabilities provide acceptable means of protecting against large RCS leaks by providing a high degree of confidence that small RCS leaks are detected in time to allow actions to place the plant in a safe condition as required by TS 3.4.13, "RCS Operational LEAKAGE." The proposed one-time extension of the 30 day Completion Time until startup from a plant shutdown or prior to startup from Refueling Outage 20 to allow the plant to continue operation with the instrument tunnel sump level transmitter inoperable is acceptable based on the following. The containment normal sump receives the directed water sources, and only a very small fraction of area in the RCS loop area is available for any spray source to enter the instrument tunnel sump. Other diverse methods of detecting a RCS leak of one gallon per minute in one hour are OPERABLE and/or available. These include the containment normal sump level and flow monitoring, containment atmosphere particulate radioactivity monitor, containment air cooler condensate monitoring system, containment gaseous radioactivity monitors, containment humidity monitoring system, containment temperature and pressure monitoring. The containment atmosphere particulate radioactivity monitors are the leading indicating parameter and are still effective under low RCS activity conditions. A RCS leak of one gpm can be detected within four hours by monitoring the frequency of operation of the containment instrument tunnel sump pumps.

2.0 DETAILED DESCRIPTION

2.1 Proposed Technical Specification Change

The proposed amendment adds the below Note to the 30 day Completion Time of Required Action A.2 in Technical Specification (TS) 3.4.15, "RCS Leakage Detection Instrumentation."

---------------------NOTE-------------------------
The Completion Time is extended beyond the 30 days until startup from a plant shutdown or startup from Refueling Outage 20.

2.2 Reason Exigent Situation Has Occurred

On August 31, 2014 at 2317 CDT the instrument tunnel sump level transmitter was declared inoperable when the transmitter failed high and was found in the "failsafe" mode. After troubleshooting the transmitter, the fault was cleared and returned to "normal" mode. The transmitter failed high an additional four times between September 1, 2014 and September 3, 2014. After the last failure on September 3, 2014, the transmitter was no longer able to be reset. With the instrument tunnel sump level transmitter declared inoperable on September 1, 2014 at 1816 CDT, Condition A of LCO 3.4.15 was entered with Required Action A.2 requiring restoration of the containment sump level and flow monitoring system to OPERABLE status in 30 days.

Completion of troubleshooting on the level transmitter on September 3, 2014, determined that a complete failure of the level transmitter had occurred and that replacement of the level transmitter is required to restore the containment sump level and flow monitoring system to OPERABLE status. As the instrument tunnel sump level transmitter is in close proximity to the bottom of the reactor vessel, replacement of the level transmitter at power cannot be performed due to radiological conditions in this area that prohibit access by plant personnel. Required Action A.2 of LCO 3.4.15 requires restoring the containment sump level and flow monitoring system to OPERABLE status in 30 days (October 1, 2014 at 1816 hours). Condition E of LCO 3.4.15 requires the plant to be in MODE 3 in 6 hours and in MODE 5 in 36 hours if the containment sump level and flow monitoring system is not restored to OPERABLE status on October 1, 2014 at 1816 hours.

2.3 Historical Information

On May 28, 2014 control room operators noted that the instrument tunnel sump unidentified leak rate computer point was coming in and out of alarm high and at 2130 CDT, the instrument tunnel sump level transmitter was declared inoperable. Investigation found that the instrument tunnel sump level indication had become erratic at approximately 1800 CDT on May 21, 2014. Further review of the computer point identified that the level transmitter had also "locked up" and produced a constant output signal. This lock up condition was observed on May 22, 2014 and from July 13, 2013 to November 20, 2013, when the level transmitter stopped its downward trend of evaporation and appeared to be locked up. The lock up experienced from July 13, 2013 to November 20, 2013 was likely caused by the level transmitter's software. When a faulted condition is experienced, the transmitter defaults to a failsafe mode. In the failsafe condition, the level transmitter defaults to the last reading. The instrument tunnel sump level transmitter was determined to be inoperable during this time period and was reported in Licensee Event Report (LER) 2014-004-00 (Reference 2).

Compensatory measures were taken to maintain the capability of the instrument tunnel sump level indication to perform its specified function and on June 7, 2014 the instrument tunnel sump level transmitter was declared OPERABLE but degraded. These measures involved introducing

water at a known rate into the instrument tunnel sump by a temporary modification and averaging the instrument tunnel sump level over a 60 second interval for input into the RCS leak detection program.

On July 20, 2014 at 0901 CDT the instrument tunnel sump level transmitter was declared inoperable when the transmitter failed high and was found in the failsafe mode. After troubleshooting the transmitter the fault was cleared and returned to normal mode. The transmitter was restored to an OPERABLE but degraded status on July 21, 2014 at 1341 CDT when the transmitter was reset and observed to be responding correctly.

3.0 TECHNICAL EVALUATION

10 CFR 50, Appendix A, “General Design Criteria for Nuclear Power Plants,” Criterion 30, “Quality of reactor coolant pressure boundary,” requires means for detecting and, to the extent practical, identifying the location of the source of RCS leakage. Regulatory Guide 1.45 (Reference 1) describes acceptable methods for selecting leakage detection systems. Leakage detection systems must have the capability to detect significant reactor coolant pressure boundary (RCPB) degradation as soon after occurrence as practical to minimize the potential for propagation to a gross failure. Thus, an early indication or warning signal is necessary to permit proper evaluation of all unidentified leakage. The safety significance of RCS leakage varies widely depending on its source, rate, and duration. Therefore, detecting and monitoring RCS leakage into the containment area is necessary. Quickly separating the identified leakage from the unidentified leakage provides quantitative information to the operators, allowing them to take corrective action should a leak occur detrimental to the safety of the plant and the public.

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. SR 3.4.14.1 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.

3.1 Technical Specification Required Leakage Detection Instrumentation

The RCS leakage detection instrumentation required to be OPERABLE in accordance with LCO 3.4.15 includes the containment sump level and flow monitoring system, one containment atmosphere particulate radioactivity monitor, and one containment air cooler condensate monitoring system.

3.1.1 Containment Sump Level and Flow Monitoring System

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 normal background rate of increase in sump level can be subtracted to determine the leakage rate. Figure 1 below shows the locations of the containment normal sumps and the instrument tunnel. Figure 2 provides a picture of the instrument tunnel sump level transmitter and instrument tunnel sump pump (PLF07B).

The instrument tunnel sump level transmitter (LFLT0079) is part of the radwaste drain subsystem of the Floor and Equipment Drain System. The sump level transmitter outputs a 4-20 mA signal proportional to the instrument tunnel sump water level for computer point and control room level indication. The indication is used for RCS leak detection. The level transmitter has no safety function and no seismic or environmental qualification requirements and as such is non-safety related. The instrument tunnel sump level transmitter associated to computer point LFL0079 is a Masoneilan model 12323-059 unit. The principle of operation is based on the variation in buoyancy resulting from changes in liquid level, which varies the net force acting on the displacer, increasing or decreasing the load on the torque tube by an amount directly proportional to the change in liquid level. The resultant rotation of the torque rod and attached magnet modifies the magnetic field surrounding a Hall effect sensor generating a signal proportional to the liquid level.

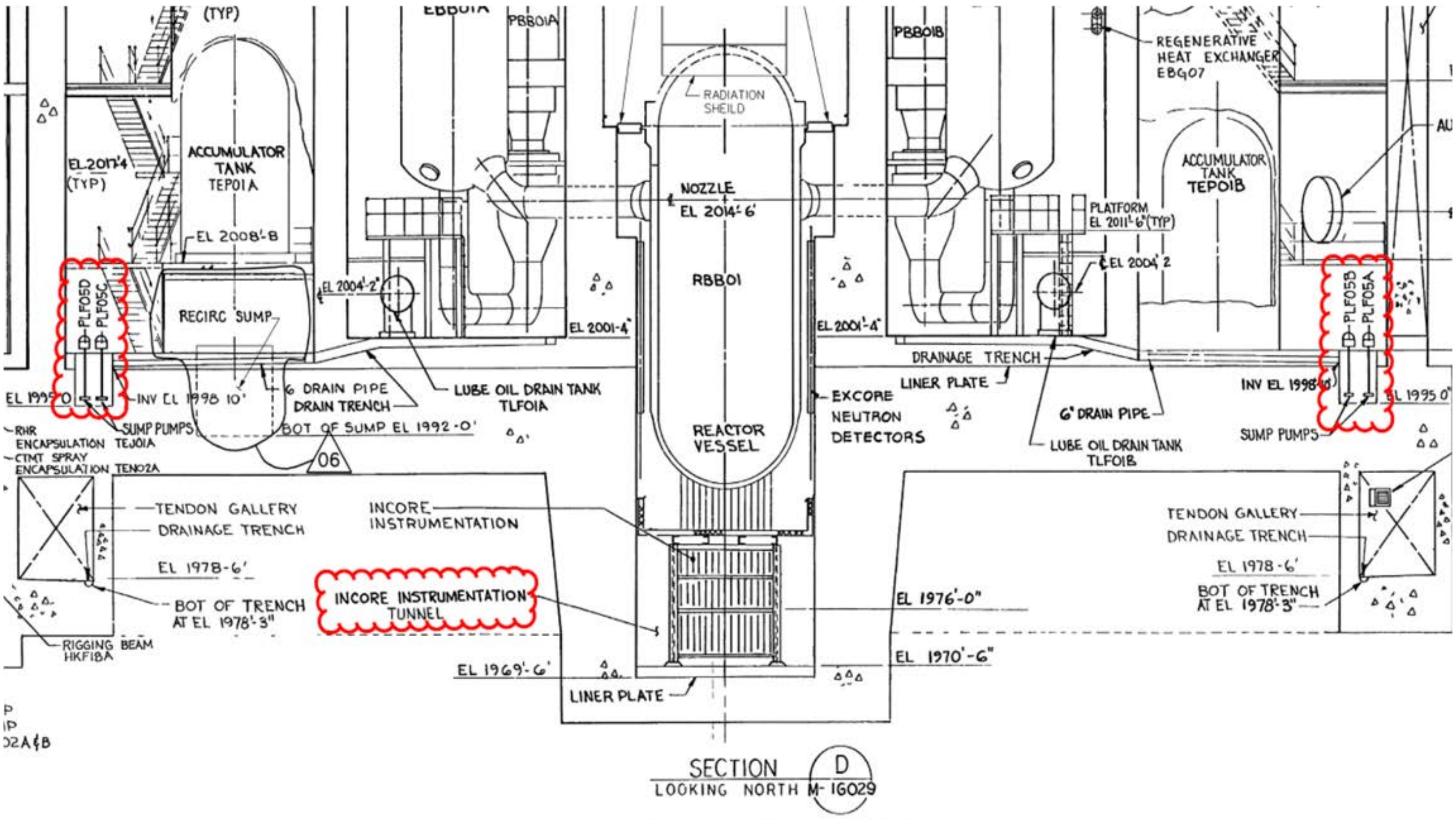

Figure 1

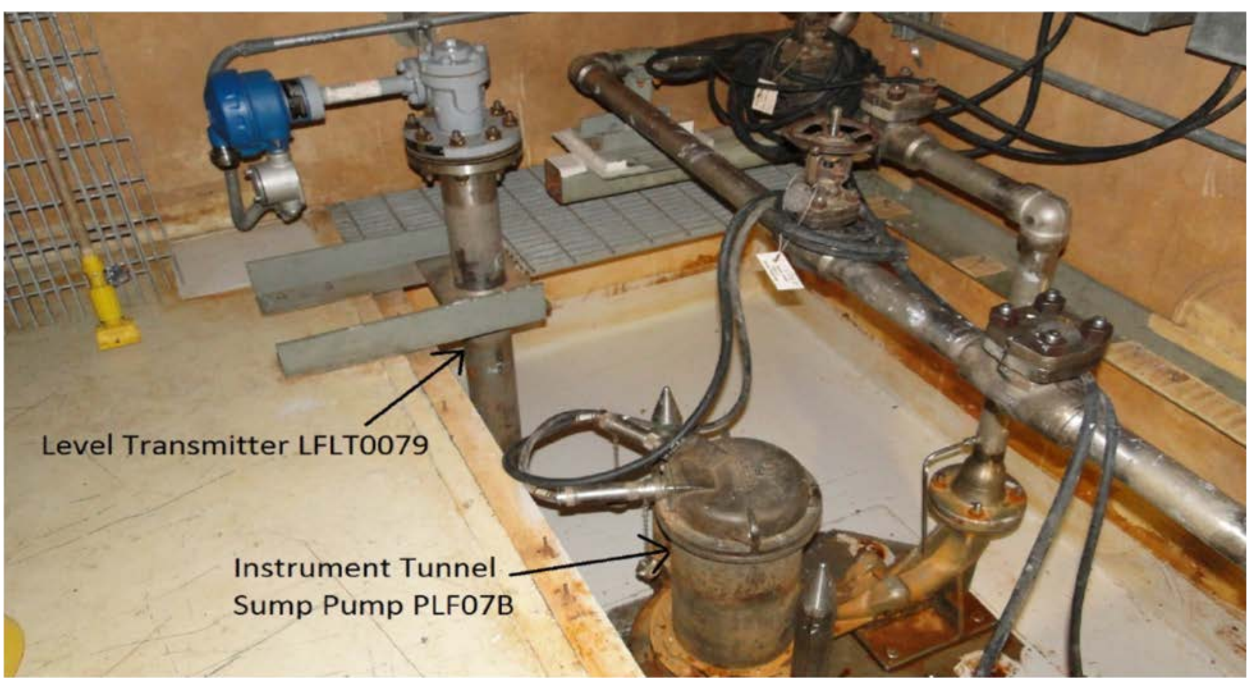

Figure 2

The containment normal sump has numerous equipment leak-offs, relief valves, condensate, and floor drains / trenches directed to it. There are no such directed water sources into the containment instrument tunnel sump. Table 1 contains a summary listing of leak detection instruments and their general input sources.

Table 1 - RCS Leakage Detection Instrumentation Coverage

RCS Leakage Detection Parameter	**Able to Detect?**	**Effective Coverage Area**	**TS RCS Leakage Instrumentation**
Containment Atmosphere Gaseous Radioactivity	RCS Leak	Containment Volume	No
Containment Atmosphere Particulate Radioactivity[1]	RCS Leak	Containment Volume	Yes
Containment Air Cooler Condensate Monitoring	RCS Leak AND Non-RCS Leak	Containment Volume	Yes
Containment Instrument Tunnel Sump Level and Flow No Direct Water Inputs	RCS Leak AND Non-RCS Leak	197 sq. ft.	Yes
Containment Normal Sump Level and Flow Directed Water Inputs: • Containment Cooler Condensate (SGN01A,B,C,D) • Reactor Coolant Pump Standpipe (PBB01A,B,C,D) • Reactor Coolant Pump Seal No. 3 (PBB01A,B,C,D) • Reactor Coolant Drain Tank Pump (PHB02A,B) • Relief Valve BBV0124, BBV0154, BBV0214 • Reactor Coolant Drain Tank Inlet Relief Valve Discharge (HB7160) • Reactor Coolant Drain Tank Outlet Relief Valve Discharge (HB7169) • BBRV0184 Discharge • Floor Drains El. 2068', 2047', 2026' • Drain Trenches • Incore Instrument Seal Table Floor Drain • Manipulator Crane Rail Trench El. 2047'	RCS Leak AND Non-RCS Leak	4211 sq. ft.[2]	Yes

[1] The containment atmosphere particulate radioactivity monitors are quite sensitive even under very low RCS activity conditions and would typically be the first indication of RCS leakage. See Section 3.1.2 for additional details.

[2] The 4211 sq. ft is a fraction of all the floor areas served by the floor drains in containment. This coverage area conservatively considers only the area inside of the secondary shield wall. Non-RCS leakage would accumulate in the containment normal sumps prior to accumulating in the instrument tunnel sump.

Based on the observations in Table 1, water accumulation in the containment instrument tunnel sump would need to come from a spray source cascading down into the instrument tunnel. The three separate entry locations to the instrument tunnel are small in horizontal area. The locations are depicted in Figure 3.

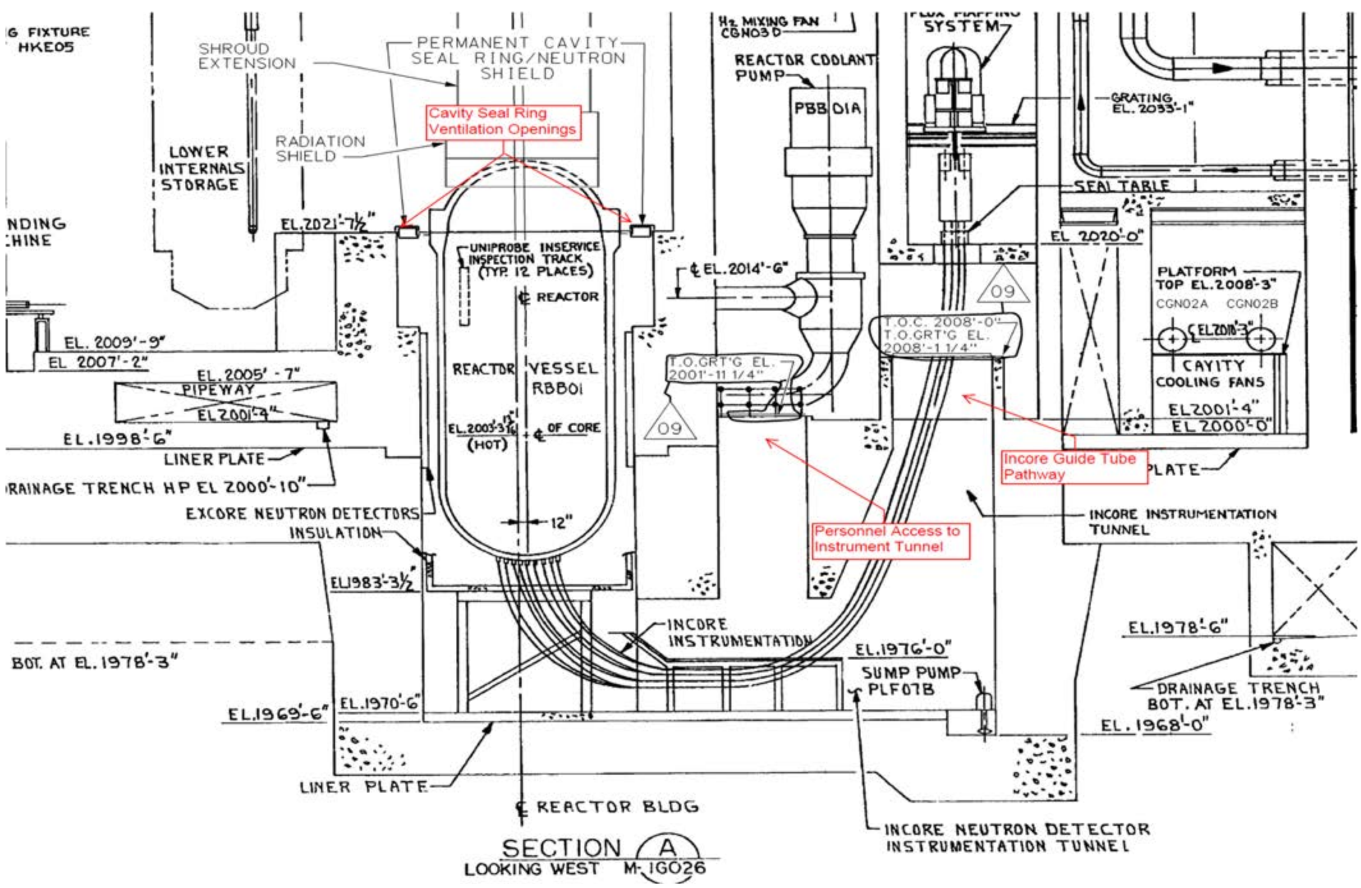

Figure 3

The area of the three locations are listed in Table 2. The cavity seal ring ventilation plenum openings assumes a water source from the upper volume of containment that would traverse small openings to reach the instrument tunnel sump.

The incore guide tube pathway collects leakage from an incore guide tube/nozzle. A failure of this component would be similar in nature to a failure of a high pressure seal of an incore detector instrument thimble at the seal table (outside the instrument tunnel). This leakage would be seen on the containment atmosphere particulate radioactivity monitor, RCS system pressure, pressurizer level, containment temperature, pressure and humidity level instruments providing the operators with clear indications of changing primary system plant conditions.

The RCS loop compartment floor area is located inside the secondary shield wall with leakage in this area accumulated in the containment normal sumps. Approximately 95% of the RCS loop compartment floor area is the regular floor area with 5% of the area covered by the instrument tunnel sump.

Table 2 - Instrument Tunnel Input Area vs. Containment Floor Area

Sq. Feet	Location in Containment
9.95	Cavity Seal Ring Ventilation openings
99	Incore Guide Tube pathway
88.46	Personnel Access to Instrument Tunnel
197.41	**Total Spillage Area to Instrument Tunnel**
4211	**RCS Loop Compartment Floor Area**
4.7 %	**Area Entering Incore Tunnel vs. Containment Floor Area**

The sheer number of directed water sources to the containment normal sump, and the horizontal area for collection of spray or condensate sources shows the containment normal sump to be the first and most likely destination of any water accumulation in containment.

Containment Instrument Tunnel Sump Pump Leakage Monitoring

With the instrument tunnel sump level transmitter failed, direct indication of increasing level in the instrument tunnel sump in the event of a RCS leak is not available. However, an indirect indication of assumed RCS leakage is available by monitoring the operating frequency of the instrument tunnel sump pumps. This is available by introducing water at a known rate into the sump and trending the interval between sump pump starts. In the event of RCS leakage, the trending would be able to detect a RCS leak as discussed below.

Water has been introduced into the instrument tunnel sump since the transmitter was returned to service in June 2014. Since this date, the data for sump pump start and stop times and the water level as indicated by the transmitter computer point has been reviewed. Due to the large amount of data for the water level (since the sump level is recorded once per second), the review was limited to last two months prior to the transmitter failure (between July 2, 2014 and August 31, 2014). During this period, a sump pump was started a total of 137 times. Using the sump level at the times of the pump starts and stops, the corresponding leak rate into the sump was calculated. The data are consistent over the short term (spread of about 0.06 gpm over each two week period), with the average leak rate increasing over the entire period of evaluation, from an initial leak rate of about 0.25 gpm in early June to about 0.37 gpm by the end of August. This long term trend is due to the fact that changing conditions in the source water system result in differences in the rate at which water is introduced into the sump. The flow rate of water into the sump was verified to be 0.4 gpm on September 10, 2014, which is consistent with the calculated leak rate. This demonstrates that the calculated leak rate is accurately reflecting the rate that water is introduced into the instrument tunnel sump.

A review of the data identified that the maximum sump level as indicated on the transmitter computer point during the interval was 20.84”, and the minimum was 12.90” (not including time periods when the transmitter was out of service). These values were used to determine the maximum amount of water which could accumulate in the instrument tunnel sump before the sump pump will be started to pump the water out of the sump.

The resolution of Unresolved Safety Issue (USI) A-2, "Assymmetric Blowdown Loads on Reactor Primary Coolant Systems," for Westinghouse Pressurized Water Reactors was the use of fracture mechanics technology for RCS piping > 10 inches diameter. This technology became known as leak-before-break (LBB). Included within the LBB methodology was the requirement to have leak detection systems capable of detecting a one gpm leak within four hours. This leakage rate is designed to ensure that adequate margins exist to detect leaks in a timely manner during normal operating conditions. A partial exemption to General Design Criterion (GDC) 4, "Environment and dynamic effects design bases," to utilize the LBB methodology was approved for WCGS in Section 3.6.1.1 of Supplement 5 to NUREG-0881, "Safety Evaluation Report Related to the Operation of Wolf Creek Generating Station Unit No. 1." As such, for the purposes of this one-time extension of the TS 3.4.15 Required Action A.2 Completion Time, the one gpm within four hours leakage detection capability is acceptable. It was determined that the addition of 0.44 gpm of water to the instrument tunnel sump would allow this leakage detection capability to be satisfied by monitoring the frequency of operation of the containment instrument tunnel sump pumps. For conservatism, water will be introduced into the sump at a rate of approximately 0.5 gpm to ensure that this capability is maintained.

The instrument tunnel sump unidentified leak rate will be calculated via trending of the instrument tunnel sump pump start times. The time period between pump stops and starts will be used to calculate the leak rate at which water has accumulated in the instrument tunnel sump. This calculation will be entered directly into the calculation of the containment total unidentified leak rate. Procedure STS CR-001, "Shift Log for Modes 1, 2, & 3," requires recording the containment total unidentified leak rate three times every 24 hours. If the containment total unidentified leak rate is greater than 1.0 gpm, STS CR-001 requires the perform a RCS water inventory balance.

The following actions will be taken in the event of a loss of containment sump pump leakage monitoring. Using a conservative maximum of 260.51 gallons of water which could accumulate in the sump before a sump pump would start, this corresponds to a maximum interval of 8.68 hours between sump pump starts. Condition A of LCO 3.4.13 requires that if RCS operational leakage is not within the limit of 1 gpm unidentified leakage, the leakage must be reduced to within limits within four hours. Using this criteria, a sump pump start interval of 8.68 + 4 = 12.68 hours would indicate that a loss of sump pump monitoring has occurred. This is rounded down to 12 hours for conservatism. Therefore, if a sump pump has not started within 12 hours of when it last stopped running, it will be concluded that a loss of sump pump leakage monitoring has occurred. Should a loss of instrument tunnel sump pump leakage monitoring occur, a RCS water inventory balance will be performed at an increased frequency of once per 12 hours and a plant shutdown initiated within 14 days to MODE 3 to complete the necessary repairs. If sump pump leakage monitoring capability is reliably re-established a plant shutdown will not be conducted. The 14 day allowance to perform a shutdown is reasonable in order to complete the necessary activities for a planned maintenance outage.

<u>Treatment of Containment Instrument Tunnel Sump Level Transmitter in the WCGS Probabilistic Risk Assessment (PRA) Model</u>

The instrument tunnel sump level transmitter is not an event initiator for plant transients or accident purposes. The level transmitter is not used in any mitigation function for the WCGS PRA Model and does not provide primary indication used by the operators in the emergency operating procedures. Therefore, there is no basic event in the PRA model that would be changed as a result of this level transmitter being non-functional. It is noted that certain

capabilities remain available to identify potential leakage into the instrument tunnel sump. With no basic events to modify, the Delta Core Damage Frequency (CDF) and Delta Large Early Release Frequency (LERF) are zero for the instrument tunnel sump level transmitter failure.

3.1.2 Containment Atmosphere Particulate Radioactivity Monitor

The containment atmosphere particulate monitoring system (GT RE-31 and GT RE-32) provides the primary means of remotely determining the presence of RCS 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 air sample is drawn outside the containment into a closed system by a sample pump and is then consecutively passed through a particulate filter with detector, an iodine filter with detector and a gaseous monitor chamber with detector. The particulate monitor has a range of 10^{-12} to 10^{-7} μCi/cc and a minimum detectable concentration of 10^{-11} μCi/cc.

Particulate activity is determined from the containment free volume and the coolant fission and corrosion product particulate activity concentrations. Any increase of more than two standard deviations above the count rate for background would indicate a possible leak. The total particulate activity concentration above background, due to an abnormal leak and natural decay, increases almost linearly with time for the first several hours after the beginning of a leak. With 0.1 percent failed fuel, containment background airborne particulate radioactivity equivalent to 10^{-4} percent/day, and a partition factor equal to 0.2, a one gpm leak would be detected in one hour.

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 gpm leak with low RCS activity. Updated Safety Analysis Report (USAR) Section 5.2.6 provides a reference to WCAP-7503, Rev. 1, "Determination of Design Pipe Breaks for the Westinghouse Reactor Coolant System." The conclusions in WCAP-7503 state, in part: "In regard to leak detection, the earliest indication would be by particulate activity detectors, assuming primary coolant leakage, corrosion product activity in the coolant, and a background below the threshold of detectability. High condensate flow and a gaseous activity level equal to twice the background would follow successively. Non-primary leaks would be detected by high condensate flow."

Containment atmosphere particulate radioactivity is monitored using radiation monitors GT RE-31 and GT RE-32. A channel check and verifying the power is on and there are no alarms is performed three times every 24 hours per procedure STS CR-001, "Shift Log for Modes 1, 2, & 3."

3.1.3 Containment Air Cooler Condensate Monitoring System

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.

The condensate flow rate is a function of containment humidity, essential service water temperature leaving the coolers, and containment purge rate. The water vapor dispersed by a one gpm leak is much greater than the water vapor brought in with the outside air. Air brought in from the outside is heated to 50°F before it enters the containment.

After the air enters the containment, it is heated to 100°F - 120°F so that the relative humidity drops. The water vapor brought in with the outside air does not build up in the containment. Level changes of as little as 0.25 inches in the cooler condensate standpipes can be detected. Increases in the condensation rates over normal background are monitored by the plant computer based upon level checks each minute in order to determine the unidentified leakage.

Containment cooler condensate is monitored by containment cooler standpipe level transmitters LFLT0097, LFLT0098, LFLT0099, and LFLT0100 and the computer point status is recorded three times every 24 hours per procedure STS CR-001, "Shift Log for Modes 1, 2, & 3."

3.2 RCS Water Inventory Balance (SR 3.4.13.1)

With the required containment sump level and flow monitoring system inoperable, Required Action A.1 of LCO 3.4.15 requires the periodic surveillance for RCS water inventory balance, SR 3.4.13.1, be performed at an increased frequency of once 24 hours to provide information that is adequate to detect leakage. Verifying RCS operational leakage to be within the LCO limits ensures the integrity of the RCPB is maintained. Pressure boundary leakage would at first appear as unidentified leakage and can only be positively identified by inspection. Unidentified leakage and identified leakage are determined by performance of a RCS water inventory balance.

The normal 72 hour Frequency of SR 3.4.13.1 is a reasonable interval to trend leakage and recognizes the importance of early leakage detection in the prevention of accidents. The once per 24 hour Frequency maintains the capability to detect significant primary system degradation as soon after occurrence as practical to minimize the potential for propagation to a gross failure.

3.3 Non-Technical Specification Leakage Detection Capabilities

3.3.1 Containment Gaseous Radioactivity Monitors

The containment gaseous radioactivity monitor determines gaseous radioactivity in the containment by monitoring continuous air samples from the containment atmosphere. After passing through the gas monitor, the sample is returned via the closed system to the containment atmosphere. Each sample is continuously mixed in a fixed, shielded volume where its activity is monitored. The monitor has a range of 10^{-7} to 10^{-2} µCi/cc and a minimum detectable concentration of 2×10^{-7} µCi/cc.

This monitor is less sensitive than the containment air particulate monitors but gives a positive indication of leakage in the event that reactor coolant gaseous activity exists as a result of fuel-cladding defects. Gaseous radioactivity is determined from the containment free volume and the gaseous activity concentration of the reactor coolant. Any increase more than two standard deviations above the count rate for background would indicate a possible leak. The total gaseous activity level above background (after one year of normal operation) increases almost linearly for the first several hours after the beginning of the leak. With 0.1 percent failed fuel,

containment background airborne gaseous radioactivity equivalent to 1 percent/day, and a partition factor equal to 1 (NUREG-0017 assumptions), a one gpm leak would be detected within one hour.

Evaluations have shown that the pre-existing containment radioactive gaseous background levels for which reliable detection is possible is dependent upon the reactor power level, percent failed fuel and natural radioactivity brought in by the containment purge. With primary coolant concentrations less than equilibrium levels, such as during reactor startup and operation with no fuel defects, the increase in detector count rate due to leakage will be partially masked by 1) the statistical variation of the minimum detector background count rate, and 2) the Ar-41 activation activity rendering reliable detection of a one gpm leak uncertain. The containment atmosphere gaseous radioactivity monitors were designed in accordance with the sensitivities specified in Regulatory Guide 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems," with the alarm setpoint set to indicate a one gpm RCS leak based on Regulatory Guide 1.45 assumptions. The monitors are fully functioning in accordance with its design requirements, however, License Amendment No. 166 (Reference 3) removed these monitors as part of the TS required leakage detection instrumentation due to the inability to promptly detect a one gpm RCS leak within one hour with reduced radioactivity levels in the RCS.

Airborne gaseous radioactivity is monitored using radiation monitors GT RE-31 and GT RE-32. A channel check which includes recording the monitor reading and verifying the power is on and there are no alarms is performed three times every 24 hours per procedure STS CR-001, "Shift Log for Modes 1, 2, & 3."

3.3.2 Containment Humidity Monitoring System

The containment humidity monitoring system, utilizing temperature compensated humidity detectors, is provided to determine the water vapor content of the containment atmosphere. An increase in the humidity of the containment atmosphere indicates release of water within the containment. The range of the containment humidity measuring system is 10 to 98-percent relative humidity at 80°F with a temperature range of 40°F to 120°F.

Containment humidity is monitored using containment atmosphere humidity indicators GNAI0027 and GNAI0028 and recorded once per 12 hour shift per procedure CKL ZL-003, "Control Room Daily Readings."

3.3.3 Containment Temperature and Pressure Monitoring

Air temperature and pressure monitoring methods may also be used to infer unidentified leakage to the containment. Containment temperature and pressure fluctuate slightly during plant operation, but a rise above the normally indicated range of values may indicate RCS leakage into the containment. The relevance of temperature and pressure measurements is affected by containment free volume and, for temperature, detector location. Alarm signals from these instruments can be valuable in recognizing rapid and sizable leakage to the containment.

Containment temperature is monitored by containment cooler inlet air temperature indicators GNTI0060, GNTI0061, GNTI0062, GNTI0063 and recorded two times every 24 hours per procedure STS CR-001, "Shift Log for Modes 1, 2, & 3."

Containment pressure is monitored by containment differential pressure indicator GT PDI-0040 and recorded three times every 24 hours per procedure STS CR-001, "Shift Log for Modes 1, 2, & 3."

3.4 Conclusion

The proposed one-time extension of the 30 day Completion Time until startup from a plant shutdown or prior to startup from Refueling Outage 20 to allow the plant to continue operation with the instrument tunnel sump level indication inoperable is acceptable for the following reasons:

- RCS leakage into the containment instrument tunnel sump is minimal as there are no directed water sources and the three separate entry locations from a spray source cascading into the instrument tunnel are small

- The containment atmosphere particulate radioactivity monitors are the leading indicating parameter and are still effective under low RCS activity conditions.

- Other diverse methods of detecting aRCS leak of one gallon per minute in one hour that are currently OPERABLE and/or available, including:

  - the containment normal sump level and flow monitoring system
  - containment atmosphere particulate radioactivity monitor
  - containment air cooler condensate monitoring system
  - containment gaseous radioactivity monitors
  - containment humidity monitoring system
  - containment temperature and pressure monitoring

- a RCS leak of one gpm can be detected within four hours by monitoring the frequency of operation of the containment instrument tunnel sump pumps.

The plant design and leakage detection capabilities provide acceptable means of protecting against large RCS leakage by providing a high degree of confidence that small RCS leaks are detected in time to allow actions to place the plant in a safe condition as required by TS 3.4.13, "RCS Operational LEAKAGE."

The likelihood on a qualitative basis for experiencing transient-related plant conditions is considered greater during a plant shutdown and startup evolution than for continued at-power operation with enhanced monitoring for the failed instrument tunnel level transmitter for a limited time period. A shutdown of the plant will result in an operational transient that is not necessary since the indication parameters that remain available are adequate to safely shut down the plant should an emergency arise.

4.0 REGULATORY EVALUATION

4.1 No Significant Hazards Consideration Determination

This amendment application revises Technical Specification (TS) 3.4.15, "RCS Leakage Detection Instrumentation," to add a Note to the 30 day Completion Time of Required Action A.2 to extend the Completion Time to allow the continued operation for Cycle 20 with the instrument tunnel sump level transmitter inoperable until startup from a plant shutdown or startup from Refueling Outage 20 (Spring 2015). Wolf Creek Nuclear Operating Corporation (WCNOC) has evaluated the proposed change and determined that the change does not involve a significant hazards consideration for the Wolf Creek Generating Station (WCGS) based on the three standards set forth in 10 CFR 50.92(c) as discussed below.

1) Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The proposed change does not make any hardware changes and does not alter the configuration of any plant system, structure, or component (SSC). The proposed change allows the continued operation for Cycle 20 with the instrument tunnel sump level transmitter inoperable until a startup from a plant shutdown or startup from Refueling Outage 20. The containment normal sump level indication remains functional and the monitoring of the frequency of operation of the containment instrument tunnel sump pumps would provide indication of RCS leakage. Although not required by TS, additional diverse means of leakage detection capability are available as described in the Updated Safety Analysis Report (USAR) Section 5.2.5. The TS will continue to require diverse means of leakage detection equipment, thus ensuring that leakage due to cracks would continue to be identified prior to propagating to the point of a pipe break and the plant shutdown accordingly.

   Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2) Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No

   With respect to any new or different kind of accident, there are no proposed design changes nor or there any changes in the method by which any safety related plant SSC performs its specified safety function. The proposed change will not affect the normal method of plant operation or change any operating parameters. No new accident scenarios, transient precursors, failure mechanisms, or limiting single failures will be introduced as a result of this amendment.

The proposed change will not alter the design or performance of the 7300 Process Protection System, Nuclear Instrumentation System, Solid State Protection System, Balance of Plant Engineered Safety Features Actuation System, Main Steam and Feedwater Isolation System, or Load Shedder and Emergency Load Sequencers used in the plant protection systems.

The change does not have a detrimental impact on the manner in which plant equipment operates or responds to an actuation signal. The proposed change allows the continued operation for Cycle 20 with the instrument tunnel sump level transmitter inoperable until startup from a plant shutdown or startup from Refueling Outage 20. The containment normal sump level indication remains functional and the monitoring of the frequency of operation of the containment instrument tunnel sump pumps would provide indication of RCS leakage. Although not required by TS, additional diverse means of leakage detection capability are available as described in USAR Section 5.2.5. The TS will continue to require diverse means of leakage detection equipment, thus ensuring that leakage due to cracks would continue to be identified prior to propagating to the point of a pipe break and the plant shutdown accordingly.

Therefore, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in the margin of safety?

Response: No

There will be no effect on those plant systems necessary to assure the accomplishment of protection functions associated with reactor operation or the Reactor Coolant System. The will be no impact on the overpower limit, departure from nucleate boiling ratio (DNBR) limits, heat flux hot channel factor, nuclear enthalpy rise hot channel factor, loss of coolant accident peak cladding temperature, peak local power density, or any other limit and associated margin of safety. Required shutdown margins in the CORE OPERATING LIMITS REPORT will not be changed.

The proposed change allows the continued operation for Cycle 20 with the instrument tunnel sump level transmitter inoperable until startup from a plant shutdown or startup from Refueling Outage 20. The containment normal sump level indication remains functional and the monitoring of the frequency of operation of the containment instrument tunnel sump pumps would provide indication of RCS leakage. Although not required by TS, additional diverse means of leakage detection capability are available as described in USAR Section 5.2.5. The TS will continue to require diverse means of leakage detection equipment, thus ensuring that leakage due to cracks would continue to be identified prior to propagating to the point of a pipe break and the plant shutdown accordingly.

Therefore, the proposed change does not involve a significant reduction in margin of safety.

Based on the above evaluation, WCNOC concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of “no significant hazards consideration” is justified.

4.2 Applicable Regulatory Requirements/Criteria

10 CFR 50, Appendix A, “General Design Criteria for Nuclear Power Plants,” Criterion 30, “Quality of reactor coolant pressure boundary,” requires that means be provided for detecting and, to the extent practical, identifying the location of the source of reactor coolant leakage. The various means for detecting reactor coolant leakage at WCGS were previously discussed in Section 3.0, “Technical Evaluation.”

The WCGS design conforms to Regulatory Guide 1.45, “Reactor Coolant Pressure Boundary Leakage Detection Systems,” dated May 1973. Regulatory Guide 1.45 describes acceptable methods for implementing the requirement of Criterion 30 (above) with regard to the selection of leakage detection systems for the reactor coolant pressure boundary. The specific attributes of the reactor coolant leakage detection systems are outlined in Regulatory Position 1 through 9 of Regulatory Guide 1.45. WCGS conformance with Regulatory Guide 1.45 is described in Appendix 3A and USAR Table 5.2-6.

10 CFR 50.36, “Technical Specifications,” paragraph (c)(2)(ii)(A), specifies that a TS limiting condition for operation of a nuclear reactor must be established for installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary. The instrumentation addressed in LCO 3.4.15 satisfies this requirement. The proposed change allows the continued operation for Cycle 20 with the instrument tunnel sump level transmitter inoperable until startup from a plant shutdown or startup from Refueling Outage 20.

Conclusion

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission’s regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

WCNOC has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. Regulatory Guide 1.45, “Reactor Coolant Pressure Boundary Leakage Detection Systems,” May 1973.

2. WCNOC letter WO 14-0062, “Licensee Event Report 2014-004-00, “Condition Prohibited by Technical Specifications due to an Instrument Tunnel Sump Level Indication Transmitter Incompatible with the Containment Environment,” July 31, 2014. ADAMS Accession No. ML14224A015.

3. NRC letter, “Wolf Creek Generating Station – Issuance of Amendment RE: Changes to the Reactor Coolant System (RCS) Leakage Detection Instrumentation Methodology (TAC NO. MC 8214),” September 26, 2006. ADAMS Accession No. ML060590063.

ATTACHMENT II

PROPOSED TECHNICAL SPECIFICATION CHANGE (MARK-UP)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. The containment sump level and flow monitoring system;

b. One containment atmosphere particulate radioactivity monitor; and

c. One containment air cooler condensate monitoring system.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required containment sump level and flow monitoring system inoperable.	A.1 -------------NOTE--------------- Not required until 12 hours after establishment of steady state operation. ------------------------------------ Perform SR 3.4.13.1.	Once per 24 hours
	AND	
	A.2 Restore required containment sump level and flow monitoring system to OPERABLE status.	30 days

(continued)

-------------NOTE---------------
The Completion Time is extended beyond the 30 days until startup from a plant shutdown or startup from Refueling Outage 20.

ATTACHMENT III

REVISED TECHNICAL SPECIFICATION PAGE

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.15 RCS Leakage Detection Instrumentation

LCO 3.4.15 The following RCS leakage detection instrumentation shall be OPERABLE:

a. The containment sump level and flow monitoring system;

b. One containment atmosphere particulate radioactivity monitor; and

c. One containment air cooler condensate monitoring system.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Required containment sump level and flow monitoring system inoperable.	A.1	-------------NOTE--------------- Not required until 12 hours after establishment of steady state operation. ------------------------------------ Perform SR 3.4.13.1.	Once per 24 hours
	AND		
	A.2	Restore required containment sump level and flow monitoring system to OPERABLE status.	---------NOTE-------- The Completion Time is extended beyond the 30 days until startup from a plant shutdown or startup from Refueling Outage 20. -------------------------- 30 days

(continued)

ATTACHMENT IV

PROPOSED TS BASES CHANGE (FOR INFORMATION ONLY)

BASES

ACTIONS

A.1 and A.2 (continued)

With the required Containment Sump Level and Flow Monitoring System inoperable, no other form of sampling can provide the equivalent information; however, the containment atmosphere particulate radioactivity monitor will provide indications of changes in leakage. Together with the atmosphere monitor, the periodic surveillance for RCS water inventory balance, SR 3.4.13.1, must be performed at an increased frequency of 24 hours to provide information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable RCS pressure, temperature, power level, pressurizer and makeup tank level, makeup and letdown, and RCP seal injection and return flows). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.

Restoration of the required Containment Sump Level and Flow Monitoring System to OPERABLE status within a Completion Time of 30 days is required to regain the function after the system's failure. This time is acceptable, considering the Frequency and adequacy of the RCS water inventory balance required by Required Action A.1.

The Completion Time is modified by a Note indicating that the 30 days is extended until startup from a plant shutdown or startup from Refueling Outage 20.

B.1.1, B.1.2, B.2.1 and B.2.2

With the containment atmosphere particulate radioactivity monitoring instrumentation channel inoperable, alternative action is required. Either samples of the containment atmosphere must be taken and analyzed for particulate radioactivity or water inventory balances, in accordance with SR 3.4.13.1, must be performed to provide alternate periodic information. Alternatively, continued operation is allowed if the containment air cooler condensate monitoring system is OPERABLE, provided grab samples are taken or water inventory balances are performed every 24 hours. With a sample obtained and analyzed or water inventory balance performed every 24 hours, the reactor may be operated for up to 30 days to allow restoration of the required containment atmosphere particulate radioactivity monitor.

The 24 hour interval provides periodic information that is adequate to detect leakage. A Note is added allowing that SR 3.4.13.1 is not required to be performed until 12 hours after establishing steady state operation (stable RCS pressure, temperature, power level, pressurizer and makeup tank level, makeup and letdown, and RCP seal injection and return flows). The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established. The 30 day Completion Time recognizes at least one other form of leakage detection is available.

LIST OF REGULATORY COMMITMENTS

The following table identifies the commitments made by Wolf Creek Nuclear Operating Corporation in this document. Any other statements in this letter are provided for information purposes and are not considered regulatory commitments. Please direct questions regarding this commitment to Mr. Steven R. Koenig, Manager Regulatory Affairs at Wolf Creek Generating Station, (620) 364-4041.

REGULATORY COMMITMENT	DUE DATE
If an instrument tunnel sump pump has not started within 12 hours of when it last stopped running, it will be concluded that a loss of sump pump leakage monitoring has occurred and a RCS water inventory balance will be performed at an increased frequency of once per 12 hours until sump pump leakage monitoring capability has been re-established.	Upon loss of tunnel sump pump leakage monitoring capability
Should a loss of instrument tunnel sump pump leakage monitoring occur, a RCS water inventory balance will be performed at an increased frequency of once per 12 hours and a plant shutdown initiated within 14 days to MODE 3 to complete the necessary repairs. If sump pump leakage monitoring capability is reliably re-established a plant shutdown will not be conducted.	Upon loss of instrument tunnel sump pump leakage monitoring capability