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

February 26, 2019

Mr. George A. Lippard, III
Vice President, Nuclear Operations
South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
P.O. Box 88, Mail Code 800
Jenkinsville, SC 29065

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1 – RELIEF REQUEST (RR-4-18) FOR USE OF NRC GENERIC LETTER 90-05 (EPID L-2018-LLR-0121)

Dear Mr. Lippard:

By letter dated September 14, 2018, South Carolina Electric & Gas Company (SCE&G, the licensee) requested relief from certain requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-4000, at Virgil C. Summer Nuclear Station (VCSNS), Unit 1. SCE&G requested to use U.S. Nuclear Regulatory Commission (NRC) Generic Letter 90-05, "Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping," with certain exceptions, to disposition a degraded area with pin hole leaks in an 8-inch weld neck flange ASME Code Class 3 service water system piping in lieu of performing an ASME Code repair/replacement.

The licensee submitted the proposed alternative pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.55a(z)(2) on the basis that the ASME Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety.

On September 15, 2018, the NRC staff verbally authorized the use of relief request RR-4-18 until the conclusion of the Unit 1 fall 2018 refueling outage (RF24), or until exceeding the temporary acceptance criteria of 11.5 gallons per minute, or the temporary acceptance criteria of RR-4-18, whichever occurs first. This safety evaluation documents the NRC staff's detailed technical basis for the verbal authorization.

The NRC staff has reviewed the proposed alternative and concludes, as set forth in the enclosed safety evaluation, that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC staff authorizes the use of alternative request RR-4-18 for VCSNS, Unit 1.

All other ASME Code, Section XI, requirements for which relief was not specifically requested and authorized herein by the NRC staff remain applicable, including the third party review by the Authorized Nuclear Inservice Inspector.

If you have any questions, please contact the Project Manager, Shawn Williams, at 301-415-1009 or by e-mail at Shawn.Williams@nrc.gov.

Sincerely,

Michael T. Markley, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-395

Enclosure:
Safety Evaluation

cc: Listserv

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUEST RR-4-18

TEMPORARY ACCEPTANCE OF DEGRADATION AND

USE OF A TEMPORARY NON-CODE REPAIR IN SERVICE WATER PIPING

RENEWED FACILITY OPERATING LICENSE NO. NPF-12

SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1

DOCKET NO. 50-395

1.0 INTRODUCTION

By letter dated September 14, 2018 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML18257A298), South Carolina Electric and Gas Company (SCE&G, the licensee) requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-4000, at Virgil C. Summer Nuclear Station (VCSNS), Unit 1.

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(2), the licensee submitted Relief Request RR-4-18 to use U.S. Nuclear Regulatory Commission (NRC) Generic Letter (GL) 90-05, "Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping" (ADAMS Accession No. ML031140590) with certain exceptions, to disposition a degraded area with pin hole leaks in an 8-inch weld neck flange ASME Code Class 3 service water (SW) system piping in lieu of performing an ASME Code repair/replacement.

The licensee submitted the proposed alternative pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.55a(z)(2) on the basis that the ASME Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety.

On September 15, 2018 (ADAMS Accession No. ML18263A161), the NRC staff verbally authorized the use of Relief Request RR-4-18 until the conclusion of the Unit 1 fall 2018 refueling outage (RF24), or until exceeding the temporary acceptance criteria of 11.5 gallons per minute, or the temporary acceptance criteria of RR-4-18, whichever occurs first. This safety evaluation documents the NRC staff's detailed technical basis for the verbal authorization.

2.0 REGULATORY EVALUATION

The licensee's application proposes an alternative to the requirements of ASME Code, Section XI, Article IWA-4000, as it relates to the repair, or replacement of ASME Code Class 3, moderate energy, SW 8-inch weld neck flange.

The NRC staff considered the following regulatory requirements and guidance in its evaluation.

Paragraph 10 CFR 50.55a(g)(4), *Inservice inspection standards requirement for operating plants*, states, in part:

> Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components (including supports) that are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI, ... to the extent practical within the limitations of design, geometry, and materials of construction of the components....

NRC GL 90-05, "Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping" addresses the acceptability of limited degradation in moderate energy piping. The generic letter defines conditions that would be acceptable to utilize temporary non-code repairs with NRC approval.

Pursuant to 10 CFR 50.55a(z), alternatives to the requirements of paragraphs (b) through (h) of this section may be used when authorized by the Director, Office of Nuclear Reactor Regulation. A proposed alternative must be submitted and authorized prior to implementation. The licensee must demonstrate (1) the proposed alternative would provide an acceptable level of quality and safety; or (2) compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Based on the above, and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists for the licensee to request and the NRC to authorize the alternative requested by the licensee.

3.0 TECHNICAL EVALUATION

3.1 The Licensee's Request for Alternative

3.1.1 ASME Code Component Affected

The affected component is ASME Code Class 3, moderate energy SW 8-inch weld neck flange downstream of valve XVB03121B-SW. The flange is located in the discharge line from the 'B' Train Emergency Diesel Generator (EDG) heat exchangers and is fabricated in accordance with the requirements of ASME Code, Section II, SA-105, "Specification for Carbon Steel Forgings for Piping Applications."

3.1.2 Applicable Code Edition and Addenda

The applicable ASME Code, Section XI, Edition and Addenda for the fourth 10-year Inservice Inspection Interval (ISI) at VCSNS, Unit 1, is the 2007 Edition through 2008 Addenda. The

fourth ISI interval at VCSNS, Unit 1, began on January 1, 2014, and is scheduled to end on December 31, 2023.

3.1.3 Applicable Code Requirement

The ASME Code, Section XI, 2007 Edition through 2008 Addenda, Article IWA-4000, Repair/Replacement Activities.

3.1.4 Reason for Request

On August 13, 2018, the licensee discovered a pinhole leak on the SW system on the downstream flanged portion of valve XVB03121B-SW. By letter dated August 14, 2018 (ADAMS Accession No. ML18226A359), the licensee submitted Relief Request RR-4-17. On August 15, 2018 (ADAMS Accession No. ML18227A104), the NRC verbally authorized the use of Relief Request RR-4-17.

On September 13, 2018, the licensee detected additional pin hole leaks on the same 8-inch weld neck flange downstream of valve XVB03121B-SW in SW piping, for which it had received verbal authorization. Based on this additional degradation, the licensee determined that the flange no longer meets the acceptance criteria of Code Case N-513-3. Therefore, the licensee submitted the current Relief Request RR-4-18. The licensee stated that the limiting conditions for operation (LCOs) of the SW system in VCSNS Technical Specifications (TSs) require at least two independent service water loops be OPERABLE in MODES 1, 2, 3 and 4. The action statement requires that with only one service water loop OPERABLE, restore at least two loops to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

The licensee further stated that an ASME code repair of the affected flange would require a plant shutdown. The flange is located between valve XVB03121B-SW and the service water pond. The flange cannot be isolated from other portions of the SW system. The licensee asserted that given the limited risk associated with the condition of the flange, an ASME code repair is considered a hardship without a compensating increase in the level of quality and safety.

3.1.5 Proposed Alternative

In lieu of performing an ASME Code repair, the licensee proposed to apply a temporary non-code repair to the degraded area of the SW piping based on guidance in GL 90-05 with exceptions. In a clarification e-mail dated September 15, 2018 (ADAMS Accession No. ML18263A159), the licensee stated that the non-code repair consists of a compression tape or a clamp with rubber gasket material to initially seal the leaks. A fiber wrap coated with a two-part resin will then be installed in the degraded area of the SW piping. The repair technique is designed and conforms to ASME Post Construction (PCC) Standards, PCC-2, "Repair of Pressure Equipment and Piping". The licensee asserted that after installation, the temporary non-code repair will not be removed so as to minimize the damage to the degraded area. The licensee stated that the non-code repair is not credited for structural integrity but will mitigate current leaks and provide additional reinforcement of the degraded region as an enhancement.

The guidance provided in GL 90-05 for performing temporary non-code repair of ASME Code Class 3 components is used as a basis for this relief request. However, the licensee explained that it will deviate from the flaw evaluation guidance in GL 90-05 because the degraded area

exceeds the maximum allowable flaw length of either 3 inches or 15 percent of the circumference as specified in GL 90-05. Additionally, the licensee will not perform additional volumetric nondestructive examinations as specified in GL 90-05 because the licensee will perform a code repair prior to the 3 months requirement and the non-code repair is not conducive to ultrasonic or radiographic testing. In lieu of the flaw evaluation guidance provided in GL 90-05, the licensee has performed a flaw evaluation using guidance from the ASME Code, Section XI, 2007 Edition through 2008 Addenda.

The licensee will perform daily walkdowns of the degraded area to monitor for leakage. The licensee stated that further degradation is acceptable as long as the leakage from the subject pin hole leak remains below 11.5 gallons per minute (gpm) and the total 'B' Train SW leakage remains below 61.8 gpm.

3.1.6 Basis for Use

The licensee performed the following evaluations in accordance with guidance in GL 90-05 with certain exceptions.

Flaw Characterization

The licensee stated that the subject pin hole leak is located in a degraded region of the flange that includes 7 pin hole leaks. The licensee estimated the degraded region to be approximately 1 inch axially by 6 inches circumferentially, as determined from ultrasonic test (UT) measurements and minimum wall thickness calculations. The licensee identified the degradation mechanism as cavitation erosion caused by the throttling of butterfly valve XVB03121B-SW. The licensee stated that the cavitation erosion is not expected to affect more than 50 percent of the flange in the circumferential direction. The licensee stated that this is conservative based on UT data and prior experience with cavitation of these valves. The licensee stated that the cavitation erosion has been limited to the weld neck flange and has not propagated into the attached piping.

Structural Integrity

The licensee stated that per plant TS 4.0.5, the structural integrity of an ASME component is determined in accordance with the original construction code, the ASME Section XI Code, approved code cases, or regulatory-approved methods of evaluation. The licensee stated that no NRC-approved methodology exists that allows for temporary acceptance of flaws for this condition. In lieu of GL 90-05, the licensee performed a flaw evaluation using guidance from ASME Code, Section XI, 2007 Edition through 2008 Addenda and determined that the flaw is structurally stable in its current configuration. The licensee used linear elastic fracture mechanics methodology based on ASME Code, Section XI, Appendix C-7000 to determine the maximum allowable axial and circumferential through wall flaw lengths that would ensure flaw stability.

The licensee used a fracture toughness of 35 ksi$\sqrt{in}$ in the flaw evaluation, similar to the allowable used in GL 90-05 for carbon steels. The licensee stated that fracture toughness data for carbon steel components based on experiments is considerably higher. The licensee considered design loading conditions such as deadweight, pressure, thermal expansion, and seismic loads. The licensee used a pressure of 65 pounds per square inch gauge (psig) for design loading, which is beyond the normal operating pressure of 16 psig. The licensee determined that a through wall flaw with an axial length of approximately 9.1 inches would

maintain flaw stability. The licensee stated that an axial length of 9.1 inches is beyond the weld neck flange and into the attached piping for which no cavitation erosion is expected. The licensee also determined that a through wall circumferential flaw with a length of approximately 13.54 inches would retain flaw stability. The licensee explained that a circumferential length of 13.54 inches represents over 50 percent of the circumference and is therefore beyond any reasonably expected cavitation erosion. The licensee asserted that the addition of the non-code repair is not credited for structural integrity of the degraded pipe. The non-code repair will mitigate current leaks and provide additional reinforcement of the degraded region as an enhancement.

Flow Margin

The pinhole leaks are located downstream of the 'B' emergency diesel generator heat exchangers downstream of the discharge valve XVB03121B-SW on the discharge line to the SW pond. Therefore, a leak at this location does not affect the ability to provide cooling water to the emergency diesel generator heat exchangers. The current leakage from the pinholes in the degraded area is approximately 2000 ml/minute. The licensee stated that the proposed repair will mitigate the leakage. The licensee estimated an allowable leak rate of 11.5 gpm from a 0.375 inch diameter hole at 20 psig. The SW pump is designed to supply 16,800 gpm of flow. A leakage of 11.5 gpm on the 'B' train would not significantly affect the pump performance.

The licensee stated that four separate SW pinhole leaks exist downstream of the A and B component cooling water (CCW) Heat Exchanger Return Valves (XVB03123A/B-SW). The upper limit of allowable leakage for these leaks is 50.3 gpm as defined in previous operability evaluations and associated relief requests. For this flow margin evaluation, the licensee assumed that all 50.3 gpm of leakage is from 'B' Train. This combined with the 11.5 gpm leakage downstream of the EDG Heat Exchanger Return Valves would give a total of 61.8 gpm leakage from the SW system.

The licensee stated that a recent routine code check valve test on the SW 'B' Train measured the total system flow to be 13,036 gpm. The design minimum required post-accident flow for a train of SW is 12,237 gpm. This resulted in a flow margin of approximately 800 gpm (13,036 gpm minus 12,237 gpm). The licensee stated that the 61.8 gpm leak rate would be located downstream of all cooling loads and throttle valves. A postulated leakage of 61.8 gpm would not adversely affect SW system flow margin of 800 gpm. The SW pond contains approximately 38.5×10^6 gallons of water and has the capability of being filled by a cross-tie valve from the circulating water system if water level drops below the alarm limit. A postulated leak of 61.8 gpm would not significantly affect the SW pond level.

Spray Evaluation

The licensee stated that the current small stream coming from the pinhole leak is directed toward the wall in the diesel building 427 foot elevation and is not currently adversely affecting any surrounding safety-related equipment. The system pressure is low at the degraded location (20 psig or less); therefore, the only potential impact from the spray would be the open/close limit switches and the conduit/terminal box for the limit switches on XVB03121B-SW. The valve limit switches are only used for position indication because XVB03121B-SW is a manual valve and no position change is required for the safety-related function. The orientation and location of the leaks would lead to the resulting spray deflecting off the wall and pooling on the flow prior to affecting any equipment in the vicinity of the valve excluding the limit switches and associated conduit/terminal box for XVB03121 B-SW. From visual observation, the closest equipment are

the diesel generator fuel oil transfer pumps and these are approximately 15 feet away from the degraded region and on the other side of the valve. The licensee stated that the spray would not have adequate velocity to adversely affect these components.

Flooding Analysis

In its flooding analysis of the diesel generator building, the licensee assumed a 30-minute operator action and no floor drain capability or sump pump operation. The licensee postulated unmitigated leakage to be 11.5 gpm which would increase the calculated flood level in the 400 foot elevation from 48.1 inches to 49.0 inches after 30 minutes which continues to be an acceptable flood level. The licensee stated that the level in the 427 foot elevation is unaffected because the curb heights limit the water level in this elevation and any water cascading above these curbs will drain to the 400 foot level.

The diesel generator building has two redundant 100% capacity sump pumps which can be used during normal plant operations. Under normal operating conditions, the diesel generator building sump pumps have a 40 gpm capacity each. The water from the spray will collect at the floor near the pipe and drain to a nearby floor drain which goes to the emergency diesel generator building sump pumps. Therefore, diesel generator building sump pumps would have sufficient capacity to prevent building flooding from the postulated 11.5 gpm leak rate.

Extent of Condition

After the initial discovery of the flaw in the flange downstream of XVB03121B-SW, the licensee inspected five additional areas in accordance with Code Case N-513-3.

Compensatory Monitoring Plan

The guidance provided in Generic Letter 90-05 suggests that the integrity of the temporary non-code repair should be assessed at least every 3 months by a suitable nondestructive examination method. The licensee planned to begin a refueling outage on October 6, 2018. The licensee stated that the repair is not conducive to ultrasonic or radiographic testing. The licensee will visually monitor the degraded component every shift and will quantify the leakage at least once every 24 hours until the leak is repaired. The licensee will not remove the temporary non-code repair because the removal could result in damage to the degraded component. The monitoring plan will remain in place until the SW piping is removed from service and repaired in accordance with the ASME Code, Section XI. The licensee has implemented an administrative limit (leak rate increase greater than 1000 ml/min in a 24 hour period) which will require further evaluation to determine corrective actions.

3.1.7 Duration of Proposed Alternative

The licensee stated that an ASME code compliant repair will be completed during the next refueling outage which was scheduled to start on October 6, 2018. Therefore, the duration of the proposed alternative is until the conclusion of the Unit 1 fall 2018 refueling outage (RF24), or until exceeding the temporary acceptance criteria of 11.5 gallons per minute, or the temporary acceptance criteria of RR-4-18, whichever occurs first.

3.2 NRC Staff Evaluation

The NRC staff evaluated the proposed alternative in the following topics: temporary non-code repair, flaw characterization, structural integrity analysis, flow margin, spray evaluation, flooding analysis, extend of condition, monitoring plan and hardship. Each of these topics is part of technical basis to support the validity of the propose alternative.

Hardship

Based on the information provided by the licensee, the NRC staff determines that an ASME code repair would require a plant shutdown to replace the pipe flange. Specifically, the flange is located on the discharge side of the SW piping and the coolant in this pipe segment does not provide cooling to safety-related components. The NRC staff finds that performing an ASME Code repair on the subject flange will not increase the level of quality and safety to the plant operation. However, a shutdown of the plant to perform the ASME code repair may cause transients to the plant, which could be detrimental. Therefore, the NRC staff finds that an ASME code repair for this component would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Temporary Non-Code Repair

The NRC staff notes that the proposed non-code repair is to reduce the leak only and not to provide any structural support of the degraded area in the SW pipe. The NRC staff notes that the licensee does not take credit for the non-code repair to support the pipe structural integrity. The non-code repair consists of a compression tape or a clamp with rubber gasket material to seal the leaks first and then wrap the area with a fiber wrapper coated with a two-part resin. The licensee used the standards of ASME PCC-2, "Repair of Pressure Equipment and Piping." The NRC staff has not approved the document. Because the licensee does not take the credit for the non-code repair to support the structural integrity of the SW piping, the NRC staff does not object the use of ASME PCC-2, and finds the temporary non-code repair acceptable.

Flaw Characterization

The NRC staff notes that the subject pin hole is located in an area of the SW piping where 7 pin holes have existed. The degraded area is approximately 1 inch axially by 6 inches circumferentially. The NRC staff determines that it is plausible that cavitation erosion is the degradation mechanism because the flange is located next to a throttling of the butterfly valve. The NRC staff recognizes that cavitation erosion can cause multiple pin holes on the carbon steel pipe. The NRC staff finds that the licensee has appropriately characterized flaws and identified the degradation mechanism.

Structural Integrity Analysis

In its flaw evaluation, the licensee considered design loading conditions such as deadweight, pressure, thermal expansion, and seismic loads. The licensee used a pressure of 65 psig for design loading, which is beyond the normal operating pressure of 16 psig. The NRC staff noted the licensee did not use the flaw evaluation method specified in GL 90-05. Instead, the licensee used the method of linear-elastic fracture mechanics in the ASME Code, Section XI, Appendix C-7000. Based on flaw tolerance approach, the licensee derived an allowable flaw with an axial length of 9.1 inches and circumferential length of 13.45 inches. The NRC staff finds acceptable that the licensee used the Appendix C-7000 to analyze the stability of the allowable flaw.

As stated above, on August 14, 2018, the licensee submitted Relief Request RR-4-17, in which the licensee calculated an allowable leak rate of 11.5 gpm based on a hole of 0.375 inch diameter at a inside pipe pressure of 20 psig. The NRC staff notes that the pin hole with a leak rate of 2000 ml/minute in the current Relief Request RR-4-18 is smaller than a diameter of 0.375 inches. In addition, a hole of 0.375 inch in diameter is much smaller than an allowable flaw size of an axial length of 9.1 inches or a circumferential length of 13.45 inches. The NRC staff finds that comparing the subject pin hole to the allowable flaw size, the degraded flange has sufficient margin to ensure the structural integrity of the SW piping.

Flow Margin

The NRC staff noted that the measured flow rate in the SW 'B' train is 13,036 gpm. The design minimum required post-accident flow for a train of SW is 12,237 gpm. This resulted in a flow margin of approximately 800 gpm. The licensee stated that several pinhole leaks exist downstream of the A and B CCW Heat Exchanger Return Valves (XVB03123A/B-SW). The upper limit of allowable leakage for these leaks is 50.3 gpm as stated in previous relief requests (e.g., Relief Request RR-4-17 submitted on August 14, 2018).

The licensee assumed that all 50.3 gpm of leakage is from 'B' Train. This combined with the 11.5 gpm leakage downstream of the EDG Heat Exchanger Return Valves would give a total of 61.8 gpm leakage from the SW system. The 61.8 gpm leak rate would be located downstream of all cooling loads in the discharge side of the SW piping to the SW pond. The NRC staff noted that a postulated leakage of 61.8 gpm would not adversely affect SW system flow margin of 800 gpm and would not significantly affect the SW pond level.

The NRC staff finds that the safety margin is sufficient between the current leak rate of 2000 ml/minute and the allowable leak rate of 11.5 gpm; therefore, the current leakage will not significantly affect the intended function of the SW system.

Spray Evaluation

The NRC staff determines that the licensee has appropriately evaluated the impact of spray from the leaking pipe/flange. The NRC staff finds that the spray from the subject pin hole will not adversely affect the operation of safety-related components.

Flooding Analysis

The licensee performed a detailed flooding analysis considering the consequence of potential flooding affecting equipment capacity and capability to handle the leakage. The NRC staff finds that the diesel generator building has adequate floor drain capability and sump pump capacity to handle an allowable leak rate of 11.5 gpm such that flooding will not affect the operation of safety-related components.

Extend of Condition

The NRC staff finds acceptable that the licensee examined five more locations in the SW piping as part of augmented inspection in accordance with the guidance in GL 90-05, Enclosure 1, Section C.4.

Monitoring Plan

The NRC staff finds the proposed monitoring plan acceptable because (1) the licensee will visually monitor the degraded component every shift and will quantify the leakage at least once every 24 hours until the leak is repaired in accordance with the ASME Code, Section XI, (2) if the leak rate increases greater than 1000 ml/minute in a 24 hour period, the licensee will perform further evaluation to determine corrective actions, and (3) the current leak rate of 2000 ml/minute is well below the allowable leak rate of 11.5 gpm.

The NRC staff further finds acceptable that the licensee will not remove the temporary non-code repair when it visually monitors the degraded location because removing the temporary repair may unnecessarily damage the degraded area of the SW piping.

NRC Staff Conclusion

The NRC staff finds that there is sufficient margin in terms of flaw size and leak rate with respect to the licensees calculated acceptable limits, until the next refueling outage (RF24), scheduled to start on October 6, 2018. The duration of the proposed alternative is less than a month. The NRC staff finds that the probability of a catastrophic failure would be small during this short period of time, considering that the licensee has implemented allowable and administrative leak rate and the licensee will perform periodic monitoring. The NRC staff finds that the licensee has demonstrated that the proposed alternative will provide reasonable assurance that the structural integrity and intended function of the subject SW piping will be maintained.

4.0 CONCLUSION

As set forth above, the NRC staff determined that the proposed alternative provides reasonable assurance of structural integrity of the subject SW piping component, and that complying with the specified ASME Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC staff authorizes the use of Relief Request RR-4-18 until the end of the conclusion of the Unit 1 fall 2018 refueling outage (RF24), or until exceeding the temporary acceptance criteria of 11.5 gallons per minute, or the temporary acceptance criteria of RR-4-18, whichever occurs first.

All other requirements of the ASME Code, Section XI, for which relief has not been specifically requested and authorized by NRC staff remain applicable, including a third party review by the Authorized Nuclear In-service Inspector.

Principal Contributor: John Tsao, NRR

Date: February 26, 2019

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1 – RELIEF REQUEST (RR-4-18) FOR USE OF NRC GENERIC LETTER 90-05 (EPID L-2018-LLR-0121) DATED FEBRUARY 26, 2019

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