



**George A. Lippard**  
*Vice President, Nuclear Operations*  
803.345.4810

RC-17-0007  
1/13/2017

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

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1  
DOCKET NO. 50-395  
OPERATING LICENSE NO. NPF-12  
RELIEF REQUEST RR-4-11, TEMPORARY NON-CODE CONDITION OF  
CLASS 3 SERVICE WATER SYSTEM FLANGE

In accordance with the provisions of 10 CFR 50.55a(z)(2), South Carolina Electric & Gas Company (SCE&G), acting for itself and as an agent for South Carolina Public Service Authority (Santee Cooper) requests an emergency relief request to use Code Case N-513-3, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1" for the evaluation of a through-wall leak identified in a Class 3 Service Water piping flange.

SCE&G is requesting this relief until the conclusion of the Virgil C. Summer Nuclear Station (VCSNS), Unit 1 Spring 2017 refueling outage (RF-23). The repair will be implemented no later than the completion of the Spring 2017 refueling outage or before exceeding the temporary acceptance criteria of Code Case N-513-3 and this relief request, whichever comes first.

On January 11, 2017 a pin hole leak was discovered on the Service Water (SW) system on the downstream flanged portion of valve XVB03121A-SW. SCE&G requests the use of Code Case N-513-3 for the analysis of this flange to allow continued operation.

Enclosed is the relief request.

SCE&G requests NRC approval of the proposed alternative by January 14, 2017.

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Commitments made in this letter are established in Attachment 2.

Should you have any questions, please call Bruce L. Thompson at 803-931-5042.

Very truly yours,

 For  
George A. Lippard

BB/GAL/jg

Enclosure : VCSNS Relief Request RR-4-11  
Attachment 1: Design Calculation SW050/02 Revision 0 "Through Wall Leak  
Evaluation"  
Attachment 2: Commitments

c:

K. B. Marsh  
S. A. Byrne  
J. B. Archie  
N. S. Carns  
J. H. Hamilton

S.M. Shealy  
W. M. Cherry  
C. Haney  
S. A. Williams\*  
NRC Resident Inspector

K. M. Sutton  
NSRC  
RTS (CR-17-00198)  
File (810.19-2)  
PRSF (RC-17-0007)

**South Carolina Electric & Gas Co. (SCE&G)  
Virgil C. Summer Nuclear Station Unit 1 (VCSNS)  
Relief Request RR-4-11**

**1. Subject**

VCSNS requires relief from Section XI requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. This request is based on the hardship of performing required ASME code repair/replacement activities to the downstream weld neck flange at valve XVB03121A-SW. The pipe flange is an 8-inch service water (SW) discharge line from the A-Train Emergency Diesel Generator (EDG) heat exchangers. This safety-related flange is classified as ASME Code Class 3.

**2. ASME Code Component(s) Affected**

ASME Code Class: Code Class 3

Reference: ASME Section XI, IWA-4000

Description: Repair/Replacement Activities

Component: Service Water (SW) System 8-inch Weld Neck Flange

Flange Material: Carbon Steel SA-105

**3. Applicable Code Edition and Addenda**

ASME Code Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 2007 Edition through 2008 Addenda. The station is in its 4<sup>th</sup> 10 year interval effective from January 1, 2014, through and including December 31, 2023.

**4. Applicable Code Requirement**

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

**5. Reason for Request**

On January 11, 2017 a pin hole leak was discovered approximately 1.5 inches downstream of XVB03121A-SW Diesel Generator Cooler A SW Return Valve. A mist was spraying onto an adjacent wall and running down the pipe at approximately 1 ml/minute. Attachment 1 to this enclosure contains the evaluation of the acceptability of the through wall leak and the UT inspection results. The UT inspection results were obtained by a Quality Control inspector who was qualified as a UT Level II inspector.

Code repair is considered a hardship without a compensating increase in the level of quality and safety. A Code repair would require a plant shutdown to replace the pipe flange. The flange is located between valve XVB03121A-SW and the service water pond. The flange cannot be isolated from other portions of the service water system.

This degraded condition is not in compliance with ASME Section XI, 2007 Edition through 2008 Addenda, IWA-4000.

## **6. Proposed Alternative and Basis for Use**

In accordance with 10 CFR 50.55a(g)(4), this safety-related piping must meet the requirements applicable to components which are classified as ASME Code Class 3. V.C. Summer proposes a relief request from ASME Code Section XI, IWA 4000 by allowing an alternative to Code Case N-513-3. A Code repair requires shut down of VCSNS Unit 1 to replace the piping flange. Given the limited risk associated with the condition of the flange, code repair is considered a hardship without a compensating increase in the level of quality and safety.

In the application of code case N-513-3, the flaw being evaluated must fall within the scope of the document. This flaw meets all portions of the Section 1.0 scope with the exception of (C) where the flaw falls beyond the distance of  $(Ro \cdot t)^{0.5}$ . A flaw evaluation using guidance from ASME Code Case N 513-3 and ASME BPVC, Section III, 2007 Edition through 2008 Addenda determined the flaw was acceptable in its current configuration. Further degradation is acceptable as long as the average thickness of the remaining material outside the hole is greater than 0.02" within a diameter of 1.5" of the hole. A compensatory action of daily walkdowns of the area will be completed to quantify the leakage. A code compliant repair will be completed during the next refueling outage which is scheduled to start on April 8, 2017.

**6.1 Flaw Characterization** – The flaw has been classified as non-planar through wall and no evidence was found to indicate a "crack" type indication. Because of the wear mechanism, which has been identified as cavitation induced erosion, there is only a single identified flaw. The remaining area has seen only nominal wall thinning.

**6.2 Structural Integrity** - Per VCSNS Unit 1 Technical Specification (TS) 4.0.5, the structural integrity of an ASME component is determined in accordance with either the original construction code or the ASME Section XI Code, approved code cases or regulatory-approved methods of evaluation. No NRC approved methodology exists that allows for temporary acceptance of flaws for this condition. This flaw meets all portions of the NRC conditionally approved code case N-513-3 with the exception of Section (C) of the scope section where the flaw falls beyond the distance of  $(Ro \cdot t)^{0.5}$ . A flaw evaluation using guidance from ASME Code Case N-513-3 and ASME BPVC, Section III, 2007 Edition through 2008 Addenda determined the flaw was acceptable in its current configuration. Design Calculation SW050/02 Rev. 0 "Through Wall Leak



Evaluation" was conducted to evaluate the acceptability of the through wall leak. The evaluation results show the existing defect is structurally acceptable. Further degradation is acceptable as long as the average thickness of the remaining material outside the hole is greater than 0.02" within a diameter of 1.5" of the hole. See attached evaluation.

**6.3 Flow Margin** - The pin hole leak is located downstream of the 'A' Emergency Diesel Generator heat exchangers downstream of the discharge valve XVB03121A-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 EDG heat exchangers. The current leakage from the pin hole is a fine mist which is less than 1 ml/minute. A conservative estimate of flow through a leak from a 0.375 inch diameter hole at 20 psi would be approximately 11.5 gpm. The SW pump is designed to supply 16,800 gpm of flow. A flow of 11.5 gpm from a 0.375 inch diameter hole would not have a significant effect on the performance of the pump. A recent routine code check valve test from STP-230.006J on the SW 'A' Train measured the total system flow to be 12,953 gpm (WO 1411941). The design minimum required post-accident flow for a train of SW is 12,237 gpm (SW DBD). This check valve testing alignment is comparable to the post-accident SW system alignment. Therefore, there is a flow margin of approximately of 716 gpm. A postulated leakage of 11.5 gpm would not adversely affect SW system flow margin.

The SW pond contains approximately  $38.5 \times 10^6$  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 11.5 gpm would have a negligible affect the SW pond level.

**6.4 Spray Concerns** – The current small stream of mist coming from the pin hole leak is directed toward the wall in the diesel building 427 foot elevation and is not currently adversely affecting any surrounding equipment. The leakage is oriented toward the wall and there is no active safety-related equipment that would be adversely impacted by the leakage. The system pressure is low at the defect location (20 psig or less), therefore, the only potential effect from the spray would be the open/close limit switches and the conduit/terminal box for the limit switches on XVB03121A-SW. The valve limit switches are only used for position indication because XVB03121A-SW is a manual valve and no position change is required for the safety-related function. If it is assumed that the existing defect opens to a 0.375 inch diameter hole (for conservatism), the orientation and location of the leak would lead to the resulting spray deflecting off the wall and pooling on the flow prior to affecting any equipment in the vacuity of the valve excluding the limit switches and associated conduit/terminal box for XVB03121A-SW. From visual observation, the closest equipment is the Diesel Generator Fuel Oil Transfer Pumps and these are approximately 15 feet away from the pin hole leak and on the other side of the valve. The spray would not have adequate velocity from the 3/8" hole at approximately 20 psi to adversely affect these components.

**6.5 Flooding** - Calculation DC03490-003 Rev 1 provides the DG building flooding evaluation. It assumes a 30 minute operator action and no floor drain capability or sump pump operation. The current misting leakage is negligible. If it is assumed that the existing defect opens to a 0.375 inch diameter hole (for conservatism), the discharge would be approximately 11.5 gpm (at design upset pressure of 20 psig) and would increase the calculated flood level in the 400 foot elevation from 48.1 inches to 49.0 inches. The level in the 427 foot elevation is unaffected since 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 location of the pin hole leak is above the standing water level of the SW pond, therefore, if the 'A' SW pump was secured, water from the SW pond would not back flow into the diesel building through the defect area.

Under normal operating conditions, the DG building sump pumps have a 40 gpm capacity each. There are two redundant 100% capacity sump pumps which can be used during normal plant operations. These pumps are not available during a loss of offsite power. 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, DG building sump pumps would have sufficient capacity to prevent building flooding from the postulated 11.5 gpm leak rate.

**6.6 Extent of Condition** –An Augmented Examination will be implemented in accordance with Section 5 of Code Case N-513-3.

**6.7 Compensatory Monitoring Plan** – Operations will quantify the leakage from the pin hole leak at least once every 24 hours until the leak is repaired. UT examinations of no more than 30 day intervals will be performed around the degraded area to characterize flaw growth. The monitoring plan will remain in place until the system is removed from service and repaired.

**6.8 Conclusion** - Although the structural integrity of the degraded flange cannot be demonstrated in accordance with a regulatory-approved methodology, it is concluded the integrity and functional requirements of the flange will be maintained. SW will continue to be capable of providing required cooling water flow to meet the required cooling loads including the EDG HXs. There will be no adverse impact on neighboring equipment due to either spray or flooding. VCSNS will implement the compensatory monitoring plan above to ensure any growth of the flaw is identified and assessed for its impact on structural integrity. A code compliant repair will be completed during the next refueling outage which is scheduled to start on April 8, 2017.

## **7. Duration of Proposed Alternative:**

A code compliant repair will be completed during the next refueling outage which is scheduled to start on April 8, 2017. Therefore, the duration of the proposed alternative is approximately 4 months until repaired during the outage.

**8. Precedents:**

Peach Bottom Atomic Power Station, Units 2 and 3-Safety Evaluation of Emergency Relief Request Associated With Deferral of Emergency Service Water Repair (TAC NOS. MF4683 AND MF4684), ML14335A551.

**9. References:**

1. ASME Code Section XI, Division 1, 2007 Edition through 2008 Addenda
2. Code Case N-513-3, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping," Section XI, Division 1, January 26, 2009
3. South Carolina Electric and Gas Company Calculation Record, SW050/02, "Through Wall Leak Evaluation" Revision 0.

**VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1**

**ATTACHMENT 1**

**DESIGN CALCULATION SW050/02 REVISION 0 "THROUGH WALL LEAK  
EVALUATION"**

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Distribution: Calc File (Original)

SOUTH CAROLINA ELECTRIC & GAS COMPANY REVISION SUMMARY		Page 2 of 5
Calculation Number SW050/02		
<u>Revision Number.</u>	<u>Summary Description</u>	
0	Evaluation of through wall leak	

ENGINEERS  
TECHNICAL WORK RECORD

Serial WW42799  
Engineer Wetmore  
Date 1/13/2017

Project Title SW050/02, Rev. 0 Tab -- Page 3 of 5

**PURPOSE**

This calculation documents the evaluation of the acceptability of a through wall leak in the downstream flanged portion of valve XVB03121A-SW

**REFERENCES/DESIGN INPUTS**

1. NRC Generic Letter 90-05
2. ASME Code Case N-513-3
3. ASME Boiler and Pressure Vessel Code, Section III, 2007 Edition through 2008 Addenda
4. EPRI 2015 Technical Report, "Welding and Repair Technology Center: Essential and Emergency Service Water Issues – Update"
5. Drawing 1MS-22-260
6. Catalog, Ladish Fittings No. 55
7. EPRI TR-103198-T1, "A Method to Predict Cavitation and the Extent of Damage in Power Plant Piping"
8. Drawing, 302-222
9. SW050/01, Rev. 0

**ATTACHMENTS**

1. UT inspection results of flaw (WO 1700748-003)

Pages 1-3

**COMPUTER PROGRAMS**

NONE

**ASSUMPTIONS**

NONE

**EVALUATION**

To ensure a robust evaluation aspects of both Ref. 2 and Ref. 3 will be used to ensure sufficient structural integrity of the eroded flange.

In the application of code case N-513-3, the flaw being evaluated must fall within the scope of the document. This flaw meets all portions of the Section 1.0 Scope with the exception of (C) where the flaw falls just beyond the distance of  $(Ro \cdot t)^{0.5}$ .

Because of this,  $t_{min}$  requirements calculated here will be based on the maximum OD of the tapered portion of the flange vs. the OD of the pipe.

Stepping Through the Procedure Portion (2) of N-513-3 (Ref. 2):

- (a) – the flaw geometry has been characterized and is included in Attachment 1
- (b) - the flaw is classified as NON-PLANAR THROUGH WALL, there is nothing in attachment 1 to suggest a "crack" type indication.

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(c) - because of the wear mechanism, which has been identified as cavitation induced erosion, there is only a single identified flaw, the remaining area has only seen nominal wall thinning.

(d) Flaw evaluation – Section 3.2

Because only a single flaw has been identified, 3.2 (a) does not require consideration.

3.2 (b) determines the minimum wall thickness which is calculated below:

$$T_{min} = (p \cdot D_o) / (2 \cdot (S + 0.4p)) = 0.0065''$$

Where:

p = design pressure = 20 psig

D<sub>o</sub> = pipe outer diameter = 9.6875 (peak diameter of 150# 8" weldneck flange tapered portion, Ref. 6)

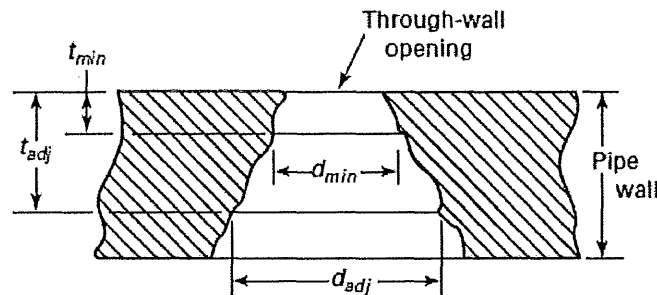
S = 15000 psi (Line Specification 152, Material SA106 Gr. B, design temperature < 200F, which is bounding vs. flange material of SA105)

Because of the exceedingly small value of T<sub>min</sub>, calculation SW050/01, Rev. 0 was also reviewed for the T<sub>min</sub> determined in the pipe including the local moments. This value was determined to be 0.0625". This value is conservative for this application as a larger section modulus is had for the flange geometry.

Therefore, the T<sub>min</sub> to be used for this evaluation is 0.0625".

Within section 3.2, the evaluation moves to portion (c) because there is a through wall leak within a portion of the thinned wall. The evaluation then utilizes the branch reinforcement method, where the hole becomes a circular penetration (see Figure 6 from Ref. 2 below).

**Figure 6**  
**Illustration of Adjusted Wall Thickness and Equivalent Hole Diameter**



**(a) Adjusted Wall Thickness**

Using this method a value of T<sub>adj</sub> of 0.14" was selected (a value greater than T<sub>min</sub> and less than the pipe wall nominal thickness). Placing this value into equation (8) of Ref. 2 yields 1.532; Where T<sub>min</sub> = 0.0625" and R = 9.6875"/2 (conservative)

$$d_{adj} \leq \frac{1.5 \sqrt{R t_{adj}} (t_{adj} - t_{min})}{t_{min}} \quad (8)$$



ENGINEERS  
TECHNICAL WORK RECORD

Serial WW42799  
Engineer Wetmore  
Date 1/13/2017

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Equation 8 was iterative until  $d_{adj}$  yielded a result of 1.532" which per Attachment 1 is the first diameter of data points taken around the pin hole. Data beyond these locations is much higher than the required minimum wall thickness.

Therefore a value of 1.532" was used and placed into equation (9)  
Where  $d_{adj} = 1.532$ ,  $p = 20$ , and  $S = 15\text{ksi}$

$$t_{c,avg} \geq 0.353d_{adj}\sqrt{\frac{p}{S}} \quad (9)$$

When solved  $T_{c,avg}$  (the average of wall thickness measurements within a measurement diameter around the flaw of 1.532") must be greater than or equal to 0.02".

Taking the average of data points A, D, G, J, and including the measurement over the pin hole, yields an average of 0.217", with a minimum value of 0.085".

- (e) Frequent periodic inspections of no more than 30 day intervals shall be used to determine if flaws are growing and determine a timeframe as which the flaw may be no longer acceptable. This method is recommended over using a flaw growth evaluation due to the nature of the erosion which is difficult to predict and not extremely accurate (Ref. 7)
- (f) This calculation does not include an evaluation of the effects of the water spray, this is outside the scope; however daily walkdowns will be suggested in the results.
- (g) The results provided are the limit and growth beyond will require repair
- (h) Per the NRC stipulations for the use of N-513-3, a repair must be made at the next outage.

Additionally, a review of ND-3643.2 was performed for rules governing branch connections (hole in the pipe, with a fitting placed over top). The branch connection shall not exceed 2" or  $\frac{1}{4}$  the nominal diameter of the run ( $8"/4 = 2"$ ). The requirements of the fitting itself have been ignored since the limitations on the run connection size are reviewed. This suggests that a hole up to 2" is satisfactory (not possible in this case due to spray impacts) as long as the remaining material is of satisfactory thickness ( $T_{min}$ ).

## **RESULTS**

The flaw as recorded in Attachment 1 is acceptable. Further degradation is acceptable as long as the average thickness of the remaining material is greater than 0.02" within a diameter of 1.5".

Daily walkdowns of the area are recommended to ensure any spray evaluations are still valid. This calculation is only applicable for the duration up until the next outage (RF23, 2017), where the flaw must be repaired or the flange replaced.

QSP-516  
ATTACHMENT I  
PAGE 1 OF 1  
REVISION 8

### ULTRASONIC THICKNESS DETERMINATION REPORT

SITE: VLS Unit 1 WORK REQUEST #: 1700748-003 DATE: 1-13-14  
SYSTEM: SW DRAWING/ISO #: N/A LOCATION: A Diesel Room  
CODE/CLASS: CL3 SURFACE CONDITION: Paint Removed AREA OF INTEREST: Corrosion area  
PIPE SIZE: 8" NOMINAL THICKNESS: N/A JOINT DESIGN: Flange to pipe  
BASE METAL SPECS: CS MINIMUM ALLOWABLE THICKNESS: N/A

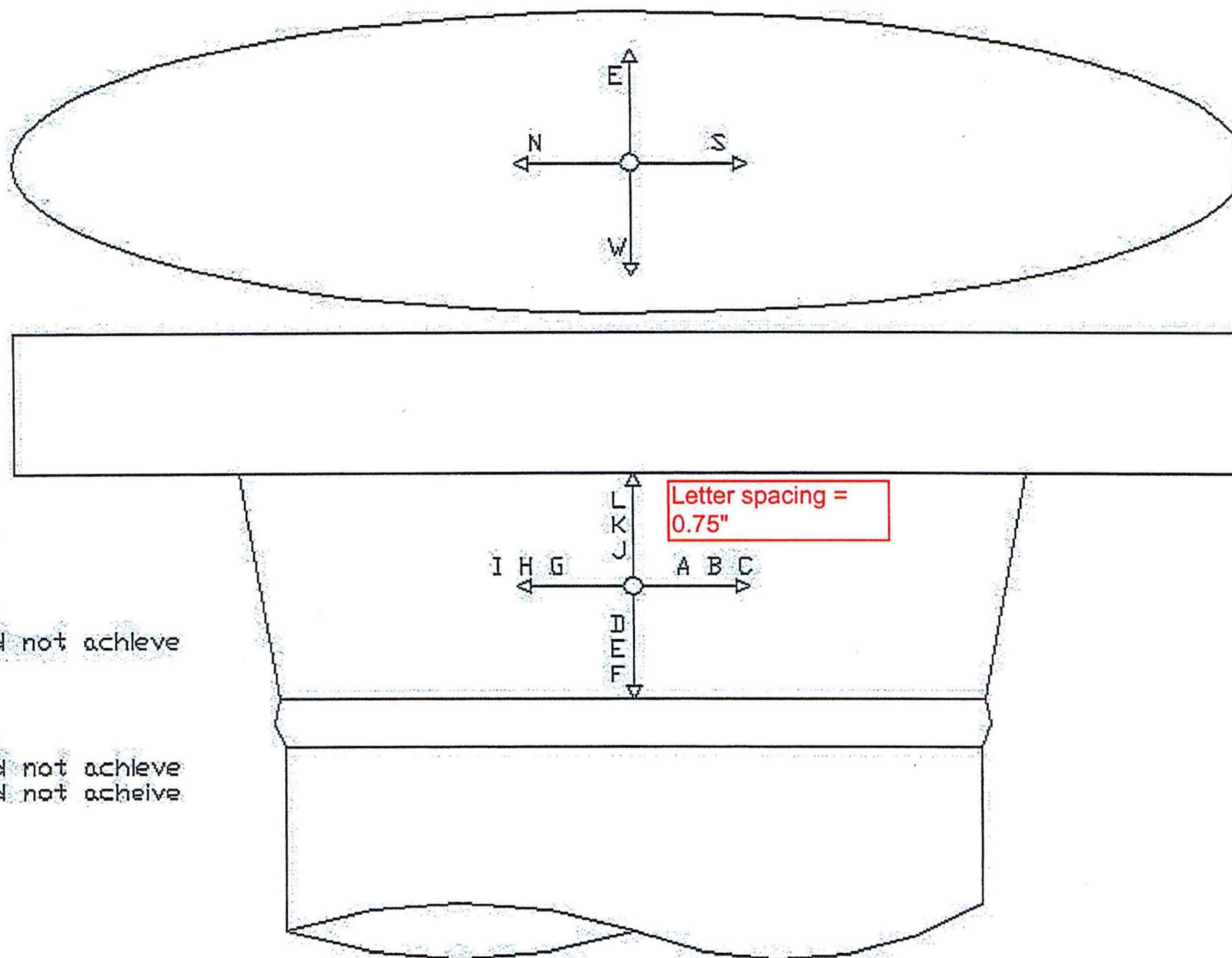
INSTRUMENT MODEL #: 38 DL Plus SERIAL #: 120492708 COUPLANT BATCH #: 10325F  
803005  
CALIBRATION STANDARD #: UT 101/UT 014 TRANSDUCER: S/N 832495

LOCATION NUMBER	ACTUAL THICKNESS	SKETCH
<u>Min. @ Leak</u>	<u>.095"</u>	<u>See attached drawings.</u>
<u>Max. 180° From Leak</u>	<u>.580"</u>	

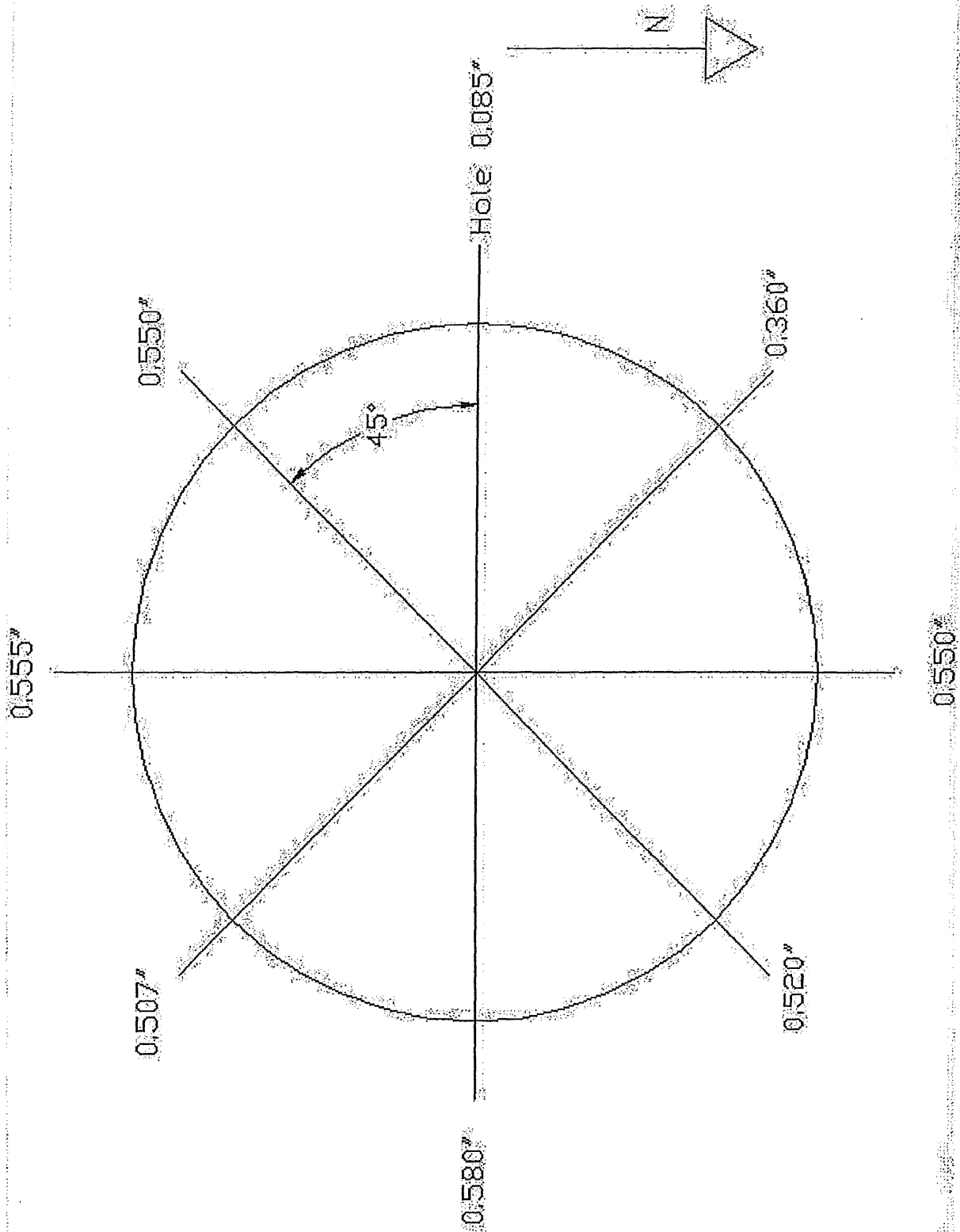
Per the provided acceptance criteria, this test is: SAT ☐ UNSAT ☐ INFO ONLY ☒

REMARKS: Best effort etam

Inspector: Josh Black Level: II Date: 1-13-17  
Inspector: Julian Hamilton Level: II Date: 1/13/17



A=0.241"  
B=0.338"  
C=0.358"  
D=0.310"  
E=0.293"  
F= could not achieve  
G=0.099"  
H=0.240"  
I=0.317"  
J=0.348"  
K= Could not achieve  
L= Could not achieve



VERIFICATION RECORD: CALCULATION

Calculation # SW050/p2 Revision 0

The following questions, as a minimum should be answered for calculation verification.

- | Yes                                 | N/A                                 |   |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Have inputs, including codes, standards, regulations, requirements, procedures, data and engineering methodology been correctly selected and applied? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Has the calculation been developed in accordance with applicable station procedures (e.g., ES-412).   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Is the plant design basis/criteria maintained?  |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Have assumptions been identified, especially those requiring later confirmation?  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Have references been properly identified and complete?  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Have the calculation, results, tables and figures been reviewed with regard to numerical accuracy, units and consistency?                             |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Has the calculation been developed/revised in a clear and understandable manner as to not require recourse to the originator?                         |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Is the output reasonable compared to the input?   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Do the diagrams or models depicted represent the physical situation correctly and incorporate necessary features for a correct analysis?              |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Has the calculation cover page been completed in an accurate manner?  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Are the sign conventions used in figures and equations consistent?  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Is consistent nomenclature used throughout the calculation (e.g., figures, tables)?   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Are symbols used on figures and in the text defined?  |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Are concurrent in-process revisions been addressed and coordinated with this revision?  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Has the Calculation Index been updated?   |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Additional considerations (see attached TWR)?   |

VERIFICATION RECORD: CALCULATION

Calculation # SW050/02 Revision 0

CALCULATIONS UTILIZING COMPUTER PROGRAMS:

- | Yes                      | N/A                                 |   |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Has the program been appropriately defined, including the version?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Is the basic methodology used by the program appropriate for the calculation?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Has the appropriate computer program been used?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Has the calculation been performed within the known limits of the program?  |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Has the computer program been verified and validated in accordance with SAP-1040?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Has the program been defined, controlled, and benchmarked so that the results reported are traceable to a particular version of the program and a particular set of input data? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Have limits for the program been defined, as appropriate?   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Comments have been included and resolved.   |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Is the Validation Data set for the application complete, and provide repeatable results?  |

WT WOOD  
Verifier's Printed Name

[Signature]  
Verifier's Signature

1/13/17  
Date

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**VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) UNIT 1**

**ATTACHMENT 2**

**LIST OF REGULATORY COMMITMENTS**

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There are three regulatory commitments created due to this Emergency Relief Request. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments. Please direct questions regarding these commitments to Mr. Bruce L. Thompson at (803) 931-5042.

Commitment	Completion Dates
Operations will quantify the leakage from the pin hole leak at least once every 24 hours until the leak is repaired.	Daily from 1/14/2017 until taken out of service and repairs completed.
UT examinations of no more than 30 day intervals will be performed around the degraded area to monitor flaw growth.	As required from 1/14/2017 until taken out of service and repairs completed.
The Augmented Examination will be implemented in accordance with Section 5 of Code Case N-513-3.	Prior to 2/10/2017.