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BVY 12-061

October 3, 2012

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

SUBJECT: Technical Specifications Proposed Change 296, Supplement 1
Response to Request for Additional Information
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

REFERENCE: 1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Technical Specification Proposed Change No. 296 Steam Dryer License Condition Change," BVY 11-085, dated December 22, 2011

Dear Sir or Madam:

In Reference 1, Entergy Nuclear Operations, Inc. (Entergy) submitted a request for an amendment to the renewed operating license Technical Specifications (TS) for Vermont Yankee (VY) requesting change to Operating License Condition 3.S related to inspection of the steam dryer.

Attachment 1 to this submittal provides Entergy's response to questions provided by NRC staff on May 31, 2012 and discussed during a teleconference held on September 24, 2012. Included in this submittal is a proposed change to the steam dryer inspection frequency provided in the Reference 1 submittal. The inspection frequency provided in Reference 1 was once every seven refueling outages. The proposed change in this submittal is to perform an inspection once every three refueling outages, commencing in RFO 31.

This supplement to the original license amendment request does not change the scope or conclusions in the original application, nor does it change Entergy's determination of no significant hazards consideration.

There are no new regulatory commitments being made in this letter.

Should you have any questions concerning this letter or require additional information, please contact Robert Wanczyk at 802-451-3166.

A001
NRR

I declare under penalty of perjury that the foregoing is true and correct.

Executed on October 3, 2012.

Sincerely,

CJW/plc

Attachment: 1. Response to Request for Additional Information

cc: William M. Dean
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Attachment 1

Proposed Change 296, Supplement 1

Response to Request for Additional Information

Request for Additional Information:

By letter dated December 22, 2011, Entergy Nuclear Operations Inc. (Entergy or the licensee) submitted a license condition change requesting the usage of the inspection requirements allowed by the BWRVIP-139-A topical report (TR), "BWR Vessel and Internals Project Steam Dryer Inspections and Flaw Evaluation Guidelines," at Vermont Yankee (VY) nuclear power plant. In the technical evaluation section of its submittal, the licensee stated that the steam dryer was inspected during previous refueling outages and these inspections did not identify any unacceptable fatigue induced structural flaws. Consistent with the requirements addressed in Section 5.3.4 of the BWRVIP-139-A, the licensee's proposed change includes adoption of the re-inspection frequency of the steam dryer at every seven refueling outages based on 18 month cycle.

As indicated in Section 5.3.4 of the BWRVIP-139-A, "Re-inspection Recommendations," licensees must justify any adjustments to steam dryer inspection programs when commitments exist to implement the re-inspection provisions of General Electric (GE) Service Information Letter (SIL) No. 44, "BWR steam dryer integrity." Accordingly, the NRC staff requests that the licensee submit a robust technical justification that demonstrates that the existing flaws would not cause any detrimental effect on the functionality and the structural integrity of the steam dryer. This justification shall encapsulate the following information which is to be derived from the consecutive inspections conducted during the 2007, 2008 and 2010 refueling outages:

a. **Length of the indications - average length of the flaws/relevant indications;**
b. **Distribution of indication per unit area - random, concentrated at high stress locations, at the heat affected zone (HAZ);**
c. **Characterization of the relevant indications/flaws,**
d. **Engineering disposition of the relevant indications (> 1/16") based on the loading conditions,**
e. **Locations of cracks i.e., fatigue cracks and/or IGSCC and maximum length of the cracks.**

The expectations are that the licensee should demonstrate that compliance with the requirements (i.e., the re-inspection frequency at every seven refueling outages based on 18 month cycle) addressed in the BWRVIP-139-A report is adequate to maintain the functionality and structural integrity of the steam dryer.

As part of its response to the information requested above, in a teleconference call with the NRC staff on February 8, 2012, the licensee requested that the NRC staff review the summary of results related to the inspections that were performed on the steam dryer during the refueling outage (RFO) outage cycles - RFO 26, 27 and 28. Furthermore, the licensee requested the NRC staff to review the technical justification (proprietary document) provided by GE. The NRC staff reviewed the inspection summary results and the related GE reports and determined that there is insufficient technical justification to support the proposed change to the license. The information requested above has not been completely addressed; therefore, the staff requests the licensee to supplement its application to address the questions outlined above.

Response to Request for Additional Information:

By letter dated December 22, 2011 (Entergy letter BVY 11-085), Entergy submitted a proposed license condition change. This change requested a steam dryer re-inspection frequency in accordance with the interval specified in BWRVIP-139-A at every seven refueling outages based on an 18 month cycle. The NRC requested supplemental information to support the December 22, 2011 submittal.

The information contained in this document serves to provide the supplemental information requested by the NRC. VY has reviewed the limitations and conditions of the BWRVIP-139-A safety evaluation and has determined that they have been adequately addressed in this response. It also serves to determine an alternate proposed steam dryer re-inspection frequency in accordance with section 5.3.4 of BWRVIP-139-A, and addresses questions provided by the NRC. This response encapsulates the following information which is derived from the RFO24 steam dryer pre-emptive modifications, compliance with industry inspection recommendations and inspection history and assessments prior to and post Extended Power Uprate (EPU). EPU was implemented prior to RFO26.

1. Steam Dryer Pre-emptive Modifications

   Vermont Yankee Nuclear Power Station (VY) performed modifications to the Steam Dryer to preclude the failures experienced at EPU conditions in other BWR-3 steam dryers. These failures at other BWR's comprised of through-wall cracking in the outer bank hood on the 90° and the 270° side. At these other plants several internal braces were detached and found on top of the steam separators. The failure was accompanied by a significant increase in moisture content. The cause of the failure was attributed to high cycle fatigue resulting from low frequency oscillating pressure loads (< 50 Hz) of higher amplitude at Extended Power Uprate (EPU) operation and the local stress concentration introduced by the internal brackets that anchor the diagonal internal braces to the dryer hoods. Based on the lessons learned from these failures, VY performed the modifications listed below and developed a plant specific finite element analysis to qualify the steam dryer for 120% EPU operating conditions (Reference: NRC Safety Evaluation Report for EPU, Letter NVY 06-028, dated March 2, 2006). The VY stress analysis showed the weld at the top of the outer vertical plate with the most limiting stress to be considerably lower than the ASME fatigue limit stress at VY of 13,600 psi (Reference: Entergy Letter BVY 06-056 to NRC, dated June 30, 2006). As seen below, the existing ½-inch vertical plates were replaced with 1-inch thick plates. In addition to the planned modifications, several repairs were performed based on the findings of the exterior IVVI inspections. All new hardware was fabricated from ASME SA-240/ASTM A240, Type 304L and 316L austenitic stainless steel material and welded with Type 308L filler material for shop welds and Type E316-17 and E316-16 for the underwater welding. The steam dryer modifications and repairs consisted of the following:

   - Cutting out the existing 1/2-inch vertical and horizontal plates on each of the two Outer Hoods and replacing with 1-inch thick plates. The vertical plate was fabricated with three shop welded gusset sections. This design minimized the amount of underwater welding at the site, reducing the amount of vertical welding by approximately 300 inches.
   - Removing the four diagonal braces inside the Outer Hoods.

- Replacing the ¼-inch thick horizontal cover plates that are adjacent to the steam outlet nozzles. The new cover plates are 5/8-inch thick.
- Removing the old Tie-Bars and installing eight mitigation Tie-Bars along with support gussets on the outer Tie-Bars.
- Installing reinforcement hardware in the areas behind the lifting lugs near the outer plenum vertical welds. The new hardware will distribute the loading in the areas where the V-02-90 and V-02-270 cracks were found to minimize the potential for future cracking.
- Repairing the crack indications at weld locations V-02-90 and V-02-270.
- Adding new tack welds to the four leveling screws.

The combined effect of these modifications resulted in:

- Lowering of actual stresses through a more uniform load distribution.
- Increased the structural integrity of the steam dryer.
- The replaced hardware material is less susceptible to inter-granular stress corrosion cracking (IGSCC).
- Minimized the potential for the generation of loose parts.

2. Compliance with Industry Inspection Recommendations

VY has completed three full scope steam dryer examinations post EPU, with no signs of crack growth activity and no cracking in the replaced hardware. These Examinations were in RFO26 (2007), RFO27 (2008) and RFO28 (2010). In RFO29 (2011), VY also inspected the drain channel weld crack indications with "No discernible changes were noted this outage to these indications" (Reference: INR-IVVI-VYR29-11-01 Steam Dryer). The drain channel crack indication in weld DC-V4C is the limiting flaw in the steam dryer; also with no signs of crack growth activity post EPU.

SIL 644, Revision 2 recommends inspection of susceptible locations during each EPU subsequent refueling outage. The recommendations include:

- Continue the inspections at each refueling outage until at least two full operating cycles at the final uprated power level have been achieved.
- After two full operating cycles at the final uprated power level, repeat the visual inspection of all susceptible locations of the steam dryer at least once every two refueling outages.
- For BWR/3-style steam dryers with internal braces in the outer hood, repeat the visual inspection of all susceptible locations of the steam dryer during every refueling outage.
- Note that VY has removed the internal braces as part of the pre-emptive modification in RFO24.

BWRVIP-139-A recommends a baseline inspection during the next scheduled refueling outage following an increase in power level of more than 2% above current licensed thermal power. The recommendations include:

- Cracks left in the "as found" condition shall be re-inspected at each subsequent scheduled refueling outage until it is demonstrated that the crack has stabilized.

- If there is no increase in power level from the current licensed power then the steam dryer shall be re-inspected, at a frequency not exceeding 5 (24 month) or 7 (18 month) refueling cycles.
- The scope of the inspection shall include all key locations as indicated in red in Figures 5-1 through 5-11 in BWRVIP-139-A and a 10% sampling of the other locations called out in the baseline inspection guidelines, as applicable to a square-hood dryer design.

VY has complied with both SIL 644 and BWRVIP-139 examination requirements and by completing three full scope steam dryer examinations, as described below, has exceeded the inspection frequency requirements post EPU recommended by these documents.

3. Steam Dryer Inspections and Assessments Post EPU

VY has completed three full scope steam dryer examinations post EPU with no signs of crack growth activity and no cracking in the replaced hardware. These examinations were in RFO26, RFO27 and RFO28. An additional examination was performed in RFO29 to re-inspect previous indications in the area of the DC-V4C weld and to verify no crack growth.

Weld DC-V4C is the limiting flaw indication seen in the steam dryer. VY has examined this indication since RFO24 (2004), and with improved examination equipment since RFO27 (2008).

- The RFO24 examination noted the indication in the drain channel DC-V4C weld "starting near the top of the weld and continuing down approximately 14.0 inches", although "The indication length was determined to be 11.89 inches" (Reference: INR-VYR24-04-04, Rev. 2). Considering a crack growth rate of 5x10E-05 inch/hr (BWRVIP) and an initial length of 11.89 inch, the flaw indication should have grown to approximately 18.5 inch in length by RFO29 using 13,140 hours per each 18-month cycles, which is not the case. The flaw indication in the DC-V4C weld measured 15 inches in RFO27 with technological advanced tooling and the length has not changed in the last inspection in RFO29 confirming lack of growth over several operating cycles.
- The RFO25 examination data sheet noted "No discernible change was noted".
- The RFO26 examination noted "This examination shows no visual change associated with the indication" (Reference: INR-IVVI-VYR26-07-05, Rev.1).
- The RFO27 examination for DC-V4C weld showed "As the flaw extends all the way to the mid support ring and the lower stop point appears to be the same point it was in RFO26, the total length of this flaw is estimated to be 15 inches". The evaluation of the DC-V4C flaw revealed three small areas in which the indication could not be positively seen to travel through and join up with the clear indications above and below the areas. The evaluation measured the "gaps" as approximately 0.41 inches, 0.16 inches and 0.52 inches in length. Two additional linear indications were also identified in RFO27. These are: (a) in the heat affected zone (HAZ) on the drain pipe DC-H-27 intersection with the drain channel. The indications at DCH-27 and at DC-V4C do not connect to each other. There is a gap of .91 inches between the indications and (b) in the drain pipe DC-H-33 side of weld DC-V4C

(Reference: INR-VYR27-05, Revision 2) (Note: The indication in the DC-H-33 weld was determined to be non-relevant in RFO28).

- The RFO28 examination of the DC-V4C weld noted "The vertical components and lower stop point of the indication was reviewed against the RFO27 images and no discernible growth was observed". This examination identified the upper end point to turn and propagate intermittently along the lower HAZ of the drain channel to support ring weld (drain channel side) behind weld DC-H-27 to a stop point approximately adjacent to the support ring header block at 355°. This horizontal run of the indication was not seen during previous examinations of DC-V4C. The indication length is estimated to be 9.9 inches. The indication is on the internal drain channel and not connected to the external dryer skirt. This indication was pre-existing as was partially viewed in the background of the DC-H-26 examination of RFO27. The previously identified indication in the HAZ of the drain pipe DC-H-27 weld was also examined with no discernible changes from previous examinations. The indication in the drain pipe DC-H-33 side of weld DC-V4C previously reported in RFO27 was determined to be non-relevant. The area was interrogated extensively at very high magnification and no indication can be found on the right hand side of weld DC-V4C (Reference: INR-VYR28-2 Rev. 2 and INR-VYR28-3, Rev. 2).
- The RFO29 examination included the flaw indications in the area of the DC-V4C weld seen in RFO28, and "No discernible changes were noted this outage to these indications" (Reference: INR-IVVI-VYR29-11-01).

The flaw indications in the HAZ of drain channel weld DC-V4C have been examined in depth since RFO24 (2004) through RFO29 (2011). These indications appear to be stable or self-arrested with a high probability that they are the result of IGSCC due to their jagged, intermittent appearance and how they follow the grain boundaries. There is visual evidence of heavy grinding in the area of the indication. IGSCC eventually slows down or arrests because the flaws grow through or away from the localized areas of residual stress. Without evidence of crack growth over several cycles the crack growth rate of 5x10E-05 in/hr should not be applied to the flaw indications, and therefore no crack growth calculations exist.

Higher quality inspection tooling started being used in RFO27. It was instrumental in identifying the horizontal flaw at the HAZ of drain channel to support ring weld in RFO28. Also, confirming the stop and end points of the vertical flaw at weld DC-V4C, which in all likelihood were pre-existing prior to being identified with newer technology. Based on the stable behavior of the DC-V4C indications during the past four operating cycles under EPU conditions, the propagation of the IGSCC flaw by fatigue during at least the next two cycles is unlikely.

The drain channel is connected to the steam dryer assembly by welds on three edges. The more structurally important steam dryer skirt plate is not affected by the DC-V4C internal drain channel indications. Further, the 3 and 6-inch drain pipes that are welded to the drain channel section near the crack provide some added structural redundancy to the upper portion of the drain channel sections on either side of the cracked weld. Also, the flaw indications in the DC-V4C weld are not through-wall, as there is no evidence of steam leaks or surface deterioration observed in the area.

The drain channel DC-V4C flaws are in the non-structural portion of the dryer (i.e., it is not located in the skirt structure itself). The vertical flaw is 15 inches or 16.3% of the weld length. Therefore, it is expected that the crack will have no significant impact on dryer performance and will not be likely to result in loose part until the crack length exceeds 50% of the weld length or 46 inches (Reference: GENE-0000-0028-0130-02, Revision 2, dated April 2004). In the unlikely event that the flaw grows at the rate of 5x10E-05 in/hr, it would take considerable more than three 18-month operating cycles to reach 50% of the weld length. An additional flaw length acceptance criteria for this weld has been conservatively evaluated as 15.6 inches in length at which fatigue crack extension could take place (Reference: NRC Issuance of Amendment Re: Extended Power Uprate transmitted by Letter NVY 06-028, dated March 2, 2006). Without evidence of crack growth resulting from fatigue, the indications will be monitored by in-service inspection. This conclusion is based on industry experience with IGSCC flaws in BWR steam dryers.

Table 1 provides flaw indication summary and an engineering disposition as further evidence of acceptance for continued operation, with the following information:

- Location of the indications - grouped by regions of the steam dryer.
- Distribution of indications - i.e. random, concentrated at high stress locations, in the heat affected zone (HAZ).
- Length of indications.
- Characterization of the indications - i.e. likely damage mechanism, suspected rate of growth, consequences of failure, crack growth discussion.
- Engineering disposition of the relevant indications (> 1/16") based on the loading conditions.

4. Summary and Conclusions

Entergy proposes that the steam dryer inspections be performed once every third refueling outage in accordance with section 5.3 of BWRVIP-139-A. This means that no steam dryer inspection would be performed in RFO30, but a steam dryer baseline inspection will be performed in RFO31 in accordance with BWRVIP-139-A requirements and re-inspections per the BWRVIP-139-A guidelines would be performed every third refueling outage thereafter. Entergy believes that performing steam dryer inspections every third refuel outage provides an adequate degree of safety and quality based on the following:

- The pre-emptive modifications to the steam dryer are designed to preclude the failures experienced at EPU conditions in other BWR-3 steam dryers. The modifications increased the structural integrity of the steam dryer and the replaced hardware material is less susceptible to IGSCC.
- The VY Steam Dryer inspection has been extensive and the results provided a high level of confidence that the dryer is in good condition.
- Five (5) successive steam dryer inspections have been completed since 2004; in RFO 24, 25, 26, 27, 28, and an additional inspection of the DC-V4C weld area indications in RFO 29. The inspection results show that the flaw indications caused by IGSCC have stabilized or arrested and that no further or minimal growth is therefore expected. This is also seen in the areas of remaining ligaments over the length of the longest flaws as there is no evidence of change. Also, there is no evidence of crack growth post EPU for all other steam dryer

flaws. Therefore, it would be unreasonable to postulate the crack growth rate of 5x10E-05 in/hr.

- The limiting flaw in the HAZ of weld DC-V4C has been evaluated by two separate acceptance criteria and determined that there is no crack growth resulting from fatigue and no potential for crack growth exists.
- The inspections have met and exceeded the requirements of SIL-644, Rev. 2 and BWRVIP-139-A.
- Extended Power Uprate (EPU) was implemented in May 2006 with no fatigue induced flaws identified since implementation.
- Monitoring was performed on the Main Steam System during and after EPU with no acoustic issues deemed to be structurally detrimental to the steam dryer.
- Over the inspection period, enhanced inspection capabilities (delivery systems and cameras) have allowed greater definition of flaws, verification that flaws thought to be new actually are pre-existing, and verification of flaws having self-arrested.
- No identified flaws in major elements of the steam dryer have been directly attributed to fatigue related failures.
- No through-wall cracking.
- The Steam Dryer is free of structural damage.
- The Steam Dryer is non-safety related equipment with no generation of loose parts concerns.
- Reduced inspection frequency will be sufficient to detect growth in the existing flaws, if any, before the flaw reaches a length that could result in the generation of loose parts.
- The existing flaws would not cause any detrimental effect on the functionality and the structural integrity of the steam dryer, or have any potential to affect any safety related equipment.
- Vermont Yankee monitors the Main Steam System for evidence of moisture carryover with no evidence of abnormal moisture carryover noted to date.

Table 1 - Steam Dryer Indication Summary

Indication Location	Component / Weld ID	Distribution of Indication	Indication Length	Characterization of Indication and Engineering Disposition	Reference Documents	Crack Growth Discussion
Lifting Lug Indications	Dryer Lifting Lug 144°, 215° & 324°	Stitch welds cracked at high stress locations, not in heat affected zone (HAZ).	Length of indications are all or part of the length of the stitch weld. Stitch welds are approximately one inch in length.	These are linear indications indicative of cracked stitch welds that prevent the lifting rods from backing out (unthreading). Lifting rods were tightened to 225 lbf-ft of torque before welding. Cracking is likely due to an overload condition during removal or replacement of the steam dryer. Inspections show no evidence of lifting rod movement or rotation. Indications have been evaluated as being acceptable for continued operation. Refer to Reference Documents for a detailed evaluation.	GENE 0000-0068-4787 Rev.1 (144°) & 0000-0092-7429-R0 (215° & 324°) INR's: VYR26-07-01R1 VYR27-06 VYR27-08 VYR27-24 VYR28-05 VYR28-07 VYR28-09	The cracking in the stitch welds is caused by a high stress condition due to imbalance loading at the lifting lug support. The cracked stitch welds are of no structural concerns as the purpose is to keep the lifting rods in place and to prevent rotation of the threaded connection.
Dryer Leveling Screw Indications	Leveling Screws 144, 215, & 324	Tack welds cracked at high stress locations, not in HAZ.	All tack welds of approximately one inch in length are cracked entirely.	These are linear indications indicative of cracked tack welds that prevent the leveling screws from backing out (unthreading). Leveling screws were tightened to 150 lbf-ft torque before welding. These cracks are likely the result of impact loading during reactor operation. These indications have been evaluated as being acceptable for continued operation. Refer to Reference Documents for a detailed evaluation.	GENE 0000-0068-4787 Rev.1 (144) & 0000-0092-7429-R0 (215 & 324) INR's: VYR26-07-02-R2 VYR27-02 VYR27-04 VYR27-10 VYR28-06 VYR28-08 VYR28-10	The cracking in the stitch welds is caused by a high stress condition due to impact loading during reactor operation. The cracked stitch welds are of no structural concerns as the purpose is to keep the leveling screws in place and to prevent rotation of the threaded

Table 1 - Steam Dryer Indication Summary

Indication Location	Component / Weld ID	Distribution of Indication	Indication Length	Characterization of Indication and Engineering Disposition	Reference Documents	Crack Growth Discussion
						connection.
Drain Channel Indications	DC-V4C	Randomly distributed, in the weld HAZ.	Intermittent indication of 15 inches in total length at weld DC-V4C. Intermittent indication of 9.9 inches in total length in the drain channel to support ring weld.	These linear indications are all indicative of Intergranular Stress Corrosion Cracking (IGSCC) in the heat affected zone of drain channel weld DC-V4C. This indication was first identified in RFO24. It was observed again in RFO25 and RFO26 with no change noted. In RFO27, a slight increase in length was observed. This change was attributed to newer technology allowing greater access to the indication location and improved camera capability (resolution). In RFO28 a horizontal indication was observed in the Drain Channel to Support Ring weld. This indication was also attributed to IGSCC. Review of previous visual inspection videos in this area indicated that the indication was pre-existing although the quality of the earlier videos was not sufficient to confirm length. The indication was re-inspected in RFO29 with no change observed. This indication appears to have self-arrested with no further growth anticipated and no potential for loose parts exists. Refer to Reference Documents and Sections 3 & 4 of this RAI Response for a detailed evaluation.	GENE-0000-0028-0130-02, Rev. 2; 0000-0092-7429-R0 & 0000-0117-4244-R 0 INR's: VYR24-04-04-R2 VY-RFO25 Data Sheet VYR26-07-05-R1 VYR27-05-R2 VYR28-2 VYR28-3-R2 VYR29-11-01	There has been no evidence of crack growth since EPU inspections in RFO26.

Table 1 - Steam Dryer Indication Summary

Indication Location	Component / Weld ID	Distribution of Indication	Indication Length	Characterization of Indication and Engineering Disposition	Reference Documents	Crack Growth Discussion
Drain Channel Indications	DC-H-30 (DCC-DP-12)	Randomly distributed, In the HAZ and adjacent to a drainpipe-to-drain channel weld	Indication #1 is approximately 3 inches in length; Indications #2 & #3 are very small (< 1 inch in length), located on the other side of the drain pipe.	These linear indications are indicative of IGSCC in the heat affected zone of drain channel weld DC-H-30 located at approximately 185°. The indications have shown no evidence of growth and were evaluated as being acceptable for continued operation and no potential for loose parts exists. Refer to Reference Documents for detailed evaluation.	GENE-0000-0028-0130-02-R2 INR's: VYR24-04-04-R2 VYR26-07-17 VYR28-17	There has been no evidence of crack growth since EPU inspections in RFO26.
Drain Channel Indications	DC-H-27	In the HAZ, adjacent to a drainpipe-to-drain channel weld	Approximately 4.6 inches in length or 17% of the elliptical drain pipe to channel weld circumference	This linear indication is indicative of IGSCC in the heat affected zone of the drain channel weld DC-H-27. This indication has existed since RFO24, and has been observed during RFO27, RFO28 and with the RFO29 inspection revealing no apparent change. No potential for loose parts exists. Refer to Reference Documents for detailed evaluation.	GENE-0000-0092-7429-R0 INR's: VYR24-04-04-R2 VYR27-03-R1 VYR28-02 VYR29-11-01	There has been no evidence of crack growth since EPU inspections in RFO26.
Steam Dam Indications	Steam Dam Support at 35°	Randomly distributed, not in the weld HAZ.	Three indications all less than one inch in length	These are linear indications indicative of IGSCC located on the edge of the steam dam plate in an area of no applied stress and do not appear to be associated with any fatigue related issue. Possibly due to cold work as the plate might have been cut or ground such that the IGSCC susceptibility was increased. No potential for loose parts exists. Refer to Reference Documents for detailed evaluation.	GENE 0000-0068-7307, Rev.1 INR's: VYR26-07-07 VYR27-07 VYR28-13	There has been no evidence of crack growth since EPU inspections in RFO26.

Table 1 - Steam Dryer Indication Summary

Indication Location	Component / Weld ID	Distribution of Indication	Indication Length	Characterization of Indication and Engineering Disposition	Reference Documents	Crack Growth Discussion
Unit End Plate Indications	HB-V01, HC-V01, HD-V04, HE-V02	Randomly distributed, in the HAZ.	A total of five Indications all appear to be less than one inch in length.	Three of total five linear indications are indicative of IGSCC associated with areas of cold working and are not expected to propagate. The other two indications appear to be small fabrication induced crater cracks. The indications have shown no evidence of growth and were evaluated as being acceptable for continued operation. No potential for loose parts exists. Refer to Reference Documents for detailed evaluation. Several additional indications previously recorded as relevant were later on re-assessed with higher quality inspection tooling and determined to be non-relevant.	GENE-0000-0047-2767 Rev. 1 & 0000-0092-7429-R0 INR's: VYR24-04-02-R2 VYR25 -01 to 07 VYR26-07-09-R1 VYR26-07-10-R1 VYR26-07-11 VYR26-07-12-R1 VYR26-07-13to16 VYR26-07-18-R1 VYR26-07-19-R1 VYR26-07-20 VYR27-01 VYR27-14 to 17 VYR27-18-R1 VYR27-19-R1 VYR27-20 to 23 VYR28-01 VYR28-11 & 12 VYR28-16 VYR28-18 to 23	There has been no evidence of crack growth since EPU inspections in RFO26.