

**From:** [Wagner Pat G](#)  
**To:** [Wideman Steve G](#); [Lyon, Fred](#)  
**Cc:** [Muilenburg William T](#); [Peabody, Charles](#); [Kopriva, Ron](#); [Herrman Paul J](#); [Broschak John P](#); [Westman Mike J](#); [Fredrickson Kenneth L](#); [Tarr, Jeff A](#); [Broschak John P](#); [Herrman Paul J](#); [Turner Arthur P](#); [Dave Ayers](#); [Kurt Crytzer](#); [jukeim@WCNOC.com](#); [nfarenbaugh@anatecintl.com](#); [Lagally, Herman O.](#); [Brandon Momeyer](#); [Helen Cothron](#)  
**Subject:** RE: Steam Generator Inspections for Upcoming RFO  
**Date:** Wednesday, February 27, 2013 1:17:49 PM  
**Attachments:** [image001.png](#)  
[DIVIDER PLATE\\_UT\\_PLOT\\_rev.1.pdf](#)

I would like to provide some additional / clarifying information prior to the call tomorrow.

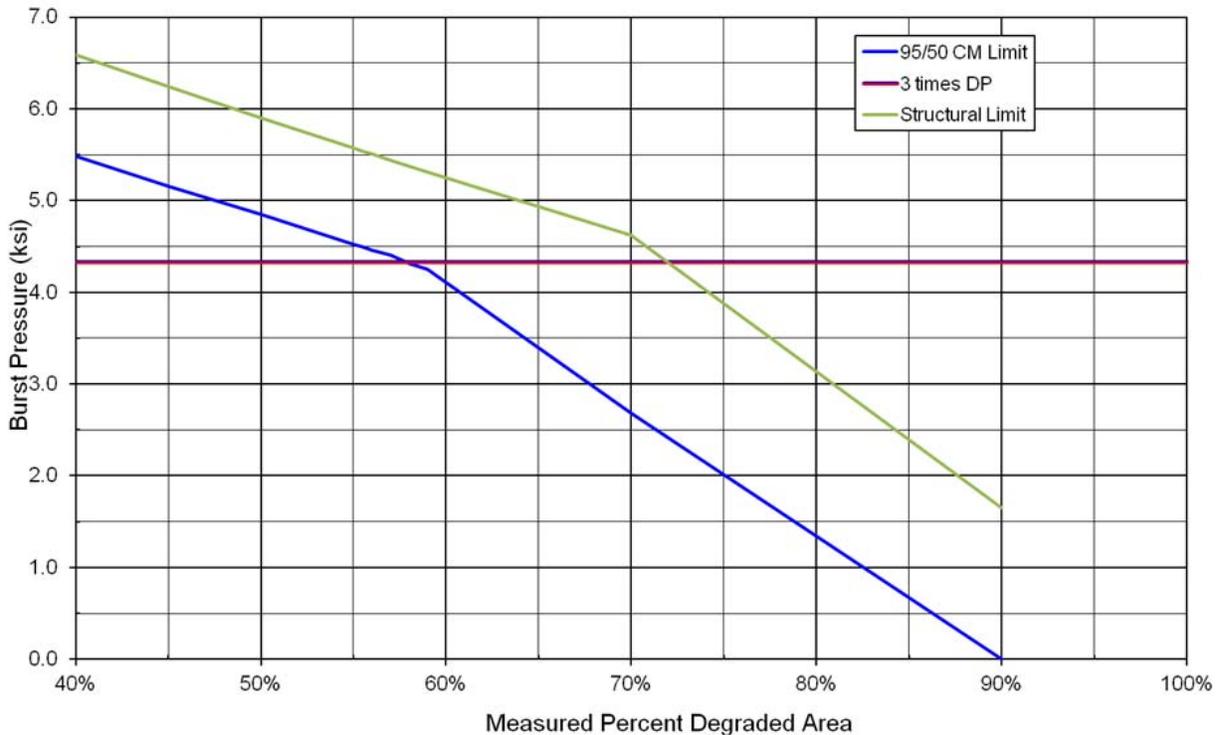
Related to Item 1, the Ultrasonic Testing has bounded the indication at 0.1 inches deep by 2 inches long (see the attached UT Plot for more information).

Related to Item 2, See the following graph related to the Condition Monitoring limit for the circ indication.

The steeper slope is tensile instability which relates to separation within the tubesheet. The shallower slope presumes that tube could bend at top of tubesheet and is conservative relative to locations within the tubesheet. In any case, the allowable percent degraded area (PDA) for 3 delta P considering all uncertainties is 58% and the measured PDA is 11%.

Pat

**Burst Resistance vs. Percent Degraded Area Acceptance Limit**  
**11/16" x 0.040" Alloy 600TT SG Tubes at 650°F ETSS 20510.1**  
**Indication Measured PDA = 11% assuming through-wall**



**From:** Wideman Steve G  
**Sent:** Tuesday, February 26, 2013 8:29 AM  
**To:** 'Lyon, Fred'  
**Cc:** Muilenburg William T; Peabody Charles A; 'Ron.Kopriva@nrc.gov'; Wagner Pat G; Herrman Paul J; Broschak John P; Westman Mike J; Fredrickson Kenneth L  
**Subject:** RE: Steam Generator Inspections for Upcoming RFO

Fred - in accordance with the below email of February 1, 2013, this email is to make you aware of two items identified during the current refueling outage Steam Generator (SG) Inspections. If it is determined that a conference call is needed, please let Bill Muilenburg and myself know.

Item 1 - During the primary bowl scan of SG 'A' Hot Leg as part of the Westinghouse Nuclear Safety Advisor Letter NSAL-12-1, "Steam Generator Channel Head Degradation," a rust color spot was identified approximately 6 inches down from the face of the tubesheet along the divider plate to bowl weld (see attached photo). Following identification of this area, UT was attempted of the area from outside the SG primary bowl. The first attempt was unsuccessful utilizing a straight beam UT probe due to interferences with the SG support beam. Subsequently, a 60-degree L Wave UT probe was utilized to characterize the area. This UT determined that the flaw was approximately 0.1 inches deep by approximately 1

inch long. No width could be obtained. This item is currently being evaluated by WCNOG and Westinghouse to determine what the future course of action will be necessary.

Item 2 - During the Top-of-Tubesheet eddy current inspection, a circumferential indication was confirmed in SG 'B' Hot Leg (17,89) ~TTS -6.46" which is located at a bulge indication. Due to this indication, 100% of the tubes containing BLG and/or OXP will be inspected in SG 'B' within the inspection region. Also, 20% of the tubes containing BLG and/or OXP within the inspection region for SGs 'A', 'C', and 'D' will need to be inspected. It should be noted that as part of the original inspection program that greater than 20% of the BLG and/or OXP within the tubesheet in SG 'A', 'C', and 'D' are already being inspected. Therefore, currently there is no additional testing required in SG 'A', 'C', and 'D'.

Steve Wideman  
WCNOG Licensing  
620-364-4037

---

**From:** Lyon, Fred [<mailto:Fred.Lyon@nrc.gov>]  
**Sent:** Friday, February 01, 2013 5:35 AM  
**To:** Wideman Steve G; Elwood, Thomas B  
**Cc:** Muilenburg William T; Maglio, Scott A; Hartman, Thomas; Peabody Charles A  
**Subject:** Steam Generator Inspections for Upcoming RFO

As you may recall, the steam generator branch (ESGB) participates in conference calls with a handful of licensees performing steam generator inspections every outage season. They have not selected Wolf Creek or Callaway for such a call during their upcoming outages; however, please notify me if one (or more) of the following circumstances is identified during the outage:

1. If a degradation mechanism (other than wear from loose parts) is observed that has not been previously observed in these steam generators.
2. If degradation of steam generator secondary side internals is observed that has not been previously observed in these steam generators.
3. If a flaw is more severe than expected, or if the number of flaws identified are more than expected.
4. If an in-situ pressure test is performed.

If you experience one (or more) of the above, please let me know. The staff may request that you participate in a conference call to discuss your findings.

If you are not performing any steam generator tube inspections this upcoming outage, please let me know.

Thanks, Fred