

From: Jacob Zimmerman
To: Borchardt, Richard; Collins, Samuel; Johnson, Jon; Sheron, Brian
Date: Fri, Jan 25, 2002 9:59 AM
Subject: Bulletin 2001-01 Status Report

NAK

The attached file contains the latest Status Report for Bulletin 2001-01, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles" as of this morning, January 25, 2002. Please note that updated information is in red (must be viewed in Word Perfect) and indicated by rev. bars.

FYI - I am pleased to announce that Beth Wetzel was selected as the new Lead Project Manager for Bulletin 2001-01. Beth starts her new assignment Monday, January 28, 2002.

If you have any questions or comments, please email or call Beth at (301) 415-1355. If you would like to be removed from distribution, please let her know.

Thanks,
Jake Zimmerman

CC: Adensam, Elinor; Bajwa, Satwant; Barrett, Richard; Bateman, Bill; Bearden, William; Berkow, Herbert; Black, Suzanne; Blough, A. Randolph; Brockman, Ken; Burkhart, Lawrence; Caldwell, James; Caniano, Roy; Casto, Charles; Chandler, Lawrence; Chokshi, Nilesh; Christensen, Harold; Chung, Jin; Clark, Robert; Clifford, James; Colburn, Timothy; Collins, Daniel; Collins, Elmo; Collins, Jay; Congel, Frank; Cowgill, Curtis; Crlenjak, Richard; Dembek, Stephen; Dyer, Jim; Edison, Gordon; Ellershaw, Lee; Eltawila, Farouk; Goshen, John; Grant, Geoffrey; Grobe, John; Gwynn, Pat; Hackett, Edwin; Harrison, John; Hiser, Allen; Holahan, Gary; Holian, Brian; Holmberg, Melvin; Howell, Art; Jacobson, John; Jaxheimer, Frederick; Lanning, Wayne; Laufer, Richard; Lee, Andrea; Lesser, Mark; Lew, David; Longo, Giovanna; Mallett, Bruce; Marsh, Tad; Marshall, Michael; Mayfield, Michael; McCree, Victor; Mendiola, Anthony; Merschoff, Ellis; Miller, Hubert J.; Modes, Michael; Monarque, Stephen Raul; Munday, Joel; Nelson (HQ-OE), David; Olshan, Leonard; Paulk, Chuck; Pickett, Douglas; Reckley, William; Reinhart, F. Mark; Reynolds, Steven; Richards, Stuart; Rogge, John; Sands, Stephen; Stang, John; Strosnider, Jack; Wert, Leonard; Wetzel, Beth; Wharton, L. Raynard; Wichman, Keith; Wiggins, James; Young, Mitzi; Zwolinski, John

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STATUS REPORT

**BULLETIN 2001-01, CIRCUMFERENTIAL CRACKING OF REACTOR
PRESSURE VESSEL HEAD PENETRATION NOZZLES**

PLANTS WITH REFUELING OUTAGES SPRING 2002

**PLANTS WITH HIGH SUSCEPTIBILITY TO PRIMARY WATER STRESS CORROSION
CRACKING (PWSCC) OR PRIOR VHP NOZZLE CRACKING**

Davis-Besse

Licensee Plans/Commitments: The licensee plans to shutdown for their next refueling outage on February 16, 2002 and perform VHP nozzle inspections. The shutdown date of February 16, 2002, was docketed in a letter dated November 30, 2001.

Planned Meetings & Teleconferences:

1/23/02 - A public meeting was held to provide the licensee an opportunity to discuss their plans for the inspection, flaw evaluation, and repair (if necessary) of the VHP nozzles. The licensee plans to perform a qualified visual inspection of un-obstructed nozzles, ultrasonic testing (UT) of 100% of nozzles, dye penetrant testing of nozzles with verified leaks, and characterization of flaws through destructive examination consistent with ALARA.

The staff is making plans to visit the site during the planned outage to observe inspections.

D. C. Cook, Unit 2

Licensee Plans/Commitments: The licensee shutdown on January 17, 2002 for their refueling outage and plans to perform VHP nozzle inspections starting on January 28, 2002.

Planned Meetings & Teleconferences: None planned prior to the outage.

The staff plans to visit the site next week during the planned outage to observe inspections.

Surry, Unit 2

Licensee Plans/Commitments: The licensee performed a visual examination at a mid-cycle outage in November, and does not plan to perform any inspection at the RFO scheduled to begin in March 2002.

Planned Meetings & Teleconferences: None needed.

Oconee, Unit 1

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Licensee Plans/Commitments: The licensee will perform a qualified visual examination at the RFO scheduled to begin April 2002. Prior experience at this unit had one CRDM nozzle and 5 (out of 8) thermocouple nozzles with leakage and cracks. From the recent experience at Unit 3, additional leakage/cracking is anticipated.

Planned Meetings & Teleconferences: None planned prior to the outage.

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PLANTS WITH MODERATE SUSCEPTIBILITY TO PWSCC

Unless noted otherwise, these plants have committed to perform an inspection consistent with the discussion in Bulletin 2001-01 (an effective visual examination or better).

ANO, Unit 2 (April 2002)

Beaver Valley, Unit 2 (February 2002)

Calvert Cliffs, Unit 1 (February 2002)

Diablo Canyon, Unit 1 (May 2002)

Fort Calhoun (May 2002)

Ginna (March 2002)

Licensee Plans/Commitments: The licensee does not plan to perform any inspection at the next RFO, but has stated plans to replace the RPV head at the next RFO (fall 2003). The staff is reviewing a submittal from the licensee justifying this plan, based on the results of (1) the previous eddy current testing performed in 1999, (2) the crack growth rate analysis developed by Structural Integrity Associates, and (3) the fact that Ginna reactor vessel head temperatures are significantly lower than plants which have seen cracking. The 1999 eddy current test indicated no through-wall cracks, and the crack growth rate analysis using linear elastic fracture mechanics indicated that for the most limiting case (180 degree flaw) the time to grow to the allowable flaw size of 300 degrees is greater than the operating time from the 1999 inspection until the fall 2003 outage when RG&E plans to replace the reactor vessel head. The licensee also indicated that by providing enhanced operator training related to medium break loss of coolant accident, the probabilistic safety assessment results indicated that the conditional core damage probability is equal to 2.252E-03.

Staff Position: The approach proposed by the licensee appears reasonable. The staff is completing its review of the licensee's submittal to determine the adequacy of the justification.

Planned Meetings & Teleconferences: None scheduled.

ACTION ITEM: The staff needs to complete its review of the licensee's justification.

Millstone, Unit 2 (February 2002)

Licensee Plans/Commitments: The licensee has committed to an inspection that will interrogate the nozzle base material using a rotating UT transducer (this plant does not have thermal sleeves in its CRDM nozzles). The licensee has concluded that a visual

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inspection is not viable at this time because of the contoured insulation, presence of asbestos, restricted access, and ALARA concerns.

Staff Position: The examination equipment, technology, and methods proposed to be utilized by the licensee in their upcoming outage to inspect the nozzles appear to provide an effective examination, including the new application of UT data to detect evidence of leakage. However, the staff did not agree with the licensee's statistical analysis used to justify inspecting fewer than 100% of the nozzles, and told that licensee that inspection of 100% of the nozzles is expected.

Planned Meetings & Teleconferences:

1/24/02 - A public meeting was held where the licensee presented their plans to inspect the VHP nozzles. Currently, they plan to inspect 100% of the nozzles. If, however, the inspection equipment fails prior to this goal, they hope to be able to justify inspecting fewer nozzles. Though, this justification would only be attempted if no unacceptable flaws had been identified in any other nozzles already examined. The licensee presented the statistical analysis that they would use to support this contingency plan. The presentation also included a description of the equipment, technology, and methods to be utilized to interrogate the nozzles and to visually depict the transducer data. One new approach proposed by this licensee is the use of UT data to determine the presence of leakage evidence in the interference fit portion of the CRDM nozzle. This approach was supported in the meeting by the contractor (Framatome) comparing top-of-the-head visual examination results and UT results from inspections conducted in 2001. The material presented supported a finding that all nozzles with visual evidence of leakage had UT results demonstrating leakage evidence in the interference fit portion of the CRDM nozzle.

ACTION ITEM: The licensee needs to submit the information presented in the January 24 meeting for the staff to review, including the new application of UT data to detect evidence of leakage.

Palo Verde, Unit 2 (March 2002)

Licensee Plans/Commitments: From a letter dated December 6, 2001, and subsequent phone calls, the licensee appears to plan an inspection that will be effective in meeting the objectives of the Bulletin. However, the licensee has been reluctant to document a written commitment that provides a sufficient description of the scope (e.g., 100% of the nozzles) and intent (e.g., ECT, PT, or UT of the wetted surfaces) of the inspection.

Staff Position: The staff has requested that the licensee provide a written commitment that sufficiently describes the scope and intent of the inspection. The verbal description provided by the licensee is acceptable.

Planned Meetings & Teleconferences: None planned.

ACTION ITEM: The licensee needs to document a clarification of the scope and intent of their planned inspection.

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Point Beach, Unit 2 (April 2002)

Licensee Plans/Commitments: From a letter dated January 3, 2002, the licensee plans to remove the existing insulation and perform an "effective visual examination" of all VHP nozzles. The licensee will inspect both the removed insulation and the vessel head to identify evidence of leakage. Because of the probability of asbestos, abatement will be required during the removal process, which the licensee does not expect to interfere with the visual inspection.

Staff Position: The inspection planned by the licensee appears to be effective in meeting the objectives of the Bulletin. However, the staff has identified several issues that are needed to demonstrate sufficiency of the planned inspection.

Planned Meetings & Teleconferences: A teleconference was held January 17, 2002, with the licensee. The licensee is consulting with vendors to resolve issues associated with inspection techniques. The licensee plans to meet with the staff one month prior to their planned outage to discuss their finalized plans.

ACTION ITEM: The licensee needs to document their commitment to discuss their inspection plans with the staff one month prior to the planned outage.

Prairie Island, Unit 2 (January 2002)

Salem, Unit 2 (April 2002)

San Onofre, Unit 2 (May 2002)

Turkey Point, Unit 4 (March 2002)

Waterford Unit 3 (March 2002)

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CLOSEOUT LETTERS

Closeout letters have been issued for 48 of the 69 affected units.

PLANTS WITH HIGH SUSCEPTIBILITY TO PWSCC OR PRIOR VHP NOZZLE CRACKING

Plant	Closeout Letter
ANO-1	*
Davis-Besse	*
D.C. Cook 2	01/14/02
North Anna 1	**
North Anna 2	**
Oconee 1	*
Oconee 2	*
Oconee 3	*
Robinson	11/20/01
Surry 1	**
Surry 2	**
TMI-1	01/03/02

* NRR/DE/EMCB review ongoing

** Licensee owes supplemental response

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PLANTS WITH MODERATE SUSCEPTIBILITY TO PWSCC

Plant	Closeout Letter
ANO-2	01/14/02
Beaver Valley 1	12/11/01
Beaver Valley 2	12/11/01
Calvert Cliffs 1	12/06/01
Calvert Cliffs 2	12/06/01
Crystal River 3	*
Diablo Canyon 1	*
Diablo Canyon 2	*
Farley 1	11/08/01
Farley 2	11/08/01
Fort Calhoun	11/08/01
GINNA	*
Indian Point 2	*
Indian Point 3	*
Kewaunee	11/14/01
Millstone 2	**

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Plant	Closeout Letter
Palo Verde 1	**
Palo Verde 2	**
Palo Verde 3	**
Point Beach 1	**
Point Beach 2	**
Prairie Island 1	11/08/01
Prairie Island 2	11/08/01
Salem 1	11/20/01
Salem 2	11/20/01
San Onofre 2	11/20/01
San Onofre 3	11/20/01
St. Lucie 1	11/09/01
St. Lucie 2	11/09/01
Turkey Point 3	11/14/01
Turkey Point 4	11/14/01
Waterford 3	11/23/01

- * Closeout letter in process
- ** Licensee owes supplemental response

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PLANTS WITH LOW SUSCEPTIBILITY TO PWSCC

Plant	Closeout Letter
Braidwood 1	11/14/01
Braidwood 2	11/14/01
Byron 1	11/14/01
Byron 2	11/14/01
Callaway	11/14/01
Catawba 1	12/04/01
Catawba 2	12/04/01
Commanche Peak 1	11/19/01
Commanche Peak 2	11/19/01
DC Cook 1	01/14/02
McGuire 1	11/19/01
McGuire 2	11/19/01
Millstone 3	11/26/01
Palisades	11/08/01
Seabrook	12/03/01
Sequoyah 1	11/20/01
Sequoyah 2	11/20/01
Shearon Harris	12/20/01
South Texas 2	12/14/01
South Texas 1	12/14/01
Summer	12/03/01
Vogtle 1	11/07/01
Vogtle 2	11/07/01
Watts Bar 1	11/20/01
Wolf Creek	11/14/01

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