

From: Beth Wetzel *NRL*
To: Brian Sheron; Jon Johnson; Richard Borchardt; Samuel Collins *NRL*
Date: 2/15/02 11:13AM
Subject: WEEKLY STATUS UPDATE

Interested Parties:

Attached is this week's status report on Bulletin 2001-01. As always, the new information is in Redline and can be viewed in WordPerfect.

We are having a meeting with industry on Feb. 20 and 21. The meeting notice and agenda are on the Alloy600 webpage.

I've added a new page to the status report with preliminary plans for  outages. *EKA*

If you have any comments or question, don't hesitate to call or e-mail. (X1355)
Beth

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

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STATUS REPORT

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

PLANTS WITH REFUELING OUTAGES SPRING 2002

February 15, 2002

10:00 A.M.

**MEETING PLANNED WITH INDUSTRY, NEI, EPRI AND MRP ON FEBRUARY 20 AND 21 TO
DISCUSS STATUS OF CRDM ISSUE AND FRACTURE MECHANICS METHODOLOGIES.**

**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.

Headquarters staff is making plans to visit the site during the week of February 25, 2002 to observe inspection and repair activities.

D. C. Cook, Unit 2

Licensee Plans/Commitments: The licensee shutdown on January 17, 2002 for their refueling outage and began VHP nozzle inspections shortly thereafter.

Inspections: The licensee has completed its inspections. Preliminary results are the following: Several penetrations were identified for further investigation. All indications had similar characteristics. The licensee performed additional examinations of these penetrations. Based on the results from the additional examinations the licensee

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believes that the indications are not relevant and are associated with the welding process and not service-related. In addition to the examinations the licensee performed a structural integrity evaluation as a conservative measure. The results of the evaluation demonstrated a high margin of structural integrity.

Planned Meetings and Teleconferences: After receipt and review of a videotape documenting part of the licensee's inspection, the staff plans to conduct a follow-up call with the licensee to discuss their inspection findings. These activities are planned for the week of February 18, 2002.

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

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).

Spring Outage Schedule

Beaver Valley Unit 2 (February 2002)

Calvert Cliffs Unit 1 (February 2002)

Prairie Island Unit 2 (February 2002)

Millstone Unit 2 (February 2002)

Turkey Point Unit 4 (March 2002)

Waterford Unit 3 (March 2002)

Ginna (March 2002)

ANO Unit 2 (April 2002)

Point Beach Unit 2 (April 2002)

Salem Unit 2 (April 2002)

Diablo Canyon Unit 1 (May 2002)

San Onofre Unit 2 (May 2002)

Palo Verde Unit 2 (May 2002)

Beaver Valley, Unit 2 (February 2002)

Licensee Plans/Commitments: The licensee shut down Beaver Valley Unit 2 on February 4, 2002, for their refueling outage.

Inspections: Inspection of the reactor pressure vessel head penetration nozzles was included in the outage scope. On February 12, 2002, the licensee provided verbal notification that the vessel head inspections are complete and no indications or boric crystal accumulations were found. This was confirmed by Region I staff.

Staff Position: Region I inspectors are onsite during the week of February 11-15, 2002,

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to review the licensee's inspection results. The effort is ongoing.

Planned Meetings & Teleconferences: None scheduled.

Calvert Cliffs, Unit 1 (February 2002)

Licensee Plans/Commitments: From its letter dated September 4, 2001, the licensee plans to perform 100 percent visual inspection of the top RPV head after removing insulation or volumetric inspections of nozzles from under the head.

Staff Position: The inspection planned by the licensee appears to be effective in meeting the objectives of the Bulletin.

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 staff has reviewed the licensee's approach as described above and finds it acceptable based on the results of the 1999 eddy current testing and adequate technical justification demonstrating that a safety concern will not develop during the next cycle.

Planned Meetings & Teleconferences: None scheduled.

ACTION ITEM: A closeout letter will be issued to the licensee summarizing the staff's position.

ACTION ITEM: The licensee plans to submit a supplemental response to the Bulletin containing a proposal for changing its current commitments and appropriate technical justifications. In the interim the staff will rely on the licensee's original commitments.

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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 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 has submitted the information from the January 24 meeting in a letter dated February 7, 2002. This information is currently under review by the staff.

Palo Verde, Unit 2 (March 2002)

Licensee Plans/Commitments: The licensee submitted a letter to the staff dated January 29, 2002, clarifying the scope of their planned inspections. The licensee intends to perform 100 percent inspection of the vessel head penetrations using a combination of eddy current, liquid penetrant, and ultrasonic examination techniques as necessary. The inspection will include the reactor head vent nozzle. The licensee will inspect the wetted surfaces on and near the "J-groove" weld.

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Staff Position: The commitments provided by the licensee in its January 29, 2002 letter are acceptable.

Planned Meetings & Teleconferences: None planned.

ACTION ITEM: A closeout letter will be issued to the licensee.

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)

Inspections: The licensee began its outage February 2, 2002. The licensee finished an initial visual inspection on February 7, 2002 and did not identify any evidence of leakage. The licensee has completed a more detailed visual inspection during the week of February 11, 2002, and found no evidence of leakage.

Staff Position: A Region III inspector has been onsite observing the licensee's activities.

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DEVELOPING INFORMATION FOR MODERATE SUSCEPTIBILITY
PLANTS WITH FALL 2002 OUTAGES

Fall Outage Schedule

St. Lucie Unit [REDACTED]

Farley Unit 2 [REDACTED]

Indian Point Unit 2 [REDACTED] EXY

Point Beach Unit [REDACTED]

Prairie Island Unit 1 [REDACTED]

Salem Unit 1 [REDACTED]

Palo Verde Unit 1 [REDACTED]

Indian Point, Unit 2 [REDACTED]

Licensee Plans/Commitments: The licensee's current commitment contained in its response letter dated November 13, 2001, states that an effective UT inspections will be performed on 100 percent of the nozzles. The licensee planned to inspect under the head due to a complications associated with the insulation package on the vessel head.

Planned Meetings/Teleconferences: The staff and licensee had a teleconference on February 14, 2002 to discuss the licensee's possible change in commitment. The licensee proposes to delay inspections for its [REDACTED] outage and evaluate a potential modification to reduce operating temperature thereby increasing its EFPY and decreasing its susceptibility from the moderate to low category. If the operating temperature conversion is not feasible the licensee would perform the inspections during its outage in [REDACTED] EAF

Staff Position: The staff stated that the licensee needs to provide written justification why it's acceptable for continued operation until 2004 without performing inspections. In addition, the licensee would need to provide technical justification regarding the change in operating temperature and its affect on EFPY and reduction of the units susceptibility to CRDM VHP nozzle cracking.

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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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