

From: Lawrence Burkhart
To: Brian Sheron; Jon Johnson; Richard Borchardt; Samuel Collins
Date: Mon, Nov 19, 2001 7:16 PM
Subject: DAILY STATUS REPORT - DSR (E-MAIL ONLY)

} NRR

Changes for today (Monday, 11/19/01) are included in this e-mail. The new DSR file will be revised and sent to you tomorrow to incorporate these changes. For your reference, the 11/16/01, DSR file is attached.

(1) Davis-Besse

Next Regulatory Action: No change in status.

NOTE: As of close of business on Monday, 11/19/01, the memorandum from the Executive Director for Operations to the Commissioners has not been issued. The memorandum states that the Orders will not be issued until 5 working days after the date of the memorandum. Therefore, the Orders will not be issued prior to Wednesday, 11/18/01.

Meetings & Conf. Call Summaries: Summary for telecon held on Thursday, 11/14/01, is planned to be issued today.

NOTE: Resident Inspector from D-B sat in on the morning management meeting and observed that licensee management expressed cautious optimism that the NRC would approve their plans to defer the inspections until April 2002. This is contrary to the message that was sent to D-B management on Thursday, 11/14/01.

(2) D.C Cook 2

Next Regulatory Action: Lead Project Manager (LPM) received comments from OGC on the draft Orders. Comments will be incorporated. The current plan is to forward Order to the EDO as an attachment to a memo from Director, NRR, by Monday, 11/26/01.

Meetings & Conf. Call Summaries: Reminder that a public meeting is scheduled in the Commissioner's conference room for tomorrow, 11/21/01, at 9 a.m. to discuss pertinent issues with the licensee.

(3) North Anna 1 and 2

Licensee Plans/Commitments: Licensee submitted supplemental response dated 11/19/01 to provide information to qualify the visual examinations (using "design" data).

NRC Staff Postion: Staff will review supplemental response re: qualification of visual examinations.

Meetings & Conf. Call Summaries: Licensee management drop-in visit with the Chairman conducted on Monday, 11/19/01. A general status of the Bulletin 2001-01 issue was discussed.

Inspections: North Anna 2 found a through-wall leak in a CRDM nozzle (event report issued). Repairs are being conducted on this nozzle and further examinations are underway on 2 other nozzles.

(4) Surry, Unit 1 and 2

Licensee Plans/Commitments: Licensee submitted supplemental response dated 11/19/01 to provide information to qualify the visual examinations (using "as-built" data).

NRC Staff Postion: Staff will review supplemental response re: qualification of visual examinations.

Licensee shutdown of Surry, Unit 2, is planned for Monday evening, 11/19/01, to conduct inspections.

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Meetings & Conf. Call Summaries: Licensee management drop-in visit with the Chairman conducted on Monday, 11/19/01. A general status of the Bulletin 2001-01 issue was discussed.

Status of Inspections: The licensee has completed welding on all 6 penetrations where weld repairs were scheduled (this is a correction as the last DSR stated that only 5 repairs were ongoing) at Surry, Unit 1. Followup work is needed to grind and NDE the new welds and reattach the thermal sleeves.

(5) TMI-1 (Slightly revised Summary of Inspections/Results/Repairs - No change in actual status)

Following shutdown for a scheduled refueling outage in October 2001, TMI-1 performed visual inspections of the reactor vessel CRDM nozzles as recommended in NRC Bulletin 2001-01. The inspections revealed axially-oriented flaw indications in 8 CRDM nozzles, 6 were found to be within the pressure boundary (5 of which were through-wall and 1 was not), the other 2 were outside the pressure boundary. The licensee completed Code repairs on all 6 of the CRDM nozzles that had flaws within the pressure boundary. Additionally, the licensee performed visual inspections of the 8 thermocouple (T/C) nozzles and found evidence of leakage on all of them. Two of the leaking T/C nozzles were replaced and the remaining 6 were plugged in accordance with Code requirements or as allowed by an NRC-approved relief request. These corrective actions are complete.

(6) Oconee 3 (Inspection/Repair in progress)

As of this morning, 9 CRDM nozzles have been ultrasonically examined. These nozzles include 4 nozzles that had clear visual indications of leakage, 3 that were suspected leakers based on visual examinations, and 2 additional nozzles. UT has verified that 5 are leaking. One leaker (nozzle 2) has a circumferential indication which is not through-wall (approx. 48 degrees in length).

(7) St. Lucie 2

St. Lucie 2 is scheduled to shutdown on 11/26/01 for its refueling outage. The effective visual examination should commence later in that week.

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

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DAILY STATUS REPORT

RE: UNRESOLVED RESPONSES TO THE BULLETIN 2001-01 FOR HIGH SUSCEPTIBILITY PLANTS AND THOSE PLANTS THAT HAVE EXPERIENCED VHP NOZZLE CRACKING

□ **Davis-Besse**

Licensee Plans/Commitments: Licensee plans to shutdown and perform Bulletin recommended inspections in April 2001.

NRC Staff Position: Based on the information available, the staff cannot reconcile the inspection results from recent inspections of other B&W plants and those past inspections described in the licensees' submittals. The staff notes that (1) Davis Besse (DB) is a high susceptibility plant per the Bulletin; (2) 11 of the 13 high susceptibility plants have performed inspections and 10 of these have found cracking or leakage; (3) the remaining 6 B&W plants that have performed inspections have found cracks. Three of the six B&W plants have found circumferential cracks; and (4) DB is the only B&W plant that has not inspected, and is also the hottest running plant (605°F). [Operation at a higher head temperature is a significant driving force for crack growth rate]. Based on the above, it is reasonable to assume that DB has cracks that challenge the reactor coolant pressure boundary. It is the staff's position that the only means to provide reasonable assurance of reactor coolant pressure boundary integrity would be to perform the inspections as recommended in the bulletin by December 31, 2001. The risk assessment provided by DB was reviewed, and the staff found that the methodology employed by the licensee appears to be reasonable except in two areas. Credit for 1996, 1998 and 2000 inspections and the probabilistic fracture mechanics on crack initiation-propagation are unresolved due to inadequate data and ambiguity to support the risk numbers employed in the submittal. Therefore, the PSA is not sufficient to provide reasonable assurance of VHP nozzle integrity through March 2002. However, the staff will keep the lines of communication open with the licensee should new and relevant information become available.

Next Regulatory Action: The Order was finalized and forwarded by memo dated November 16, 2001 from S. Collins, Director, NRR to W. Travers. A memo from W. Travers, EDO to the Commissioners is in process for concurrence. The Order would be issued no sooner than 5 working days from the date of the EDO memo forwarding the Orders to the Commissioners.

Meetings & Conf. Call Summaries: A telecon was held between EMCB and the DB licensee on Thursday, November 14. The purpose of the call was to summarize the staff's assessment of the DB bulletin response.

The staff pointed out that (1) DB is a high susceptible plant per the bulletin; (2) 11 of the 13 high susceptible plants have performed inspections per the bulletin and 10 of these have found cracks; and (3) the 6 other B&W plants have performed inspections and found cracks. Three of the six B&W plants have found circumferential cracks.

Based on this information, we informed the licensee that we believe there is a reasonable likelihood that DB currently has multiple cracks in the VHP nozzles and that one or more may be circumferential. We informed them that we could not make an independent assessment of the VHP nozzles based on the photographs and videotapes from previous refueling outages. In addition, we informed them that their PSA was not sufficient to provide reasonable assurance of

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VHP nozzle integrity through March 2002.

The licensee was informed of our position during the conference call. In addition, we also stated that any future discussions or submittals should focus on how the licensee considers DB to be unique or distinguished from the other, high susceptible facilities.

□ **D. C. Cook, Unit 2**

Licensee Plans/Commitments: Licensee plans to shutdown and perform inspections in January 2002. The proposed inspections are not consistent with the recommended inspections described in the bulletin.

NRC Staff Position: D.C. Cook Unit 2 is in a population of plants that have experienced cracking CRDM nozzles. Eleven out of the 13 high susceptibility plants have performed inspections, and 10 of these have found cracking or leakage. The inspection that D.C. Cook Unit 2 performed in 1994 only covered 94% of the CRDM nozzles (7 CRDMs or 9% not examined). In addition, the examination of the CRDM nozzles was only an inner diameter eddy current examination that did not include the "wetted surface" [J-groove weld, the nozzle outer diameter (below the weld), and the nozzle inner diameter to a location above the weld]. The staff has no data regarding the largest flaw that could have been left in service at D.C. Cook Unit 2. The licensee indicated that it may be able to justify operation beyond December 31, 2001 using a nozzle by nozzle stress analysis. However, the staff does not have this additional information at this time. In addition, based on a recent conference call (November 15, 2001), the staff raised concerns on the licensee's risk model, numbers employed, and the regulatory basis of the criteria on the incremental core damage probability.

Next Regulatory Action: The staff is finalizing the Order which was referred to in the memo dated November 16, 2001 from S. Collins, Director, NRR to W. Travers. The staff intends to have the Order ready to issue with the Davis-Besse Order.

Meetings & Conf. Call Summaries: The response to the bulletin and justification for delaying VHP examinations beyond the end of 2001 were discussed in telephone calls on October 11, 2001, between W. Bateman, et al. (NRC) and M. Rencheck, et al. (I&M) and on October 12, 2001, between B. Sheron, et al. (NRC) and M. Rencheck, et al. (I&M). At the conclusion of this telephone conference, the licensee indicated that they would like to provide additional information to the staff regarding this issue.

By letter dated November 5, 2001, the licensee provided additional information. The information has been reviewed by our technical Staff and the following three areas of concern were raised: (1) Crack growth rate; (2) Risk assessment; and (3) Qualified visual examination

These issues were discussed in telephone calls on November 15, 2001, between J. Stang et al. and M. Rencheck, et al. (I&M).

A public meeting has been scheduled for November 20, 2001, to discuss each of the above issues with the licensee.

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 North Anna, Units 1 and 2

Licensee Plans/Commitments: Licensee committed to docketing information to qualify the inspections being conducted at both plants. Still waiting for VEPCO response.

NRC Staff Position: North Anna Unit 1 provided sufficient information for the staff to conclude that no cracks were left in service that challenge the reactor coolant pressure boundary. The licensee has not provided the documentation to support a "qualified visual" analysis to demonstrate acceptability of using "design" dimensions of the VHP penetrations and nozzles. North Anna Unit 2 has an outage in progress. The staff cannot provide an informed opinion at this time since the licensee is chasing a crack in a "suspect" nozzle (i.e. nozzle that appears to have the "popcorn" appearance indicative of boric acid leakage). The crack appears to be through-wall.

Next Regulatory Action: None planned at this time.

Meetings & Conf. Call Summaries:

10/5/01 - Conference call held to discuss the number of VHP penetrations to be inspected at North Anna, Unit 1.

10/24/01 - Conference call held to discuss the qualification of the visual exams to be conducted at North Anna, Units 1 and 2.

 Surry, Units 1 and 2

Licensee Plans/Commitments: Commitment to shut Surry Unit 2 down by 12/31/01 docketed in letter dated 11/14/01. Licensee confirmed by telephone 11/16 that Surry Unit 2 will begin to shut down on 11/18 for head inspections.

NRC Staff Position: Surry Unit 1 has an outage in progress. The staff cannot provide an informed opinion at this time. The licensee is in the process of repairing 5 out of 10 leaking or cracked nozzles. As mentioned above, the licensee committed to shutdown Surry Unit 2 prior to 12/31/01 to conduct inspections. The licensee has not provided the documentation to support a "qualified visual" analysis to demonstrate acceptability of using "as-built" dimensions of the VHP penetrations and nozzles.

Next Regulatory Action: None planned at this time.

Meetings & Conf. Call Summaries:

10/12/01 - Surry agreed to provide a supplement to their Bulletin response addressing qualified visual inspection (supplement sent 11/14/01). Still uncertain as to when Surry 2 would be inspected.

10/31/01 - NRC gave verbal relief for Surry Unit 1 relief requests SR-27 and SR-28 so that repair of cracks could proceed. Relief was based on NRC questions and licensee responses in previous North Anna phone calls (Surry Unit 1 relief and North Anna Unit 1 reliefs previously

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submitted, reviewed and withdrawn) and previous similar reliefs granted for Duane Arnold, Fitzpatrick, and Nine Mile Point.

11/6/01 - Surry agreed to docket a commitment to provide evidence of weld procedure qualification for P43 to P3 with F43 filler. Also agreed to provide analyses for weld repair and flaw evaluation prior to restart. Also agreed to address crack triplepoint, and to state there will be a PT report documenting J weld crack.

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VHP NOZZLE INSPECTIONS/RESULTS
NOVEMBER 16, 2001
4:00 P.M.

Crystal River, Unit 3

Inspections completed in October 2001. The licensee identified one leaking CRDM nozzle with a 90° circumferential crack which was subsequently repaired. The staff notes that the licensee did not perform any destructive examination to further characterize the flaw. In addition, this is the highest ranked moderate susceptibility plant.

North Anna, Unit 1

Inspections completed in September 2001. The licensee identified 8 shallow axial cracks below the J-groove weld. The licensee did not perform any repairs because these cracks were not part of the reactor coolant pressure boundary.

North Anna, Unit 2

Inspection began 10/2001 and is still in progress. Licensee found 3 possible leaking CRDMs. The licensee is chasing a crack in a "suspect" nozzle (i.e. nozzle that appears to have the "popcorn" appearance indicative of boric acid leakage). The crack appears to be through-wall. The licensee has not indicated whether or not any of the flaws are circumferential.

Surry, Unit 1

Inspections complete. Weld repairs to be done on 6 penetrations---3 done, working on 4th. Four other penetrations had indications ground out and dispositioned as acceptable. The licensee has not indicated whether or not any of the flaws are circumferential.

Surry, Unit 2

Inspections to begin week of 11/20.

TMI-1

During their 10/2001 outage, the licensee identified 8 leaking or cracked CRDM nozzles, and repaired 6 out of the 8. The two that were not repaired did not have cracks in the pressure boundary. The licensee also repaired all 8 of their cracked thermocouple nozzles. The staff notes that the licensee did not perform any destructive examination to further characterize the flaws.

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□ **Oconee, Unit 3**

The licensee initially identified cracking in February of 2001 (9 leaking CRDMs, 3 circumferential cracks) during a maintenance outage. On November 12, 2001, during its regularly scheduled outage Oconee Unit 3 identified indications of leakage evidenced by boric acid buildup around 4 CRDM nozzles. Three additional nozzles require further inspection and were categorized as potential leaking nozzles. The licensee expects to conduct additional inspections during the weekend of November 17, 2001.

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