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U.S. NRC
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Subject: NRC Bulletin

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Please see my comments in bold letters.

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NRC024-1208

**Response to NRC Bulletin 2001-01**
(Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles).

The response is limited in scope to discuss the issues associate with the type, scope, qualification requirements, and acceptance criteria for the Reactor Pressure Vessel Head inspections within the last 4 years.

A Service Structure (SS) envelops the Davis-Besse Reactor Vessel (RV) head. There are 18 openings (weep holes) at the bottom of the SS through which inspections are performed. There are 69 Control Rod Drive Mechanisms (CRDM) nozzles that penetrate RV head. The thermal insulation is located well above the head and does not interfere with the visual inspection. The visual inspection is performed by the use of a small camera mounted on a wire pole. This camera is inserted through the weep holes. There were two inspections performed during the last 4 years. **The first inspection was performed during the 11th RFO (1998) and the second during 12th RFO (2000).** The scope of the visual inspection was to inspect the entire head (bare metal) area accessible through the weep holes to identify any boric acid leaks / deposits. The general guidance of procedure DB-PF-03010 (RCS Leakage and Hydrostatic Test)**( this is not the right procedure need to use boric acid contol procedure I do not know the # But old PCAQR will give the procedure #)** was used for these inspections. Davis-Besse also inspected 100% of CRDM flanges for leaks under 88-05 program. The results of two recent inspections are described below.

1998 inspection results performed during 11RFO refueling outage. The boric acid was scattered over the head in an uneven layer. There were some lumps of boric acid. The color of the lumps varied from brown to white. Outside diameter of the motor tubes also showed white streaks indicative of leaking CRDM flanges **(Need to add what did we do with flange leaks)**. The boron deposits were attributed to the leaking CRDM flanges. The head was cleaned by the use of manual scrubber and vacuum. The head cleaning was limited by the **location and** opening size of the weep holes. The head was cleaned as best as it could be considering the dose and the method.

2000 inspection results performed during 12RFO refueling outage.
Reactor Vessel Head inspection was conducted on 4/5/2000. Framatome NPS performed 100% video inspection of CRDM flanges. Five leaking Control Rod Drive flanges were identified at locations: F10, D10, C11, F8, and G9. Main source of leakage was associated with D10 drive. Positive evidence existed that drives F8, F10 and C11 have limited gasket leakage. All 5 CRDM gaskets were replaced and D10 flange machined. **All work was performed by Framatome**

**NPS (delete this sentence).** No leaks were identified during the subsequent RCS heatup. Visual inspection of the flanges was performed via lexan covers installed on the Service Structure.
Resulting from the leaking CRDM flanges boric acid deposited on the top of the insulation was cleaned (vacuumed). After cleaning the area above the insulation was videotaped for future use.
Initial inspection of the head/nozzle area indicated some accumulation of boric acid. Deposited on the head boric acid was located below the leaking flanges with a clear evidence of down flow. No evidence of nozzle leakage was detected.**(how do you know when there was so much boron on the top of head?)** 95% **(Are you comfortable with 95%)** of the nozzles were inspected. The head cleaning was limited by the opening size of the weep holes. The head was cleaned with the demineralized water as best as it could be considering the dose and the method. Subsequent video inspection of the clean head and nozzles was performed for future use.