

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D. C. 20555

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IE Bulletin No. 78-09

BWR DRYWELL LEAKAGE PATHS ASSOCIATED WITH INADEQUATE DRYWELL CLOSURES

Description of Circumstances:

Upon completion of the E. I. Hatch 1 plant refueling, the drywell head was reinstalled on April 1, 1978 and a local leak rate test (LLRT) was successfully passed, providing no indication of a potential problem at the time. Subsequently, during the containment integrated leak rate test (CILRT) at the E. I. Hatch 1 plant on April 6, 1978, high leakage around the drywell head was experienced. After the high leakage rate was detected, the containment was depressurized. Prior to detensioning the drywell head bolts, a feeler gauge was used to determine that the clearance was greater where the leakage was occurring.

Upon retorquing the drywell head for a second LLRT and CILRT, the tightening sequence was started at the area of leakage and torque values of 1800 foot-pounds were used. Feeler gauge readings between the head and drywell were recorded. The second LLRT was passed successfully and no leakage was indicated around the drywell head during the second and successful CILRT conducted at 59 psig.

Another instance was identified during the CILRT at Millstone Unit 1 on November 22-23, 1976, when both the drywell head and the drywell head manway cover "lifted" during a Type A test, subsequent to successful Type B (LLRT) tests.

Based on this experience, it appears that the LLRT following each reinstallation of the drywell head or other closures, such as after a routine refueling or other similar activity, cannot be the sole basis for assuring a suitable degree of drywell closure leak tightness. It appears that there must be controls to ensure that drywell closures are made in a reproducible manner.

Action to be taken by all BWR power reactor facilities with an operating license or construction permit:

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1. Determine if the procedural controls utilized at your facility are adequate to assure that drywell head reinstallations achieve a degree of leak tightness equivalent to that attained during the installation immediately preceding the last successful CILRT. This determination should include, but not be limited to, consideration of the following:
 - a. Comparison of the applied bolt torque (or for turn-of-the-nut technique, the number of flats on each nut/bolt after metal-to-metal contact has been achieved) after any head reinstallation to that used during the reinstallation verified by CILRT, including any additional local retightening needed to reach LLRT acceptance criteria.
 - b. Comparison of head-flange clearances after any head reinstallation, to that used during the reinstallation verified by CILRT.
 - c. Determination of the suitability of the drywell head gaskets for reuse.
 - d. Determination of the maximum allowable bolt torques to avoid bolt overstressing conditions.
 - e. Determination of any special handling arrangements, tightening sequence, gasket preparation, or other special considerations caused by unique facility circumstances such as a warped drywell head.
2. Should your determination called for in Item 1 above demonstrate a need for procedural revisions, your response to this Bulletin should include a description of the changes to be made and a timetable for their implementation which must occur prior to the next drywell head closure.
3. Identify other bolted containment closures that would tend to unseat on positive internal pressure and describe what actions are taken to ensure that adequate leak tightness would exist at an internal pressure of Pa.
4. Within 45 calendar days of the date of issue of this bulletin, report in writing to the Director of the appropriate NRC Regional Office, the results of your review and your plan of action with regard to Item 1 through 3. A copy of your report should be

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sent to the United States Nuclear Regulatory Commission, Office of Inspection and Enforcement, Division of Reactor Operations Inspection, Washington, D. C. 20555.

For all BWR power reactor facilities with a construction permit, this Bulletin is for information only and no written response is required.

Approval by GAO, B180225 (R0072); clearance expires 7/31/80. Approval was given under a blanket clearance specifically for identified generic problems.

LISTING OF IE BULLETINS
ISSUED IN 1978

Bulletin No.	Subject	Date Issued	Issued To
78-01	Flammable Contact - Arm Retainers in G.E. CR120A Relays	1/16/78	All Power Reactor Facilities with an OL or CP
78-02	Terminal Block Qualification	1/30/78	All Power Reactor Facilities with an OL or CP
78-03	Potential Explosive Gas Mixture Accumula- tions Associated with BWR Offgas System Operations	2/8/78	All BWR Power Reactor Facilities with an OL or CP
78-04	Environmental Quali- fication of Certain Stem Mounted Limit Switches Inside Reactor Containment	2/21/78	All Power Reactor Facilities with an OL or CP
78-05	Malfunctioning of Circuit Breaker Auxil- iary Contact Mechanism- General Model CR105X	4/14/78	All Power Reactor Facilities with an OL or CP
78-06	Defective Cutler- Hammer, Type M Relays With DC Coils	5/31/78	All Power Reactor Facilities with an OL or CP
78-07	Protection Afforded by Air-Line Respirators and Supplied-Air Hoods	6/12/78	All Power Reactor Facilities with an OL, all class E and F Research Reactors with an OL, all Fuel Cycle Facilities with an OL, and all Priority 1 Material Licensees
78-08	Radiation Levels from Fuel Element Transfer Tube	6/12/78	All Power and Research Reactor Facilities with a Fuel Element Transfer Tube and an OL