

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

May 3, 1990

NRC INFORMATION NOTICE NO. 90-32: SURFACE CRACK AND SUBSURFACE INDICATIONS
IN THE WELD OF A REACTOR VESSEL HEAD

Addressees:

All holders of operating licenses or construction permits for nuclear power reactors.

Purpose:

This information notice is intended to alert addressees to a potential problem related to cracks found in the weld of a reactor vessel head. It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice do not constitute NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances:

In April 1990, while the James A. Fitzpatrick Nuclear Power Plant was shut down for refueling, the licensee found a surface crack and some subsurface indications in the reactor vessel head while performing routine inservice inspections. The crack and subsurface indications are circumferentially oriented and located in the weld that joins the circular upper head portion (dollar plate) to the curved trapezoidal portions (meridian plate) of the head. The dollar plate is located at the top of the vessel head. The licensee observed a crack measuring 1 inch long on the inside surface of the head and confirmed the observation by surface examination. A group of 4 subsurface indications in the general area of the surface crack has a length of 12 inches, and a maximum depth of 2 inches (50 percent through wall). The licensee found and measured subsurface indications using ultrasonic examination methods. The licensee plans to take some metallogical samples from the cracked area to determine the mode and mechanism of the defects.

Discussion:

This is the second recent incident in which cracks have been observed in a reactor vessel head. The first incident occurred at Quad Cities Station, Unit 2. As a result, on April 23, 1990, the General Electric Company issued RICSIL No. 050, "Reactor Pressure Vessel Head Clad Cracking." On April 30, the NRC issued Information Notice No. 90-29, "Cracking of Cladding and Its

9005030007

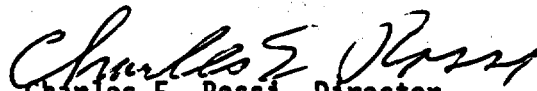
ZA

IDR-110

Heat-Affected Zone in the Base Metal of a Reactor Vessel Head." These documents discussed the cracking of the stainless steel cladding and its heat-affected zone in the base metal of the reactor vessel head at the Quad Cities facility. However, at Fitzpatrick, the reactor vessel head has no cladding, and the crack and subsurface indications are in the weld.

The information provided in this information notice is preliminary. When more information becomes available, a supplement will be issued if appropriate.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact one of the technical contacts listed below or the appropriate NRR project manager.



Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contacts: William H. Koo, NRR
(301) 492-0928

T. Greene, NRR
(301) 492-1176

Attachment: List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED
 NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
90-31	Update on Waste Form and High Integrity Container Topical Report Review Status, Identification of Problems with Cement Solidification, and Reporting of Waste Mishaps	5/4/90	All holders of OLs or CPs for nuclear power reactors, fuel cycle licenses, and certain by-product materials licenses.
90-30	Ultrasonic Inspection Techniques for Dissimilar Metal Welds	5/1/90	All holders of OLs or CPs for nuclear power reactors.
90-29	Cracking of Cladding and Its Heat-Affected Zone in the Base Metal of a Reactor Vessel Head	4/30/90	All holders of OLs or CPs for nuclear power reactors.
90-28	Potential Error in High Steamline Flow Setpoint	4/30/90	All holders of OLs or CPs for BWRs.
90-27	Clarification of the Recent Revisions to the Regulatory Requirements for Packaging of Uranium Hexafluoride (UF ₆) for Transportation	4/30/90	All uranium fuel fabrication and conversion facilities.
89-70, Supp. 1	Possible Indications of Misrepresented Vendor Products	4/26/90	All holders of OLs or CPs for nuclear power reactors.
90-26	Inadequate Flow of Essential Service Water to Room Coolers and Heat Exchangers for Engineered Safety-Feature Systems	4/24/90	All holders of OLs or CPs for nuclear power reactors.
90-25	Loss of Vital AC Power with Subsequent Reactor Coolant System Heat-Up	4/16/90	All holders of OLs or CPs for nuclear power reactors.

OL = Operating License
 CP = Construction Permit

Heat-Affected Zone in the Base Metal of a Reactor Vessel Head." These documents discussed the cracking of the stainless steel cladding and its heat-affected zone in the base metal of the reactor vessel head at the Quad Cities facility. However, at Fitzpatrick, the reactor vessel head has no cladding, and the crack and subsurface indications are in the weld.

The information provided in this information notice is preliminary. When more information becomes available, a supplement will be issued if appropriate.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact one of the technical contacts listed below or the appropriate NRR project manager.

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contacts: William H. Koo, NRR
(301) 492-0928

T. Greene, NRR
(301) 492-1176

Attachment: List of Recently Issued NRC Information Notices

*SEE PREVIOUS PAGE FOR CONCURRENCES

*EAB:DOEA:NRR
TGreene
5/2/90

*TECH ED
JMain
5/2/90

*AC:EAB:DOEA
PBaranowsky
5/2/90

*EMCB:DET
EKoo
5/2/90

*C:EMCB:DET
CYCheng
5/2/90

*D:DET:NRR
JRichardson
5/2/90

*C:OGCB:DOEA
CHBerlinger
5/2/90

D:DOEA:NRR
CROSSI
5/3/90

Document Name: IN 90-32

Zone in the Base Metal of a Reactor Vessel Head." These documents discussed the cracking of the stainless steel cladding and its heat-affected zone in the base metal of the reactor vessel head at the Quad Cities facility. However, at Fitzpatrick, the reactor vessel head has no cladding, and the crack and subsurface indications are in the weld.

The information provided in this information notice is preliminary. When more information becomes available, a supplement may be issued if appropriate.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact one of the technical contacts listed below or the appropriate NRR project manager.

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contacts: William H. Koo, NRR
(301) 492-0928

T. Greene, NRR
(301) 492-1176

Attachment: List of Recently Issued NRC Information Notices

EAB:DOEA:NRR
TGreene
5/2/90

TECH ED
JMain
5/2/90

AC:EMCB:DET
PBaranowsky
5/8/90

EMCB:DET
EKoo
5/2/90

OC:EMCB:DET
CYCheng
5/8/90

D:DET:NRR
JRichardson
5/2/90

C:OGCB:DOEA
CHBerlinger
5/2/90

D:DOEA:NRR
CERossi
5/ /90

Document Name: IN 90-32