

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

April 1, 1991

NRC INFORMATION NOTICE NO. 91-25: COMMERCIAL-GRADE STRUCTURAL FRAMING
COMPONENTS SUPPLIED AS NUCLEAR
SAFETY-RELATED EQUIPMENT

Addressees:

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

Purpose:

This information notice is intended to alert licensees to problems in the dedication of structural framing components supplied to the nuclear industry by the Unistrut Corporation (UC), Wayne, Michigan. It is expected that recipients will review this 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:

The most common structural framing components supplied to licensees by UC are 1-5/8-inch wide, continuously slotted, structural framing channel members; fasteners; and mechanical accessories such as channel nuts, fittings, and pipe clamps. These components are supplied through a network of nationwide Authorized Service Centers, some of which are owned and operated by UC.

The NRC inspected the UC facilities and records and found that UC had failed to implement measures to control the dedication of commercial-grade structural framing components. UC supplied Certificates of Conformances (COCs) stating that these materials met the requirements of Appendix B to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) and were supplied in accordance with the provisions of 10 CFR Part 21. UC failed to demonstrate that it had: (1) established an adequate basis for accepting material certifications from its suppliers of fasteners and coil material, (2) verified the chemical and physical properties of coil material, (3) performed destructive product testing traceable to each coil of material used to manufacture structural framing channel, (4) maintained traceability of the material used to manufacture mechanical accessories, or (5) performed adequate product testing on all mechanical accessories.

UC manufactures structural framing channel members from coil material procured to UC's material specifications from various commercial-grade suppliers and manufacturers. These suppliers provided material certifications that UC

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accepted without assuring that the coil materials could be traced and identified to the certifications. UC did not perform a destructive product test on structural framing channel that was traceable to each heat or lot of coil material. Furthermore, UC did not perform tests or examinations to ensure the accuracy of the chemical and physical properties listed in the material certifications. UC supplied the commercial-grade structural framing channel to licensees as safety-related components that comply with the requirements of the American Society for Testing and Materials (ASTM) Standards, Appendix B to 10 CFR Part 50, and 10 CFR Part 21 with COCs stating that these requirements were met, even though UC did not perform an adequate commercial-grade dedication of the coil material. In some instances, UC also certified that the channel met the requirements of the American Society of Mechanical Engineers, Boiler and Pressure Vessel Code (ASME Code), Section III, Class 2, Subsection NF-2600 but did not demonstrate compliance with the ASME Code requirements.

All fasteners supplied by UC were procured as commercial-grade items from a single supplier (General Fastener Company of Livonia, Michigan), which furnished machine screws, nuts, and washers that were 1/2-inch and smaller. UC procured these fasteners according to the Society of Automotive Engineers (SAE) Standards and supplied them to licensees as safety-related fasteners that comply with the requirements of the ASTM Standards, Appendix B to 10 CFR Part 50, and 10 CFR Part 21 with COCs stating these requirements were met, even though UC did not perform any commercial-grade dedication activities.

Mechanical accessories are also manufactured by UC from coil material procured to UC's material specifications from various commercial-grade suppliers and manufacturers. These suppliers provided material certifications that UC accepted without assuring that the coil materials could be traced and identified to the certifications. Channel nuts and 90-degree angle fittings are the only mechanical accessories that receive product tests. UC also did not perform tests or examinations to ensure the accuracy of the chemical and physical properties listed in the material certifications. UC supplied the mechanical accessories to licensees as safety-related components that comply with the requirements of ASTM Standards, Appendix B to 10 CFR Part 50, and 10 CFR Part 21 with COCs stating these requirements were met, even though UC did not perform an adequate commercial-grade dedication of the coil material.

Licensees have conducted numerous audits of UC and some have placed UC on their approved vendor lists to supply safety-related components. The inspectors examined sample audit conclusions and found that they varied widely. Some licensees found that UC was fully capable of supplying safety-related components that comply with the requirements of Appendix B to 10 CFR Part 50 and 10 CFR Part 21, and in one instance found that UC could supply safety-related components that comply with the ASME Code requirements. Other licensees found that UC could only supply commercial-grade components. In performing many of the audits, licensees did not identify UC's failure to implement adequate measures to control the dedication of commercial-grade structural framing components, indicating a significant weakness in the performance of these audits.

Discussion:

UC manufactures structural framing components used to support nonsafety and safety-related components such as pipes, instrument lines, ducts, cable trays, and conduits. The NRC has not identified a significant safety concern or in-service failure regarding the known applications of these structural framing components. However, structural framing components were supplied by UC as safety-related and may be installed in safety-related structures, systems, or components and may not meet quality standards commensurate with the importance of the safety function to be performed. Therefore, licensees may wish to review their use of structural framing components to confirm that the procured equipment is acceptable. In addition, licensees may wish to examine the adequacy of applicable audits and their audit process.

This information notice requires no specific action or written response. If you have any questions about this matter, 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: Steven M. Matthews, NRR
(301) 492-3191

Stewart L. Magruder, NRR
(301) 492-3220

Attachment: List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
91-24	Recent Operating Experience Involving Reactor Operation Without A Licensed Reactor Operator or Senior Reactor Operator Present in the Control Room	03/26/91	All holders of OLs or CPs for nuclear power, test, and research reactors, and all Part 55 licensed operators.
91-23	Accidental Radiation Over-exposures to Personnel Due to Industrial Radiography Accessory Equipment Malfunctions	03/26/91	All Nuclear Regulatory Commission (NRC) licensees authorized to use sealed sources for industrial radiography.
91-22	Four Plant Outage Events Involving Loss of AC Power or Coolant Spills	03/19/91	All holders of OLs or CPs for nuclear power reactors.
91-21	Inadequate Quality Assurance Program of Vendor Supplying Safety-Related Equipment	03/19/91	All holders of OLs or CPs for nuclear power reactors and all recipients of NUREG-0040, "Licensee Contractor and Vendor Inspection Status Report" (White Book).
91-20	Electrical Wire Insulation Degradation Caused Failure in A Safety-Related Motor Control Center	03/19/91	All holders of OLs or CPs for nuclear power reactors.
90-43, Supp. 1	Mechanical Interference with Thermal Trip Function in GE Molded-Case Circuit Breakers	03/13/91	All holders of OLs or CPs for nuclear power reactors.
91-19	Steam Generator Feedwater Distribution Piping Damage	03/12/91	All holders of OLs or CPs for pressurized water reactors (PWRs).
91-18	High-Energy Piping Failures Caused by Wall Thinning	03/12/91	All holders of OLs or CPs for nuclear power reactors.

OL = Operating License
CP = Construction Permit

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OFC :OGC	:OGCB:DOEA:NRR:D:DOEA:NRR
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