

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
WASHINGTON, D.C. 20555

May 24, 1996

NRC INFORMATION NOTICE 96-33: ERRONEOUS DATA FROM DEFECTIVE THERMOCOUPLE RESULTS IN A FIRE

Addressees

All material and fuel cycle licensees that monitor temperature with thermocouples.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to alert addressees to an incident where a defective thermocouple caused an evaporator to run at an excessively high temperature, resulting in a fire. 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 in this information notice are not NRC requirements; therefore, no specific action nor written response is required.

Description of Circumstances

On February 21, 1996, a licensee had a fire in the ventilation system of its liquid waste process. The licensee's investigation determined that the fire was caused by a type-J thermocouple manufactured with reverse polarity. The type-J thermocouple was part of a Pulse Combustion Drier put into operation in 1985 to evaporate waste water. The drier operates with natural gas that ignites inside the drier combustion chamber. Waste water is pumped into the hot gases being expelled from the combustion chamber within an evaporation cone. The temperature is controlled by regulating the amount of waste water being fed into the system. This is based on temperature readings from a thermocouple in the duct work.

The licensee had replaced the thermocouple with a spare unit while troubleshooting a lead wire problem on February 15, 1996. The spare thermocouple was found to have reverse polarity during a test run, and the licensee believed it had corrected the problem by reversing the lead wire polarity at the instrument. The system appeared to read correctly during a 10-minute test run. However, approximately an hour into a full run the next day, the temperature reading began to behave erratically. The temperature readings dropped even though the actual temperature was increasing. By the time the licensee identified the discrepancy, a fire had started in the dust collector filter cartridges.

The defective type-J thermocouple was purchased in 1985 (as a spare part), along with the Pulse Combustion Drier from Sonodyne Industries in Portland, Oregon. The thermocouple had been manufactured for Sonodyne Industries by

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updated on 5/30/96 ID# 110

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Gulton Measurement and Control Systems Division (a division of Gulton Industries) in East Greenwich, Rhode Island. The licensee reported that Sonodyne Industries is out of business and Gulton Industries is no longer manufacturing thermocouples.

Discussion

NRC is not aware of any other Sonodyne driers currently being used by NRC licensees. Licensees that operate waste water evaporators or other heat-generating systems using thermocouples may wish to consider reviewing the source of the thermocouples and testing the polarity of thermocouples in stock.

This information notice requires no specific action nor written response. If you have any questions about the information in this notice, please contact the technical contact listed below or the appropriate regional office.


Elizabeth Q. Ten Eyck, Director
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards


Donald A. Cool, Director
Division of Industrial and
Medical Nuclear Safety
Office of Nuclear Material Safety
and Safeguards

Technical contact: Kevin M. Ramsey, NMSS
(301) 415-7887
Internet:kmr@nrc.gov

Attachments:

1. List of Recently Issued NMSS Information Notices
2. List of Recently Issued NRC Information Notices

Attachment Filed in Jacket

LIST OF RECENTLY ISSUED
 NMSS INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
96-28	Suggested Guidance Relating to Development and Implementation of Corrective Action	05/01/96	All material and fuel cycle licensees
96-21	Safety Concerns Related to the Design of the Door Interlock Circuit on Nucletron High-Dose Rate and Pulsed Dose Rate Remote Afterloading Brachytherapy Devices	04/10/96	All NRC Medical Licensees authorized to use brachytherapy sources in high- and pulsed-dose-rate remote
96-20	Demonstration of Associated Equipment Compliance with 10 CFR 34.20	04/04/96	All industrial radiography licensees and radiography equipment manufacturers
96-18	Compliance With 10 CFR Part 20 for Airborne Thorium	03/25/96	All material licensees authorized to possess and use thorium in unsealed form
96-04	Incident Reporting Requirements for Radiography Licensees	01/10/96	All Radiography Licensees and Manufacturers of Radiography Equipment
95-58	10 CFR 34.20; Final Effective Date	12/18/95	Industrial Radiography Licensees.
95-55	Handling Uncontained Yellowcake Outside of a Facility Processing Circuit	12/6/95	All Uranium Recovery Licensees.
95-51	Recent Incidents Involving Potential Loss of Control of Licensed Material	10/27/95	All material and fuel cycle licensees.
95-50	Safety Defect in Gammamed 121 Bronchial Catheter Clamping Adapters	10/30/95	All High Dose Rate Afterloader (HDR) Licensees.

LIST OF RECENTLY ISSUED
 NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
96-32	Implementation of 10 CFR 50.55a(g)(6)(ii)(A), "Augmented Examination of Reactor Vessel"	05/23/96	All holders of OLs or CPs for nuclear power reactors
96-31	Cross-Tied Safety Injection Accumulators	05/22/96	All holders of OLs or CPs for pressurized water reactors
96-30	Inaccuracy of Diagnostic Equipment for Motor-Operated Butterfly Valves	05/21/96	All holders of OLs or CPs for nuclear power reactors
96-29	Requirements in 10 CFR Part 21 for Reporting and Evaluating Software Errors	05/20/96	All holders of OLs or CPs for nuclear power reactors
96-28	Suggested Guidance Relating to Development and Implementation of Corrective Action	05/01/96	All material and fuel cycle licensees
96-27	Potential Clogging of High Pressure Safety Injection Throttle Valves During Recirculation	05/01/96	All holders of OLs or CPs for pressurized water reactors
96-26	Recent Problems with Overhead Cranes	04/30/96	All holders of OLs or CPs for nuclear power reactors
96-25	Transversing In-Core Probe Overwithdrawn at LaSalle County Station, Unit 1	04/30/96	All holders of OLs or CPs for nuclear power reactors
96-24	Preconditioning of Molded-Case Circuit Breakers Before Surveillance Testing	04/25/96	All holders of OLs or CPs for nuclear power reactors

OL = Operating License
 CP = Construction Permit

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DOCUMENT NAME: 96-33.IN

*SEE PREVIOUS CONCURRENCE

OFC	IMOB*	NMSS*	IMOB*	FCSS	FCSS	IMNS
NAME	KRamsey/kr/11	EKraus	CHaney	PTing	ETenEyck	<i>DCool</i>
DATE	4/15/96	4/15/96	4/18/96	4/18/96	5/15/96	5/16/96

OFFICIAL RECORD COPY

Gulton Measurement and Control Systems Division (a division of Gulton Industries) in East Greenwich, Rhode Island. The licensee reported that Sonodyne Industries is out of business and Gulton Industries is no longer manufacturing thermocouples.

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Discussion:

Based on licensee statements and NRC inspection experience, the Pulse Combustion Drier marketed by Sonodyne Industries did not sell very well. NRC is not aware of any other Sonodyne driers currently being used by NRC licensees. Licensees that operate waste water evaporators or other heat-generating systems using thermocouples may wish to consider reviewing the source of the thermocouples and testing the polarity of thermocouples in stock.

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