

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

May 31, 1996

NRC INFORMATION NOTICE 96-34: HYDROGEN GAS IGNITION DURING CLOSURE WELDING OF  
A VSC-24 MULTI-ASSEMBLY SEALED BASKET

Addressees

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

Independent spent fuel storage installation designers and fabricators.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to alert addressees to a hydrogen gas ignition event that occurred during the welding of the shield lid on a spent fuel storage cask at the Point Beach Nuclear Plant. 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 are not NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances

On May 28, 1996, a hydrogen gas ignition occurred during the welding of the shield lid on a ventilated storage cask (VSC-24) multi-assembly sealed basket (MSB). The gas ignition displaced the shield lid (weighing about 2898 kilograms [6,390 pounds]), leaving it in place but tipped at a slight angle, with one edge about 7.6 centimeters [3 inches] higher than normal.

The VSC-24 multi-assembly transfer cask (MTC), a shielded lifting device used to transfer the MSB loaded with spent fuel to the ventilated concrete cask, had been placed in the cask decontamination work area in the auxiliary building. Approximately 114 liters [30 gallons] of spent fuel pool water had been drained from the MSB to facilitate welding of the shield lid, creating an air space below the lid. The hydrogen gas ignition occurred during the initiation of the shield lid welding, approximately 11 hours after the loaded MTC had been removed from the spent fuel storage pool.

Discussion

Following the event, gas and water samples collected from the MSB internals showed detectable levels of hydrogen both in the air space beneath the shield lid and dissolved in the MSB water. The licensee then continuously purged the air space beneath the lid with nitrogen to prevent the accumulation of combustible gases and returned the shield lid to its original position.

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updated on 6/14/96

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The MSB was then fully flooded to eliminate the air space under the shield lid and returned to the spent fuel storage pool. The licensee unloaded the spent fuel assemblies and placed them in the spent fuel pool storage racks.

The MTC/MSB was subsequently moved back to the decontamination work area for further inspection as part of the licensee's investigation of the combustible gas ignition. A visual examination of the MSB, the MTC, and the spent fuel assemblies showed no evidence of damage as a result of the combustible gas ignition.

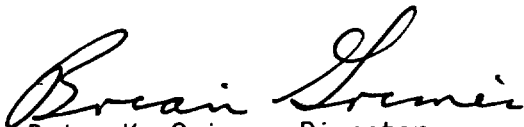
The investigation into the possible sources of hydrogen is focusing on a zinc-based coating applied to the internal surfaces of the MSB. The zinc may have reacted chemically with the acidic borated water from the spent fuel storage pool to produce hydrogen. Borated water is used for criticality control in the spent fuel storage pool water at plants with pressurized water reactors and during fuel loading operations with this cask design.

An NRC Augmented Inspection Team (AIT) has been formed and is on site to investigate the event. The objectives of the AIT are to identify and communicate both the facts of the event and any generic safety concerns and to document the findings and conclusions of the on site inspection.

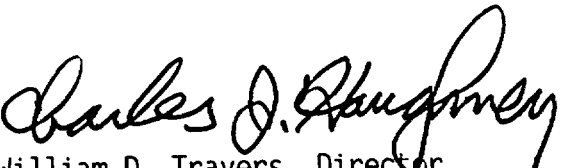
#### Related Generic Communications

IN 95-29. "Oversight of Design and Fabrication Activities for Metal Components Used in Spent Fuel Dry Storage Systems."

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.



Brian K. Grimes, Director  
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Attachment: List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED  
 NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
96-33	Erroneous Data From Defective Thermocouple Results in a Fire	05/24/96	All material and fuel cycle licensees
96-32	Implementation of 10 CFR 50.55a(g)(6)(ii)(A), "Augmented Examination of Reactor Vessel"	06/05/96	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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