

LIS ORIGINAL

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

February 21, 1986

SSINS No.: 6835
IN 86-13

RECEIVED Bart D. Withers Vice President, Nuclear FEB 24 1986 Route To: <u>Dist</u>

IE INFORMATION NOTICE NO. 86-13: STANDBY LIQUID CONTROL SYSTEM SQUIB VALVES
FAILURE TO FIRE

Addressees:

All boiling water reactor facilities holding an operating license (OL) or a construction permit (CP).

Purpose:

This notice is to alert addressees to a potentially generic problem with explosive squib valves used in the standby liquid control system. Recipients are expected to review the information for applicability to their facilities and consider actions, if appropriate, to preclude similar problems occurring at their facilities. However, suggestions contained in this information notice do not constitute NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances:

During a recent routine surveillance, Vermont Yankee found that squib valves used in both pathways of the standby liquid control system (SLCS) failed to fire. The failure of the squibs to fire was caused by two problems. One problem was that the plant had changed the wiring in the terminal box to the squib valves firing circuit and the other problem was incorrect wiring of the connector that is supplied with the squib valve primer charge.

The explosive primer charge assembly for the SLCS at Vermont Yankee was supplied by Conax Corporation. The explosive primer charge assembly has two sets of resistance wires, i.e., bridgewires, internal to the charge either of which will fire the explosive. However, some of the charges were manufactured with incorrect pin-to-bridgewire groupings so that when connected at Vermont Yankee, two high-side leads were connected to one bridgewire set and two neutral leads were connected to the other bridgewire set internal to the explosive primer. Examination of spare squibs at Vermont Yankee identified four others with incorrect pin-to-bridgewire groupings.

The squibs are connected to the plant's wiring via four pin connectors. Incorrect wiring at the Vermont Yankee local terminal box resulted in the sequence around the connector being high, high, neutral, neutral. If the wiring in the terminal box had been according to the design drawing and had been high, neutral, high, neutral, the squib charge would have fired even

Copies to: Withers, Yundt, Lentsch, Orser, Steele, E. Burton, E. Jordan, A. Holm,
LIS, C. A. Olmstead, S. Hoag, TNP:GOV REL F:NRC CHRONO, NRC TO PGE,
TNP:GOV REL F:NRC IE Information Notice No. 86-13

PGE OAR Action - None "Unique to BWR's"

NO OAR ISSUED

NSRD Action - M. H. Malmros

though the pin-to-bridgewire connection was incorrect. (See Attachment 1.)
In addition, at Vermont Yankee the control room indication of SLCS circuit status indicated circuit continuity due to the presence of a sneak curcuit.

At this time, it is not clear whether other primer assemblies, i.e., those manufactured at a facility in Florida rather than New York, have the incorrect pin-to-bridgewire groupings. However, some potentially suspect primer assemblies are:

<u>Primer Part Assembly</u>	<u>Plant</u>	<u>Number of Pieces</u>	<u>Serial Numbers</u>
1617-139-01	Vt. Yankee	6 (defective)	552-557
1617-139-01	Dresden	6	546-551
1621-240-01	Shoreham	7	635-640, 668
1621-240-01	Duane Arnold	6	669-674
1621-240-01	Susquehanna	19	675-681, 686-697
1621-240-01	Limerick	10	699-708
1621-240-01	Pilgrim	3	659-661

NRC Regional representatives have contacted the above facilities by telephone.

In addition, some of the explosive primer charge assemblies were provided to the NORCA Machinery Company, Great Neck, New York for distribution outside of the United States.

The explosive primer charge assembly may be tested for correct pin-to-bridgewire grouping with an ohmmeter that is current limited to no more than 10 millamperes. Larger currents will cause the charge to explode.

Inquiries concerning this problem may be addressed to:

Conax Corporation
2300 Walden Avenue
Buffalo, New York 14225
Mr. Art Haefner
phone: (716) 684-4500 extension 233

No specific action or written response is required by this information notice. If you have questions about this matter, please contact the Regional Administrator of the appropriate NRC regional office or this office.

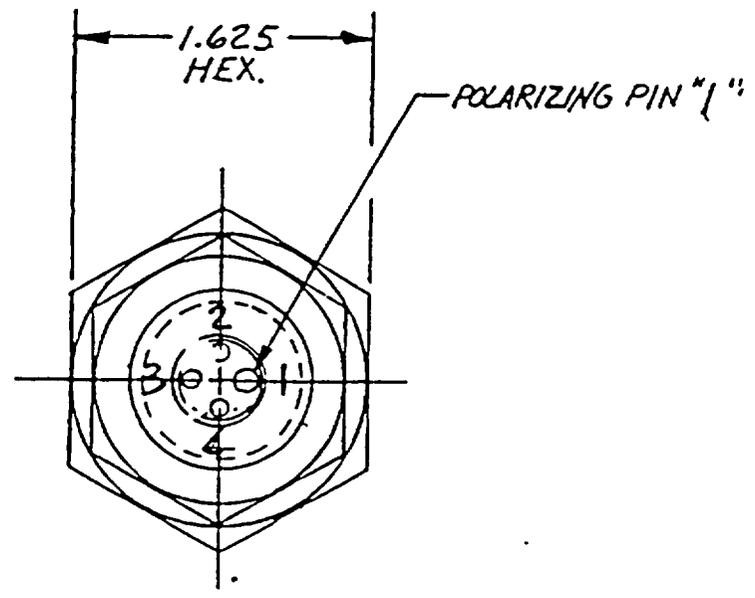


Edward C. Jordan, Director
Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement

Technical Contact: Eric Weiss, IE
(301) 492-9005

Attachments:

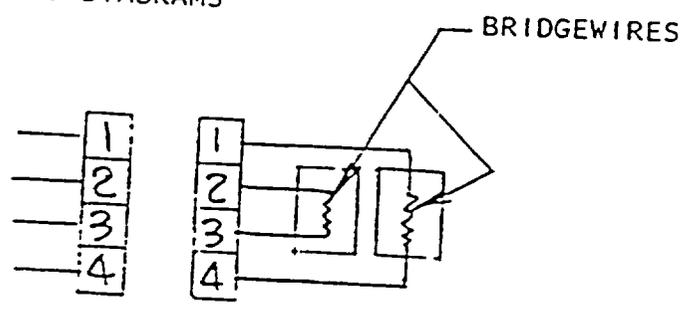
1. Squib Schematic
2. List of Recently Issued IE Information Notices



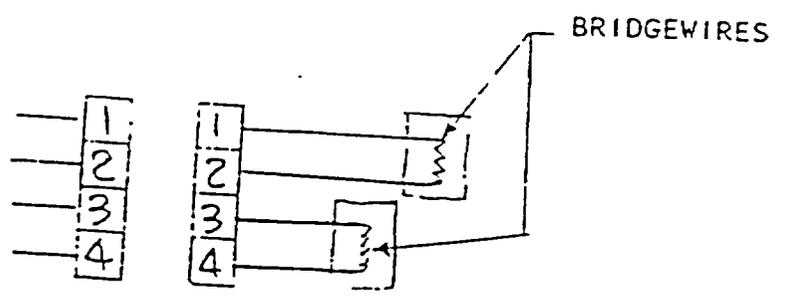
END VIEW

WIRING DIAGRAMS

CORRECT
PIN-TO-BRIDGEWIRE
CONNECTION



INCORRECT
PIN-TO-BRIDGEWIRE
CONNECTION



LIST OF RECENTLY ISSUED
 IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
86-12	Target Rock Two-Stage SRV Setpoint Drift	2/25/86	All power reactor facilities holding an OL or CP
86-11	Inadequate Service Water Protection Against Core Melt Frequency	2/25/86	All power reactor facilities holding an OL or CP
84-69 Sup. 1	Operation Of Emergency Diesel Generators	2/24/86	All power reactor facilities holding an OL or CP
86-10	Safety Parameter Display System Malfunctions	2/13/86	All power reactor facilities holding an OL or CP
86-09	Failure Of Check And Stop Check Valves Subjected To Low Flow Conditions	2/3/86	All power reactor facilities holding an OL or CP
86-08	Licensee Event Report (LER) Format Modification	2/3/86	All power reactor facilities holding an OL or CP
86-07	Lack Of Detailed Instruction And Inadequate Observance Of Precautions During Maintenance And Testing Of Diesel Generator Woodward Governors	2/3/86	All power reactor facilities holding an OL or CP
86-06	Failure Of Lifting Rig Attachment While Lifting The Upper Guide Structure At St. Lucie Unit 1	2/3/86	All power reactor facilities holding an OL or CP
86-05	Main Steam Safety Valve Test Failures And Ring Setting Adjustments	1/31/86	All PWR facilities holding an OL or CP

OL = Operating License
 CP = Construction Permit