

General Information or Other (PAR)

Event # 44082

<b>Rep Org:</b> ROSEMOUNT NUCLEAR INSTRUMENTS, INC.		<b>Notification Date / Time:</b> 03/20/2008 12:32 (EST)	
<b>Supplier:</b> ROSEMOUNT NUCLEAR INSTRUMENTS, INC.		<b>Event Date / Time:</b> 03/20/2008 (CDT)	
<b>Last Modification:</b> 03/20/2008			
<b>Region:</b> 3	<b>Docket #:</b>		
<b>City:</b> CHANHASSEN	<b>Agreement State:</b> Yes		
<b>County:</b>	<b>License #:</b>		
<b>State:</b> MN			
<b>NRC Notified by:</b> DAVID T. ROBERTS	<b>Notifications:</b> STEVE ORTH	R3	
<b>HQ Ops Officer:</b> STEVE SANDIN	MIKE ERNSTES	R2	
<b>Emergency Class:</b> NON EMERGENCY	NEIL PERRY	R1	
<b>10 CFR Section:</b>	VERNE HODGE	NRR	
21.21	UNSPECIFIED PARAGRAPH		

PART 21 REPORT INVOLVING POTENTIAL FAILURE OF CERTAIN ROSEMOUNT PRESSURE TRANSMITTERS

The following information was received via fax:

"Re: Notification under 10 CFR Part 21 for certain Model 3051N Pressure transmitters

"Pursuant to 10 CFR Part 21, section 21.21(b) Rosemount Nuclear Instruments, Inc. (RNII) is writing to inform you that a limited number of Model 3051N pressure transmitters listed in the attachment may exhibit erratic, unstable output prior to an off-scale failure. The affected transmitters were shipped from RNII between March 31, 2002 and November 20, 2002.

"1.0 Name and address of the individual providing the information:

"Mr. Marc D. Bumgarner  
Vice President & General Manager  
Rosemount Nuclear Instruments, Inc.  
8200 Market Boulevard  
Chanhassen, MN 55317

"2.0 Identification of items supplied:

"Certain Model 3051N pressure transmitters identified in the attachment.

"3.0 Identification of the firm supplying the item:

JE19  
NRR

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"Rosemount Nuclear Instruments, Inc.  
8200 Market Boulevard  
Chanhassen, MN 55317

"4.0 Nature of the failure and potential safety hazard:

"The Model 3051N Smart Pressure Transmitter is dedicated for nuclear use consistent with the requirements of 10 CFR Part 21. It is qualified for use in safety related applications per IEEE 323-1983 (mild environment) and IEEE 344-1987 for seismic applications as documented in its associated qualification reports.

"The Model 3051N pressure transmitter contains an application-specific integrated circuit (ASIC) which performs the Digital to Analog Conversion (DAC). Procurement and production records indicate that a limited number of Model 3051N pressure transmitters manufactured between January 2002 and October 2002 have DAC ASICs which may contain phosphorus as the encapsulation material.

"ASIC industry experts have since determined that under certain conditions the phosphorus compound can lead to reduced insulation resistance of the integrated circuit, with potentially adverse impact on performance. As a result, ASIC and IC manufacturers eliminated the use of phosphorus in their products. Industry experts have examined the performance of phosphorus materials in electronic circuits under various conditions and estimated a potential ASIC failure rate of approximately 1% for the general population of phosphorus-containing electronic circuits.

"Three Model 3051N transmitters have recently been returned to RNII due to erratic, unstable, or off-scale output. Failure analysis identified the phosphorus-containing encapsulation material of the DAC ASIC as the cause of failure for these transmitters. These transmitters were installed and performing properly for 3-5 years before failure.

"Failure of the DAC ASIC depends on several factors, including:

- "Phosphorus concentration
- "Spacing of ASIC leads
- "Voltage driving the ASIC (which affects operating temperature)
- "Ambient temperature

"The observed failure rate of the DAC ASIC in Model 3051N pressure transmitters indicates a potential reliability concern. As a result, notification is being made in accordance with 10 CFR Part 21 to customers that purchased a transmitter from the potentially affected population. A transmitter with a failing DAC ASIC will annunciate itself by erratic or unstable output, followed by off-scale output (high or low).

"5.0 The corrective action which is taken, the name of the individual or organization responsible for that action, and the length of time taken to complete that action:

"The use of phosphorus in the DAC ASIC was eliminated in October 2002.

"Model 3051N pressure transmitters affected by this notification may be returned to RNII for replacement at no charge.

"6.0 Any advice related to the potential failure of the item:

"The end user is advised to determine the impact of this potential reliability issue upon its plant's operation and safety, and take action as deemed necessary. Affected transmitters may be returned to RNII for replacement at no charge.

"Rosemount Nuclear Instruments, Inc. is committed to the nuclear industry and remains dedicated to the supply of

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high quality products to our customers. If you have any questions, or require additional information related to this issue, please contact: Mike Dougherty (205) 865-1112, Gerard Hanson (952) 949-5233, Bob Cleveland (952) 949-5206, or Matt Doyle (952) 949-5204."

Facilities affected which were identified in the referenced attachments: Cook Nuclear Plant, Vermont Yankee, Quad Cities Nuclear Station, and Robinson.

\*\*\*\*\*



**ROSEMOUNT**  
Nuclear

**Facsimile**

Rosemount Nuclear Instruments, Inc.  
8200 Market Boulevard  
Chanhassen, MN 55317

Telephone 1 (952) 949-5234  
Fax 1 (952) 949-5201  
David.Roberts@Emerson.com

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**To:** NRC Operations Center  
**Company:**  
**Fax Number:** (301) 816-5151  
**Date:** 3/20/08  
**From:** David Roberts, Quality Manager  
**No. of Pages:** 7, *Including cover page*

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Rosemount Nuclear Instruments is submitting the attached notification as required by 10 CFR Part 21. Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "David T. Roberts". The signature is written in a cursive, flowing style.

David T. Roberts  
Quality Manager  
Rosemount Nuclear Instruments, Inc.

# ROSEMOUNT® Nuclear

Rosemount Nuclear Instruments, Inc.  
8200 Market Boulevard  
Chanhassen, MN 55317 USA

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20 March 2008

U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001  
Attn: Document Control Desk

**Re: Notification under 10 CFR Part 21 for certain Model 3051N Pressure Transmitters**

Pursuant to 10 CFR Part 21, section 21.21(b), Rosemount Nuclear Instruments, Inc. (RNII) is writing to inform you that a limited number of Model 3051N pressure transmitters listed in the attachment may exhibit erratic, unstable output prior to an off-scale failure. The affected transmitters were shipped from RNII between March 31, 2002 and November 20, 2002.

**1.0 Name and address of the individual providing the information:**

Mr. Marc D. Bumgarner  
Vice President & General Manager  
Rosemount Nuclear Instruments, Inc.  
8200 Market Boulevard  
Chanhassen, MN 55317

**2.0 Identification of items supplied:**

Certain Model 3051N pressure transmitters identified in the attachment.

**3.0 Identification of firm supplying the item:**

Rosemount Nuclear Instruments, Inc.  
8200 Market Boulevard  
Chanhassen, MN 55317

**4.0 Nature of the failure and potential safety hazard:**

The Model 3051N Smart Pressure Transmitter is dedicated for nuclear use consistent with the requirements of 10 CFR Part 21. It is qualified for use in safety related applications per IEEE 323-1983 (mild environment) and IEEE 344-1987 for seismic applications as documented in its associated qualification reports.

The Model 3051N pressure transmitter contains an application-specific integrated circuit (ASIC), which performs the Digital to Analog Conversion (DAC). Procurement and production records indicate that a limited number of Model 3051N pressure transmitters manufactured between January 2002 and October 2002 have DAC ASICs which may contain phosphorus as the encapsulation material.

ASIC industry experts have since determined that under certain conditions the phosphorus compound can lead to reduced insulation resistance of the integrated circuit, with potentially adverse impact on performance. As a result, ASIC and IC manufacturers eliminated the use of phosphorus in their products. Industry experts have examined the performance of phosphorus materials in electronic circuits under various conditions and

estimated a potential ASIC failure rate of approximately 1% for the general population of phosphorus-containing electronic circuits.

Three Model 3051N transmitters have recently been returned to RNII due to erratic, unstable, or off-scale output. Failure analysis identified the phosphorus-containing encapsulation material of the DAC ASIC as the cause of failure for these transmitters. These transmitters were installed and performing properly for 3-5 years before failure.

Failure of the DAC ASIC depends on several factors, including:

- Phosphorus concentration
- Spacing of ASIC leads.
- Voltage driving the ASIC (which affects operating temperature)
- Ambient temperature

The observed failure rate of the DAC ASIC in Model 3051N pressure transmitters indicates a potential reliability concern. As a result, notification is being made in accordance with 10 CFR Part 21 to customers that purchased a transmitter from the potentially affected population. A transmitter with a failing DAC ASIC will announce itself by erratic or unstable output, followed by off-scale output (high or low).

**5.0 The corrective action which is taken, the name of the individual or organization responsible for that action, and the length of time taken to complete that action:**


- The use of phosphorus in the DAC ASIC was eliminated in October 2002.
- Model 3051N pressure transmitters affected by this notification may be returned to RNII for replacement at no charge.

**6.0 Any advice related to the potential failure of the item:**

The end user is advised to determine the impact of this potential reliability issue upon its plant's operation and safety, and take action as deemed necessary. Affected transmitters may be returned to RNII for replacement at no charge.

Rosemount Nuclear Instruments, Inc. is committed to the nuclear industry and remains dedicated to the supply of high quality products to our customers. If you have any questions, or require additional information related to this issue, please contact: Mike Dougherty (208) 865-1112, Gerard Hanson (952) 949-5233, Bob Cleveland (952) 949-5206, or Matt Doyle (952) 949-5204.

Sincerely,



Marc D. Bumgarner  
Vice President & General Manager  
Rosemount Nuclear Instruments, Inc.

## ATTACHMENT: 10 CFR Part 21 Notification – 20 March 2008.

American Electric Power Co Inc

Sales Order	Purchase Order	Model Number	S/N	Ship Date	Site
1023104	190-0000023023	3051NG4A02A1JH2B2M6	1201385	5/14/2002	COOK NUCLEAR PLANT
1023104	190-0000023023	3051NG4A02A1JH2B2M6	1201386	5/14/2002	COOK NUCLEAR PLANT
1023104	190-0000023023	3051NG4A02A1JH2B2M6	1201387	5/14/2002	COOK NUCLEAR PLANT
1023104	190-0000023023	3051NG4A02A1JH2B2M6	1201388	5/14/2002	COOK NUCLEAR PLANT
1023104	190-0000023023	3051NG4A02A1JH2B2M6	1201389	5/14/2002	COOK NUCLEAR PLANT
1023104	190-0000023023	3051NG4A02A1JH2B2M6	1201390	5/14/2002	COOK NUCLEAR PLANT
1023104	190-0000023023	3051NG4A02A1JH2B2M6	1201391	5/14/2002	COOK NUCLEAR PLANT
1023104	190-0000023023	3051NG4A02A1JH2B2M6	1201392	5/14/2002	COOK NUCLEAR PLANT
1023104	190-0000023023	3051NG4A02A1JH2B2M6	1201393	5/14/2002	COOK NUCLEAR PLANT
1023104	190-0000023023	3051NG4A02A1JH2B2M6	1201394	5/14/2002	COOK NUCLEAR PLANT

## ATTACHMENT: 10 CFR Part 21 Notification - 20 March 2008.

Entergy Corp

Sales Order	Purchase Order	Model Number	S/N	Ship Date	Site
1061163	VY014098	3051ND2A02A1AH2BS	1243741	8/12/2002	VERMONT YANKEE
1061163	VY014098	3051ND2A02A1AH2BS	1243742	8/12/2002	VERMONT YANKEE
1061163	VY014098	3051ND2A02A1AH2BS	1243743	8/12/2002	VERMONT YANKEE
1083248	VY014098	3051ND2A02B1AH2BS	1260592	9/18/2002	VERMONT YANKEE
1083248	VY014098	3051ND2A02B1AH2BS	1260593	9/18/2002	VERMONT YANKEE
1083248	VY014098	3051ND2A02B1AH2BS	1260594	9/18/2002	VERMONT YANKEE
1084239	VY014552	3051ND3A02B1AH2BS	1263276	9/20/2002	VERMONT YANKEE
1084239	VY014552	3051ND3A02B1AH2BS	1263277	9/20/2002	VERMONT YANKEE



ATTACHMENT: 10.CFR Part 21 Notification - 20 March 2008.

Exelon Generation Co LLC

Sales Order	Purchase Order	Model Number	S/N	Ship Date	Site
1042078	00044796 REV 001	3051NG5A02A1JH2B2	1225470	6/25/2002	QUAD CITIES NUCLEAR STATION

**ATTACHMENT: 10 CFR Part 21 Notification - 20 March 2008.**

Progress Energy Carolinas Inc

Sales Order	Purchase Order	Model Number	S/N	Ship Date	Site
1026235	00066666	3051NG5A02A1AH2PM	1225473	6/29/2002	ROBINSON
1026235	00066666	3051NG5A02A1AH2PM	1225474	6/29/2002	ROBINSON
1026235	00066666	3051NG5A02A1AH2PM	1225475	6/29/2002	ROBINSON
1026235	00066666	3051NG5A02A1AH2PM	1225476	6/29/2002	ROBINSON
1026235	00066666	3051NG5A02A1AH2PM	1225477	6/29/2002	ROBINSON
1026235	00066666	3051NG5A02A1AH2PM	1225478	6/29/2002	ROBINSON
1026235	00066666	3051NG5A02A1AH2PM	1225479	6/29/2002	ROBINSON
1026235	00066666	3051NG5A02A1AH2PM	1225480	6/29/2002	ROBINSON
1026235	00066666	3051NG5A02A1AH2PM	1225481	6/29/2002	ROBINSON
1026235	00066666	3051NG5A02A1AH2PM	1225482	6/29/2002	ROBINSON
1026235	00066666	3051NG5A02A1AH2PM	1225485	6/29/2002	ROBINSON
1099448	00096874	3051NG5A02A1AH2PM	1278382	11/20/2002	ROBINSON