

Part 21 (PAR)

Event # 51280

<b>Rep Org:</b> NAMCO CONTROLS		<b>Notification Date / Time:</b> 07/31/2015 14:27 (EDT)	
<b>Supplier:</b> NAMCO CONTROLS		<b>Event Date / Time:</b> 05/19/2015 (EDT)	
<b>Last Modification:</b> 07/31/2015			
<b>Region:</b> 1	<b>Docket #:</b>		
<b>City:</b> ELIZABETHTOWN	<b>Agreement State:</b> Yes		
<b>County:</b>	<b>License #:</b>		
<b>State:</b> NC			
<b>NRC Notified by:</b> KEVIN SUTHERBY		<b>Notifications:</b> RAY MCKINLEY	R1DO
<b>HQ Ops Officer:</b> STEVE SANDIN		GEORGE HOPPER	R2DO
<b>Emergency Class:</b> NON EMERGENCY		CHRISTINE LIPA	R3DO
<b>10 CFR Section:</b>		GREG WARNICK	R4DO
21.21(d)(3)(i) DEFECTS AND NONCOMPLIANCE		PART 21/50.55 REACTORS	EMAIL

# PART 21 REPORT INVOLVING LIMIT SWITCHES EA180 AND EA170 MANUFACTURED IN A SPECIFIC DATE RANGE

The following information is an excerpt from a Namco Controls fax:

"Subject: Notification of Product Anomaly Namco Controls Division of Dynapar Corp EA180 & EA170 Limit Switches Manufactured March 25th 2014 through December 30th 2014.

"Dear Sir(s) / Madam(s),

"The purpose of this letter is to notify you of our resolution for the subject anomaly that was brought to our attention by the Nebraska Public Power District, Cooper Nuclear Station in Brownville, NE via our rep network (Mr. Curt Duphill) on May 19th 2015. On May 30th our senior engineer, Mr. Troy Kloss, visited the plant site during a plant shutdown to investigate the issue and determined that a Part 21 investigation was warranted. Dynapar's Namco Controls business sent out an early indication notice to customers as part of the investigation on 6/3/15 which included switches of date codes 1214 and 1314 (week-year). As a result of this initial notice, a second reported potential anomaly was identified by Salem Nuclear Power in Hancocks Bridge, NJ. However these switches at Salem were replaced previously and no root cause analysis was performed prior to the switches being discarded.

"Because of this anomaly the nuclear limit switch may not reliably state the condition of the device (in this case a main steam isolation valve) that the switch is measuring and could be a potential safety hazard depending on the nuclear power plant control logic.

"As a result of our internal investigation, we isolated the switch performance degradation to a compression spring

IE19  
NRB

in the limit switch assembly. We have validated lot control traceability of the compression spring in question, which contained 1100 suspect springs, to shipments within the subject date range and have determined 417 Namco limit switches were shipped to US customers with this potential anomaly. We are notifying the affected customers- see included list. In addition, Namco Controls has changed our inspection criteria as of 07/31/2015 for this item in order to prevent future occurrences.

"At this time, we have generated a Technical Bulletin (TB1501) summarizing the conclusions and recommendations. We will notify all customers, both domestic and foreign, by August 7th 2015.

"If you have any questions or concerns, please direct them to Quincy Hill, Quality Manager at qhill@dancon.com.

"Thank you.

"Kevin Sutherby

"Vice President & General Manager

"Namco Controls Division of Dynapar Corporation

"ksutherby@dancon.com

"910.862.5411 (office)

"2100 West Broad Street, Elizabethtown, NC 28337"

The part numbers impacted are:

EA170-11302,-12302,-21302,-31302,-32302,-41302,-42302,-51302, and  
EA180-11302,-11307,-11309,-11402,-12302,-12307,-12309,-12402,-21302,-21309,-21402,-22302,-22309,-31302,-  
31309,-31402,-32302,-32309,-32402

at the following facilities:

Farley Nuclear Plant, Callaway Energy Center, Palo Verde Nuclear Generation Station, Fermi 2 Nuclear Power Plant, Millstone Nuclear Power Station, North Anna Power Station, Catawba Nuclear Station, McGuire Nuclear Station, Robinson Nuclear Plant, Harris Nuclear Plant, Columbia Generation Station, Arkansas Nuclear One, River Bend Nuclear Station, Waterford 3 Nuclear, Clinton Nuclear Station, LaSalle County Generating Station, Braidwood Generating Station, Limerick Generating Station, Byron Generating Station, Quad Cities Generating Station, Perry Nuclear Plant, Plant Hatch, Cook Nuclear Plant, Cooper Nuclear Station, Seabrook Station, Duane Arnold Energy Center, Salem/Hope Creek Nuclear Generation Station, South Texas Nuclear Project Electric Generating Station, Watts Bar Nuclear Plant, Wolf Creek Nuclear Operating Corporation, Prairie Island Nuclear.

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Dynapar Corporation

TO: United States Nuclear  
Regulatory Commission

FROM: Kevin Sutherby,  
Vice President and General Manager  
Namco Controls Division of Dynapar  
Corporation

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FAX: (301) 816-5151

FAX:

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SUBJECT: Part 21 Notification

DATE: July 31, 2015

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COMMENTS:

**See attached letter for Part 21 notification.**

Dynapar Corporation

July 31, 2015

Document Control Desk  
United States Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Notification of Product Anomaly  
Namco Controls Division of Dynapar Corp EA180 & EA170 Limit Switches  
Manufactured March 25<sup>th</sup> 2014 through December 30<sup>th</sup> 2014

Dear Sir(s) / Madam(s),

The purpose of this letter is to notify you of our resolution for the subject anomaly that was brought to our attention by the Nebraska Public Power District, Cooper Nuclear Station in Brownville, NE via our rep network (Mr. Curt Duphill) on May 19<sup>th</sup> 2015. On May 30<sup>th</sup> our senior engineer, Mr. Troy Kloss, visited the plant site during a plant shutdown to investigate the issue and determined that a Part 21 investigation was warranted. Dynapar's Namco Controls business sent out an early indication notice to customers as part of the investigation on 6/3/15 which included switches of date codes 1214 and 1314 (week-year). As a result of this initial notice, a second reported potential anomaly was identified by Salem Nuclear Power in Hancocks Bridge, NJ. However these switches at Salem were replaced previously and no root cause analysis was performed prior to the switches being discarded.

Because of this anomaly the nuclear limit switch may not reliably state the condition of the device (in this case a main steam isolation valve) that the switch is measuring and could be a potential safety hazard depending on the nuclear power plant control logic.

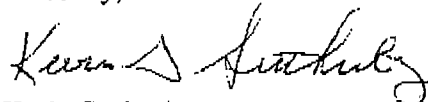
As a result of our internal investigation, we isolated the switch performance degradation to a compression spring in the limit switch assembly. We have validated lot control traceability of the compression spring in question which contained 1100 suspect springs to shipments within the subject date range and have determined 417 Namco limit switches were shipped to US customers with this potential anomaly. We are notifying the affected customers - see included list. In addition, Namco Controls has changed our inspection criteria as of 07/31/2015 for this item in order to prevent future occurrences.

At this time, we have generated a Technical Bulletin (TB1501) summarizing the conclusions and recommendations. We will notify all customers, both domestic and foreign, by August 7<sup>th</sup> 2015. I have attached a copy of this Technical Bulletin for your reference.

If you have any questions or concerns, please direct them to Quincy Hill, Quality Manager at [qhill@dancon.com](mailto:qhill@dancon.com).

Thank you.

Sincerely,



Kevin Sutherby  
Vice President & General Manager  
Namco Controls Division of Dynapar Corporation  
[ksutherby@dancon.com](mailto:ksutherby@dancon.com)  
910.862.5411 (office)



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CUSTOMER NAME	FACILITY NAME	PRODUCT ID	QTY.	ADDRESS
ALABAMA POWER CO	FARLEY NUCLEAR PLANT	EA180-12302	2	7388 NORTH STATE HWY 95 COLUMBIA, AL 36319
		EA180-11302	4	
		EA170-32302	2	
		EA180-11302	4	
		EA170-11302	1	
AMEREN GENERATION CO	CALLAWAY ENERGY CENTER	EA170-32302	1	JCT HWY CC AND HWY O FULTON, MO 65251
		EA170-31302	1	
ARIZONA PUBLIC SERVICE N	PALO VERDE NUCLEAR GENERATION STATION	EA180-21302	1	5801 SOUTH WINTERSBURG ROAD TONOPAH, AZ 85354
DETROIT EDISON COMPANY	FERMI 2 NUCLEAR POWER PLANT	EA180-31402	2	6400 N. DIXIE HWY NEWPORT, MI 48166
DOMINION NUCLEAR CONNECTICUT	MILLSTONE NUCLEAR PWR STA.	EA180-31302	5	ROPE FERRY RD (RTE 156) WATERFORD, CT 06385
		EA180-11302	1	
DOMINION VIRGINIA POWER	NORTH ANNA POWER STATION	EA180-32302	1	1022 HALEY DRIVE MINERAL, VA 23117
DRESSER - MASONELAN DIV		EA180-12402	2	85 BODWELL STREET AVON, MA 02322
DUKE ENERGY CAROLINA LLC	CATAWBA NUCLEAR STATION	EA180-32302	2	4800 CONCORD ROAD YORK, SC 29745
		EA170-32302	9	
		EA180-31302	4	
	MCGUIRE NUCLEAR STATION	EA180-11302	4	13225 HAGERS FERRY RD. HWY 73 HUNTERVILLE, NC 28078
		EA180-12302	1	
DUKE ENERGY PROGRESS, INC.	ROBINSON NUCLEAR PLANT	EA180-11302	1	3581 W. ENTRANCE RD. HARSTVILLE, SC 29550
		EA180-32302	2	
		EA180-32302	1	
		EA180-12302	5	
		EA180-11302	4	
		EA180-31302	2	
	HARRIS NUCLEAR PLANT	EA170-12302	1	5413 SHEARON HARRIS RD. NEW HILL, NC 27562
		EA180-31302	3	
EMERSON PROCESS MANAGEMENT		EA180-32302	2	19200 NW. FREEWAY HOUSTON, TX 77065
		EA180-31302	4	
ENERGY NORTHWEST	COLUMBIA GENERATION STATION	EA180-32402	1	76 NORTH POWERPLANT LOOP RICHLAND, WA 99354
ENTERGY ACCOUNTS PAYABLE DEPT	ARKANSAS NUCLEAR ONE	EA180-31302	2	SOUTH OF JCT HWY 64W AND 333S REUSSELLVILLE, AR 72802
	RIVER BEND NUCLEAR STATION	EA180-31302	1	5485 US HWY 61 ST. FRANCISVILLE, LA 70775
		EA180-31302	5	
	WATERFORD 3 NUCLEAR	EA180-12302	2	17265 RIVER RD. HWY 18 HAHNVILLE, LA 70057
		EA170-31302	2	
		EA170-42302	2	
		EA170-41302	1	



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EXELON BUSINESS SERVICES	CLINTON NUCLEAR STATION	EA180-31302	7	8401 POWER ROAD CLINTON, IL 61727
		EA180-31302	4	
		EA180-31302	5	
		EA170-51302	6	
EXELON GENERATION CO., LLC	LASALLE COUNTY GENERATING STATION	EA180-22302	4	2601 N. 21ST RD. MARSEILLES, IL 61341
		EA170-51302	2	
	BRAIDWOOD GENERATING STATION	EA170-32302	1	EAST OF IL RT 53 BRAIDWOOD, IL 60408
		EA180-32302	5	
		EA180-32302	1	
	LIMERICK GENERATING STATION	EA170-51302	2	3146 SANATOGA ROAD POTTSTOWN, PA 19464
	BYRON GENERATING STATION	EA180-12302	3	4450 N. GERMAN CHURCH RD. BYRON, IL 61010
		EA180-32302	1	
	QUAD CITIES GENERATING STATION	EA180-21302	4	22710 206TH AVE N. CORDOVA, IL 61242
FIRSTENERGY CORP.	PERRY NUCLEAR PLANT	EA180-31302	1	10 CENTER ROAD NORTH PERRY, OH 44081
		EA180-31302	10	
FLOWSERVE US INC		EA170-32302	5	1900 S. SOUNDERS ST. RALEIGH, NC 27603
		EA180-32309	2	
		EA170-31302	5	
		EA180-31309	2	
		EA180-31302	2	
		EA170-32302	5	
		EA170-31302	5	
		EA170-32302	4	
		EA180-32309	2	
		EA170-31302	4	
		EA180-31309	2	
		EA180-32309	2	
		EA180-31309	2	
		EA180-12309	12	
		EA180-11309	12	
		EA180-12302	1	
		EA170-32302	3	
		EA170-31302	3	
GEORGIA POWER COMPANY	PLANT HATCH	EA180-31302	6	7821 RIVER ROAD WAYNESBORO, GA 30830
		EA180-12302	2	
		EA180-31302	6	11028 HATCH PARKWAY NORTH BAXLEY, GA 31513
		EA180-32302	4	
		EA170-32302	2	
INDIANA MICHIGAN POWER CO	COOK NUCLEAR PLANT	EA170-31302	4	9970 RED ARROW HIGHWAY BRIDGMAN, MI 49106
		EA180-11302	3	
NEBRASKA PUBLIC POWER DISTRICT	COOPER NUCLEAR STATION	EA180-32402	8	72676 648A AVE. BROWNSVILLE, NE 68321



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NEXTERA ENERGY	SEABROOK STATION	EA170-11302	1	626 LAFAYETTE ROAD SEABROOK, NH 03874
	DUANE ARNOLD ENERGY CENTER	EA180-31402	1	3277 DALEC ROAD PALO, IA 52324
PENTAIR VALVES & CONTROLS	-	EA180-32309	88	55 CABOT BOULEVARD MANSFIELD, MA 02048
PUBLIC SERVICE ELEC AND GAS N PSEG	SALEM/HOPE CREEK NUCLEAR GENERATION STATION	EA180-31402	5	ALLOWAY CREEK NECK ROAD HANCOCKS BRIDGE, NJ 08038
		EA180-12302	1	
		EA180-11302	3	
		EA180-32302	4	
		EA180-12402	1	
		EA180-11402	1	
		EA180-32402	3	
		EA180-31402	3	
		EA180-12402	2	
SPX FLOW TECHNOLOGY SYSTEMS, INC.	-	EA170-32302	2	5620 WEST ROAD MCKEAN, PA 16426
		EA170-31302	2	
STP NUCLEAR OPERATING CO.	SOUTH TEXAS NUCLEAR PROJECT ELECTRIC GENERATING STATION	EA180-31302	14	12090 FM 521 WADSWORTH, TX 77483
		EA180-21302	1	
TENNESSEE VALLEY AUTHORITY	WATTS BAR NUCLEAR PLANT	EA170-12302	1	HWY 68, FSB-1G SPRING CITY, TN 37381
		EA180-22302	1	
		EA180-11302	2	
		EA180-12302	3	
WEIR VALVES & CONTROLS	-	EA180-22302	1	29 OLD RIGHT ROAD IPSWICH, MA 01938
		EA180-21302	1	
WOLF CREEK NUCLEAR OPR CORP	WOLF CREEK NUCLEAR OPERATING CORPORATION	EA180-11302	5	1550 OXEN LANE N.E. BURLINGTON, KS 66839
		EA180-12302	2	
XCEL ENERGY	PRAIRIE ISLAND NUCLEAR	EA180-12302	7	1717 WAKONADE DRIVE EAST WELCH, MN 55089
		EA180-31302	4	
		EA170-12302	4	

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**JULY 2015**

**TECHNICAL BULLETIN TB1501**

**NOTIFICATION OF POSSIBLE OPERATIONAL ANOMALIES FOR  
NUCLEAR QUALIFIED EA170/180 STANDARD LIMIT SWITCHES**

**PURPOSE:**

The purpose of this Notice is to inform Nuclear Power Plant Operators and others involved in the operation and maintenance of Namco Controls EA180 and EA170 Standard Series Nuclear Qualified Limit Switches (with a spring returned operating lever) that when the switches are used in a normally actuated state or are exposed to a temperature above 123°F, a potential anomaly may occur.

**DESCRIPTION:**

During operation of MSIV valves, at the Cooper Nuclear Power Station – a Nebraska Public Power District (NPPD) operated facility located in Brownsville, Nebraska, three (3) Namco EA180-32402 Limit Switches failed to function properly in a 173°F maximum field temperature. It was found, after actuating the switch, the normally closed contacts did not consistently return to their initial position which could result in an incorrect signal on the position of the valve being monitored.

**NAMCO CONTROLS INVESTIGATION:**

A comprehensive Program of Engineering/Quality Assurance Studies, Laboratory Analysis, and Testing were performed on the subject Namco Controls' Limit Switch. These studies and analyses determined that a single lot of 1100 springs, that may have been inadequately stress relieved, were shipped inside EA180 and EA170 limit switches to nuclear customers. The switches in question were manufactured between March 25<sup>th</sup> 2014 and December 30<sup>th</sup> 2014 and may contain inadequately stress-relieved return springs (See the part numbers at the end of this Technical Bulletin).

Although the laboratory analysis shows that the material is conforming, the analysis of the returned springs from NPPD displayed the return springs' corresponding forces were below the Namco Controls drawing force specifications. It was further determined that the inadequate stress relief was the cause of the decreased return spring force in these units.

Engineering reviewed samples of return springs from seven additional lots. The engineering review determined that the corresponding forces of the spring lot in question were varied and out of specification when exposed to heat. No issues were found in the seven additional lots tested.



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**POTENTIAL RISK:**

Because of this anomaly the nuclear limit switch may not reliably state the condition of the device (in this case a main steam isolation valve) that the switch is measuring and could be a potential safety hazard depending on the nuclear power plant control logic.

**CONCLUSION:**

Based on the Engineering review, it has been determined that switches used in a normally actuated state or exposed to a temperature above 123°F may fail to function properly due to decreased spring force, which is caused by inadequate stress relief.

Namco Controls has changed the Inspection Criteria for this item as of 07/31/2015 to prevent further occurrences.

**RECOMMENDATION:**

For customers who have EA180 and EA170 switches that were shipped between March 25th 2014 and December 30th 2014:

Namco Controls recommends that all standard EA180 Nuclear Qualified Limit Switches be reworked with a new spring to replace the potentially defective spring.

Namco Controls recommends standard EA170 Series Nuclear Qualified Limit Switches which are operated in a normally actuated state or are exposed to a temperature above 123°F be reworked with a new spring to replace the potentially defective spring.

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**PART NUMBERS IMPACTED:**

<b>PART NUMBERS IMPACTED</b>
EA170-11302
EA170-12302
EA170-21302
EA170-31302
EA170-32302
EA170-41302
EA170-42302
EA170-51302
EA180-11302
EA180-11307
EA180-11309
EA180-11402
EA180-12302
EA180-12307
EA180-12309
EA180-12402
EA180-21302
EA180-21309
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EA180-32402