GE Nuclear Energy

General Electric Company
175 Curtner Ave., San Jose, CA 95125

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United States Nuclear Regulatory Commission
Washington, DC 20555

Subject: Cutoff Switch Used With Model AK-15, AK-25 and AKR-30S Electrical and Electrical/Manual Operated Circuit Breaker

This letter provides information regarding a recently discovered deviation in the cutoff switch (Part Number 622C505G1) contact assembly used in electrical and electrical/manual operated model AK-15, AK-25 and AKR-30S low voltage power circuit breakers (LVPCB) manufactured by GE. The cutoff switch was manufactured by GE Industrial Systems in Plainville, CT and supplied to licensees by GE-NE as an original circuit breaker part or as a renewal part. Recently GE Nuclear Energy (GE-NE) discovered loose screws in the contact assembly of cutoff switches used in AK-15, AK-25 and AKR-30S LVPCBs. The loose screw was one of two fasteners that hold the normally closed (NC) contact assembly in place. The contact assembly serves as the electrical common node for the two stationary NC contacts and provides a restraining reaction surface for the switch lever operated movable contacts. It was determined that the inner threads of the contact assembly stud deviated from design requirements.

Since the specific applications and associated safety functions of the impacted LVPCBs are not known to GE-NE, we have transferred information pursuant to 10 CFR Part 21.21(b) to those licensees known to be affected. However, since additional licensees may have obtained these devices through other dedicating entities, we cannot assure ourselves that all end-users have been notified. We are therefore providing this information to the NRC for appropriate action.

The installation of a cutoff switch containing a contact assembly fastener with defective stud threads into an AK-15, AK-25, and AKR-30S LVPCB could result in (1) loose parts being introduced into the circuit breaker mechanism which could cause jamming of the breaker mechanism and may make the circuit breaker inoperable, or (2) the stationary contact assembly shorting to ground or common which could cause a loss of control power and may make the circuit breaker inoperable.

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It is suggested that licensees perform the following inspections: (Refer to Figure 1)

1. Inspect any GE manufactured cutoff switch assembly located in inventory as soon as possible for a loose fastener or defective stud thread condition by attempting to tighten the contact assembly fastener to a value of six to eight inch pounds. If unable to tighten to this value discard the cutoff switch assembly. There is no cutoff switch assembly repair or rework recommendation.
2. Inspect the cutoff switch assemblies installed in electrical and electrical/manual AK-15, AK-25 and AKR-30S circuit breakers at the next available opportunity.
   a. Remove the circuit breaker escutcheon, to gain access to the cutoff switch.
   b. Inspect the contact assembly fastener and insulating bushing.
      - If they are present but loose, remove the circuit breaker from service. The loose insulating bushing and fastener are the prime indication that the assembly stud threads are defective. If the contact assembly fastener and insulating bushing are missing; remove the circuit breaker from service, and remove and replace the cutoff switch assembly. There is no repair or rework recommendation.
      - If a contact assembly fastener is found loose, remove the cutoff switch assembly from the circuit breaker. Attempt to tighten the contact assembly fastener to a value of six to eight inch pounds. If unable to tighten to this value discard the cutoff switch and replace. There is no repair or rework recommendation.
3. During scheduled maintenance, inspect the cutoff switch assembly installed in electrical and electrical/manual AK-15, AK-25 and AKR-30S circuit breakers.
      - Assure that the contact assembly fastener can be tightened to a torque value of six to eight inch pounds. If unable to tighten to this value discard the cutoff switch and replace. There is no repair or rework recommendation.

If you have any questions, please call me at (408) 925-5362.

Sincerely,

Jason Post

Jason. S. Post, Manager
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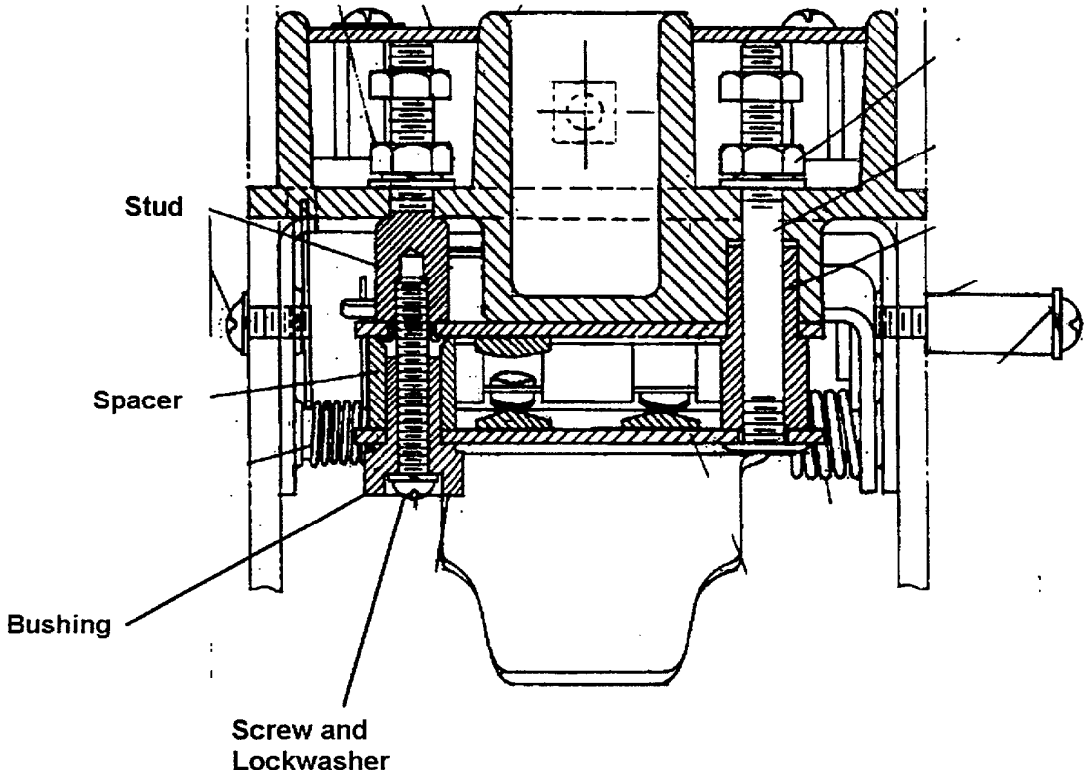

Figure 1 Cutoff Switch

1. **Identification of the basic component or activity, which contains the deviation.**

   The basic component with the defect is the circuit breaker cutoff switch, part 622C505G1, which is a replacement part used in AK-15, AK-25, and AKR-30S Electrically Operated and Electrical/Manual low voltage power circuit breakers (LVPCBs).

2. **Identification of the facilities to which the concern applies:**

   All BWRs and PWRs that procured AK-15, AK-25 and AKR-30S LVPCB or a replacement cutoff switch supplied by GENE are potentially affected, as identified in the following table of potentially affected plants. These are *unspecified/BOP* applications of GE model AK-15, AK-25 and AKR-30S LVPCBs for which GE-NE cannot determine if the potential defect or failure to comply could result in a substantial safety hazard.

3. **Identification of the manufacturer or supplier of the basic component.**

   The circuit breaker cutoff switch is manufactured by GE Industrial Systems, 41 Woodford Ave., Plainville, CT, 06062, USA.

4. **A description of the deviation and the potential safety hazard which may be created.**

   The installation of a cutoff switch containing a contact assembly fastener with defective threads into an AK-15, AK-25, and AKR-30S could result in (1) loose parts being introduced into the circuit breaker mechanism which could cause jamming of the breaker mechanism and may make the circuit breaker inoperable or (2) the stationary contact assembly shorting to ground or common which could cause loss of control power and may make the circuit breaker inoperable.

5. **The date on which the information of the deviation was obtained.**

   The identification of a potential safety concern was made by GE-NE on December 6, 2001. A potentially reportable condition evaluation was opened by GE-NE on December 20, 2001.

6. **In the case of deviations in a basic component, provide the location of all such components, serial number, drawing numbers, etc.**

   See item 2 above.

7. **Corrective or remedial Actions.**

a. A transfer of information has been performed to inform affected plants of the potential cutoff switch defect.
b. Instruction for test and corrective actions are supplied.

8. **Any advice related to the deviation, which may be given to purchasers or licensees.**

There is a low probability that a cutoff switch with a defective stationary contact assembly stud would have been installed into an AK-15, AK-25 or AKR-30S circuit breaker. This judgment is based on the ease of detection of the condition and that no failure of this type has been reported.

Based on the above the following recommendations are made.

a. Inspect any cutoff switch, part 622C505G1, located in inventory as soon as possible for a loose fastener or defective thread condition. Attempt to tighten the contact assembly fastener to a value of six to eight inch pounds. If unable to tighten to this value discard the cutoff switch and replace. There is no repair or rework recommendation.

b. Inspect the cutoff switch installed in electrical and electrical/manual AK-15 AK-25 and AKR-30S circuit breakers at the next available opportunity.

1. The inspection can be performed by removing the circuit breaker escutcheon, which gives access to the cutoff switch

2. Inspect the contact assembly fastener and insulating bushing (Reference Figure 1). If they are present but loose remove the circuit breaker from service. The loose insulating bushing and fastener are a prime indicator that the assembly stud threads are defective. If they are missing remove the circuit breaker from service discard the cutoff switch and replace. There is no repair or rework recommendation.

3. If a contact assembly fastener is found loose, remove the cutoff switch from the circuit breaker. Attempt to tighten the contact assembly fastener to a value of six to eight inch pounds. If unable to tighten to this value discard the cutoff switch and replace. There is no repair or rework recommendation.

c. Inspect the cutoff switch installed in electrical and electrical/manual AK-15 AK-25 and AKR-30S circuit breakers at the next maintenance interval.

1. Inspect the contact assembly fastener of all cutoff switches that have not been inspected under a. or b. above. Assure that the contact assembly fastener can be tightened to a torque value of six to eight inch pounds. If unable to tighten to this value discard the cutoff switch and replace. There is no repair or rework recommendation.

Attachment 1 – Potentially Affected Plants

	Utility	Plant
	AmerGen Energy Co.	Clinton
X	AmerGen Energy Co.	Oyster Creek
	Carolina Power & Light Co.	Brunswick 1
	Carolina Power & Light Co.	Brunswick 2
X	Constellation Nuclear	Nine Mile Point 1
	Constellation Nuclear.	Nine Mile Point 2
	Detroit Edison Co.	Fermi 2
X	Dominion Generation	Millstone 1
	Energy Northwest	Columbia
X	Entergy Nuclear Northeast	FitzPatrick
X	Entergy Nuclear Northeast	Pilgrim
	Entergy Operations, Inc.	Grand Gulf
	Entergy Operations, Inc.	River Bend
	Exelon Generation Co.	CRIT Facility
X	Exelon Generation Co.	Dresden 2
X	Exelon Generation Co.	Dresden 3
X	Exelon Generation Co.	LaSalle 1
X	Exelon Generation Co.	LaSalle 2
	Exelon Generation Co.	Limerick 1
	Exelon Generation Co.	Limerick 2
	Exelon Generation Co.	Peach Bottom 2
	Exelon Generation Co.	Peach Bottom 3
X	Exelon Generation Co.	Quad Cities 1
X	Exelon Generation Co.	Quad Cities 2
	FirstEnergy Nuclear Operating Co.	Perry 1
X	Nebraska Public Power District	Cooper
	Nuclear Management Co.	Duane Arnold
X	Nuclear Management Co.	Monticello
	Pooled Equipment Inventory Co.	PIM
X	PPL Susquehanna LLC.	Susquehanna 1
X	PPL Susquehanna LLC	Susquehanna 2
	Public Service Electric & Gas Co.	Hope Creek
X	Southern Nuclear Operating Co.	Hatch 1
X	Southern Nuclear Operating Co.	Hatch 2
X	Tennessee Valley Authority	Browns Ferry 1
X	Tennessee Valley Authority	Browns Ferry 2
X	Tennessee Valley Authority	Browns Ferry 3
X	Vermont Yankee Nuclear Power Corp.	Vermont Yankee

Potentially Affected Plants (continued)

	Utility	Plant
	Ameren/UE Corp.	Callaway
X	AmerGen Energy	Three Mile Island 1
	Arizona Nuclear Power Project	Palo Verde 1
	Arizona Nuclear Power Project	Palo Verde 2
	Arizona Nuclear Power Project	Palo Verde 3
	Carolina Power & Light	Robinson
	Carolina Power & Light	Shearon Harris
X	Constellation Nuclear	Calvert Cliffs 1
X	Constellation Nuclear.	Calvert Cliffs 2
X	Dominion Generation	Millstone 2
	Dominion Generation	Millstone 3
	Dominion Generation	North Anna 1
	Dominion Generation	North Anna 1
	Dominion Generation	Surry 1
	Dominion Generation	Surry 2
	Duke Energy Nuclear LLC	Catawba 1
	Duke Energy Nuclear LLC	Catawba 2
X	Duke Energy Nuclear LLC.	Oconee 1
X	Duke Energy Nuclear LLC.	Oconee 2
X	Duke Energy Nuclear LLC.	Oconee 3
	Duke Power Co.	McGuire 1
	Duke Power Co.	McGuire 2
X	Entergy Nuclear	Arkansas Nuclear One 1
X	Entergy Nuclear	Arkansas Nuclear One 2
	Entergy Nuclear	Indian Point 2
	Entergy Nuclear	Indian Point 3
	Exelon Generation Co.	Braidwood 1
	Exelon Generation Co.	Braidwood 2
	Exelon Generation Co.	Byron 1
	Exelon Generation Co.	Byron 2
	Exelon Generation Co.	Zion 1
	Exelon Generation Co.	Zion 2
X	First Energy Nuclear Operations Co.	Beaver Valley 1
X	First Energy Nuclear Operations Co.	Beaver Valley 2
	Entergy Operations, Inc.	Waterford 3
	FirstEnergy Nuclear Operating Co.	Davis-Besse

Potentially Affected Plants (continued)

	Utility	Plant
X	Florida Power & Light Co.	St. Lucie 1
X	Florida Power & Light Co.	St. Lucie 2
	Florida Power & Light	Turkey Point 3
	Florida Power & Light	Turkey Point 4
X	Florida Power Corp.	Crystal River 3
	Indiana Michigan Power	Cook 1
	Indiana Michigan Power	Cook 2
X	Maine Yankee Atomic Power Co.	Maine Yankee
	North Atlantic Energy Service Corp.	Seabrook
	Nuclear Management Co.	Kewaunee
	Nuclear Management Co.	Palisades
	Nuclear Management Co.	Point Beach 1
	Nuclear Management Co.	Point Beach 2
	Nuclear Management Co.	Prairie Island 1
	Nuclear Management Co.	Prairie Island 2
X	Omaha Public Power District	Fort Calhoun
	Pacific Gas & Electric Co.	Diablo Canyon 1
	Pacific Gas & Electric Co.	Diablo Canyon 2
	PSEG Nuclear LLC	Salem 1
	PSEG Nuclear LLC	Salem 2
	Rochester Gas & Electric Corp.	Ginna
	South Carolina Electric & Gas Co.	Summer
	South Texas Project Nuclear Operating Co.	South Texas Project 1
	South Texas Project Nuclear Operating Co.	South Texas Project 2
X	Southern California Edison Co.	San Onofre 2
X	Southern California Edison Co.	San Onofre 3
X	Southern Nuclear Operating Co.	Farley 1
X	Southern Nuclear Operating Co.	Farley 2
	Southern Nuclear Operating Co.	Vogtle 1
	Southern Nuclear Operating Co.	Vogtle 2
	Tennessee Valley Authority	Sequoyah 1
	Tennessee Valley Authority	Sequoyah 2
	Tennessee Valley Authority	Watts Bar 1
	TXU Electric Generation Co.	Comanche Peak 1
	TXU Electric Generation Co.	Comanche Peak 2
	Wolf Creek Nuclear Operating Corp.	Wolf Creek