



April 7, 1983

Docket No. 50-461

Mr. James G. Keppler
Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

SUBJECT: 10CFR PART 21 DEFECT
ELECTROSWITCH SERIES 20K CONTROL SWITCHES

Dear Mr. Keppler:

On February 23, 1982, Mr. F. C. Downey of General Electric notified Mr. J. D. Geier, Illinois Power Company, of a potential reportable defect per 10CFR Part 21 regarding Electros witch Series 20K switches supplied by the Electros witch Corporation to General Electric for use in NSSS equipment at Clinton Power Station. Based upon an evaluation, Illinois Power is notifying the Commission of a 10CFR Part 21 defect. This report provides information as required by 10CFR Part 21.21 (3).

- (i) D. P. Hall, Vice President of Illinois Power Company, by means of this report, hereby informs the Commission of a 10CFR Part 21 defect.
- (ii) The basic components involved are electrical switches, 3 position with spring return to mid position, Electros witch Series 20K, manufactured by the Electros witch Corporation during the period of early 1976 through May, 1981.
- (iii) The electrical switches were manufactured by the Electros witch Corporation, Weymouth, Massachusetts, 02188. (telephone (617)-335-5200, Mr. W. Mello)
- (iv) In the event the switch handle is rotated to either extreme position and released so as to cause an accelerated snapping action on its return to normal (center) position, the "normal after" contacts (slip contacts) can index an additional

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position. This overtravel condition could cause the "normal after" contacts to misoperate, thereby giving false indication as to actual switch position. Failure of the switch to perform as intended could result in safety functions not being performed automatically. Although there may be an indication to the operator which would alert him to this problem, the situation could result in a condition or circumstance that could contribute to the exceeding of a safety limit after the plant is operational.

- (v) Illinois Power was notified by General Electric on February 26, 1982 of a potential defect in the Electros witch Series 20K switches.
- (vi) Electros witch Series 20K switches are used in class 1E systems and are used both for indicating lights and for automatic start circuits. Attachment A is a tabulation (total 62) of the non-NSSS safety-related Electros witch Series 20K switches used at Clinton Power Station. Attachment B is a tabulation (total 18) of the NSSS safety-related Electros witch Series 20K switches used at Clinton Power Station.
- (vii) All Electros witch Series 20K switches used in safety-related applications will be replaced by a redesigned version of the switch manufactured by Electros witch to correct the problem. The modified switch has two shafts and a detent housing for the "normal after" contacts. This redesign significantly reduces the spring return snapping action that resulted in the indexing of the slip contacts. The detent prevents the overtravel condition. The number of lip contact stages has also been reduced on the redesigned switches. In some instances, separate auxiliary relays will be added to obtain the required number of contacts.

The replacement Series 20K switches will be provided with the original IEEE qualification documents. However, Electros witch is in the process of a new qualification program on the switches, which should be complete in the first quarter of 1984. Illinois Power will obtain the new qualification documents upon completion of the tests.

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Revision of design documents affected by the replacement will be performed by General Electric for switches in the NSSS scope plus those documents associated with the Power Generation Control Panels. Sargent & Lundy (CPS Architect - Engineer) will be responsible for modifying non-NSSS documents.


Procurement of the replacement switches will be the responsibility of Baldwin Associates (IP Contractor) using procurement documentation furnished by Sargent & Lundy.

Physical replacement of the switches will be performed by Baldwin Associates using documentation furnished by General Electric and Sargent & Lundy. The replacement of the switches is expected to be complete by December 31, 1983.

(viii) Not applicable

Our evaluation of this reportable defect is available for your review at our offices. I trust that this letter provides sufficient information for your review and analysis of the problem.

Sincerely yours,



D. P. Hall
Vice President

attachments

cc: H. H. Livermore, U. S. NRC Resident Inspector
Illinois Department of Nuclear Safety
Manager - Quality Assurance
Director of Inspection and Enforcement - 3 copies

Attachment A
Non-NSSS Safety Related Electros witch Series 20K Switches

<u>Switch ID (LHS-)</u>	<u>Panel Location</u>	<u>Service</u>
AP208A	P877-14C	4160V SWGR 1A1 BRKR 252-201A1
AP209A	P877-14C	4160V SWGR 1A1 BRKR 252-221A1
AP210A	P877-15C	4160V SWGR 1B1 BRKR 252-201B1
AP211A	P877-15C	4160V SWGR 1B1 BRKR 252-221B1
AP952	P877-14C	4160V BUS 1A1 TO 480V BRKR 252-AT1AA1
AP953	P877-15C	4160V BUS 1B1 TO 480V BRKR 252-AT1BB1
DG216A	P877-14C	4160V SWGR 1A1 BRKR 252-DG1A
DG217A	P877-15C	4160V SWGR 1B1 BRKR 252-DG1B
DO002	P877-14C	DG FUEL OIL TRANS PUMP 1A
DO005	P877-15C	DG FUEL OIL TRANS PUMP 1B
DO009	P601-16C	DG FUEL OIL TRANS PUMP 1C
FC106	P800-62C	FC PUMP 1FC02PA
FC107	P800-62C	FC PUMP 1FC02PB
SX007	P601-20C	SHUTDOWN SERVICE WATER PMP 1A
SX008	P601-17C	SHUTDOWN SERVICE WATER PMP 1B
SX009	P601-16C	SHUTDOWN SERVICE WATER PMP 1C
VD001	P801-66B	DG ROOM 1A SPLY FAN 1A
VD002	P801-67B	DG ROOM 1B SPLY FAN 1B
VD003	P800-64B	DG ROOM 1C SPLY FAN 1C
VD010	P801-66B	DG EXH FAN 2A
VD011	P801-67B	DG EXH FAN 2B
VD012	P800-64B	DG EXH FAN 2C
VG001	P801-66C	SGTS TRAIN A EXH FAN 2A

Attachment A
Non-NSSS Safety Related Electroswitch Series 20K Switches

<u>Switch ID (LHS-)</u>	<u>Location</u>	<u>Panel Service</u>
VG002	P801-66C	SGTS TRAIN A COOLING FAN 3A
VG101	P801-67C	SGTS TRAIN B EXH FAN 2B
VG102	P801-67C	SGTS TRAIN B COOLING FAN 3B
VH001	P801-66B	SHUTDOWN SERVICE WTR VENT FAN 1A
VH002	P801-67B	SHUTDOWN SERVICE WTR VENT FAN 1B
VH003	P800-64B	SHUTDOWN SERVICE WTR VENT FAN 1C
VP001	P801-66C	DIV 1 DRYWELL COOLER FAN 1A
VP002	P801-66C	DIV 1 DRYWELL COOLER FAN 1C
VP003	P801-67C	DIV 1 DRYWELL COOLER FAN 1B
VP004	P801-67C	DIV 1 DRYWELL COOLER FAN 1D
VP007	P801-66C	DRYWELL CHILLED WATER PUMP 03PA
VP008	P801-67C	DRYWELL CHILLED WATER PUMP 03PB
VX001	P801-66B	SWGR SPLY FAN 3A
VX002	P801-67B	SWGR SPLY FAN 3B
VX003	P800-64B	SWGR SPLY FAN 3C
VX040	P801-66B	BATTERY RM EXH FAN 1VX05CA
VX041	P801-67B	BATTERY RM EXH FAN 1VX05CB
VX042	P800-64B	BATTERY RM EXH FAN 1VX05CC
VX050	P801-66B	BATTERY RM EXH FAN 1VX11CA
VX051	P801-67B	BATTERY RM EXH FAN 1VX11CB
VX070	P801-66B	BATTERY RM EXH FAN 1VX12CA
VX071	P801-67B	BATTERY RM EXH FAN 1VX12CB
VY001	P801-66B	ECCS EQUIP AREA CLG LPCS PUMP RM FAN 1C

Attachment A
Non-NSSS Safety Related Electros witch Series 20K Switches

<u>Switch ID (LHS-)</u>	<u>Location</u>	<u>Panel Service</u>
VY002	P801-66B	ECCS EQUIP AREA CLG RHR PUMP RM FAN 2C
VY003	P801-66B	ECCS EQUIP AREA CLG RHR HT EXCH RM A
VY004	P801-66B	ECCS EQUIP AREA CLG RCIC PUMP ROOM HC
VY005	P801-67B	ECCS EQUIP AREA CLG RHR HT EXCH ROOM B
VY006	P801-67B	ECCS EQUIP AREA CLG RHR HT EXCH ROOM B
VY007	P801-67B	ECCS EQUIP AREA CLG RHR PUMP ROOM C
VY008	P800-64B	ECCS EQUIP AREA CLG HPCS PUMP ROOM
JY009	P800-64B	ECCS EQUIP AREA CLG HPCS PUMP ROOM
(OHS-)		
VC001	P801-66C	CONTROL ROOM TRAIN A SPLY FAN 3CA
VC004B	P801-66C	TRAIN A MAKE-UP AIR FAN 05CA
VC071	P801-66C	EQUIP RM SUPPLY FAN 18CA
VC101	P801-67C	CONTROL RM TRAIN B FAN 3CB
VC104B	P801-67C	TRAIN B MAKE-UP AIR FAN 05CB
VC171	P801-67C	EQUIP RM SUPPLY FAN 18CB
VQ013	P800-64C	DRYWELL PURGE SYS FAN 0VQ03CA
VQ016	P800-64C	DRYWELL PURGE SYS FAN 0VQ03CB

Attachment B

NSSS Safety Related Electros witch Series 20K Switches

<u>Switch ID</u>	<u>Panel Location</u>	<u>Service</u>
1C11BS003A	P601-22C	CRD Pump 1A*
1C11BS003B	P601-22C	CRD Pump 1B*
1C41AS001A	P601-19B	SLC Pump 1A & Squib Valve F004A
1C41AS001B	P601-18B	SLC Pump 1B & Squib Valve F004B
1E12AS003A	P601-20C	RHR Pump C002A
1E12AS003B	P601-17C	RHR Pump C002B
1E12AS003C	P601-17C	RHR Pump C002C
1E12AS057	P601-17C	RHR Water Leg Pump
1E21AS006	P601-21C	LPCS Pump C001
1E21AS007	P601-21C	LPCS Water Leg Pump C002
1E22AS003	P601-16C	HPCS Standby Water Leg Pump C003
1E22AS015	P601-16C	HPCS Pump
1E22BS007	P601-16C	Breaker No. 3 Control
1E22BS009	P601-16C	Breaker No. 4 Control
1E22BS010	P601-16C	Breaker No. 1 Control
1E22BS015	P601-16C	4160V Bus 1C1 Reserve Feed Breaker
1E51AS015	P601-21C	Gland Seal Air Compressor
1E51AS033	P601-21C	RCIC Water Leg Pump

* Non 1E switches, but require replacement due to service