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Publicly Available

NUCLEAR REGULATORY COMMISSION
SHARED INFORMATION NETWORK
OPERATIONS OFFICERS SUPPORT SYSTEM
EVENT NOTIFICATION - POWER FACILITIES

EVENT NUMBER: 23289

FACILITY:	FORT CALHOUN	EVENT DATE:	04/20/
UNIT NO:	1	EVENT TIME:	15:24
REGION:	4	NOTIFY DATE:	04/20/
DOCKET NO:	050-00285 - -	NOTIFY TIME:	17:32
LICENSE TYPE:	Power reactor	CALLER:	TERRY
STATE:	NE	OPS OFFICER:	THOMAS
EMERGENCY:	N/A Not applicable	NOTIFIED:	RDO T
LICENSE NO:	DPR 040		EO A
LICENSEE:	OMAHA PUBLIC POWER DISTRICT		
REPORT REQUIRED BY:	IND 50.72 (b)(2)(iii)(D)		

UNIT	SCRAM CD	RX CRITL	INIT PWR	INIT RX MODE	CURR PWR	CURR RX
1	N	N	000	Mode 5 - Cold s	000	Mode 5 -

DESCRIPTION TEXT

CRACKING OF CAM FOLLOWERS ON SBM CONTROL SWITCHES FOR 4160V SWITCHGEAR.
DURING A CLOSE OUT OF AN INCIDENT REPORT (IR 920166), AN INSPECTION OF THE SWITCH FOR RAW WATER PUMP AC-10A REVEALED THAT A PLASTIC CAM FOLLOWER FOR ONE OF THE ENCLOSED CONTACTS HAD CRACKED AND RENDERED THAT SINGLE CONTACT UNABLE TO CLOSE. THE CRACKING IS BELIEVED TO BE CAUSED BY HYDROCARBON CONTAINED IN CLEANING AGENTS APPLIED TO THE SWITCH DURING MANUFACTURE AND MAINTENANCE.
FOLLOWING THE IDENTIFICATION OF THE AC-10A SWITCH FAILURE MECHANISM, A SPOT CHECK OF THE 4160V SWITCHGEAR CUBICLES ON APRIL 18 FOUND THAT ABOUT 20% OF THE FORT CALHOUN STATION SWITCHES HAD LEXAN (CLEAR PLASTIC) CAM FOLLOWERS AND 80 % OF A DELRIN (MILKY WHITE PLASTIC) MATERIAL. THE DELRIN CAM FOLLOWERS DO NOT EXHIBIT THE CRACKING PROBLEM.
AS A RESULT OF THE APRIL 18 INFORMAL INSPECTION, A SYSTEMATIC INSPECTION OF 100% OF THE CAM FOLLOWERS WAS CONDUCTED ON A TOTAL OF 191 SWITCHES. FORTY SWITCHES WITH LEXAN CAM FOLLOWERS SHOWED INDICATIONS OF CRACKING. FIFTEEN OF FORTY SWITCHES HAD MISSING PIECES OF CAM FOLLOWER MATERIAL. AN ADDITIONAL SIX OF THE 40 HAD OPEN CRACKS.
BASED UPON EVALUATION OF THE SWITCH FAILURE MECHANISM, IT HAS BEEN DETERMINED THAT A POTENTIAL COMMON MODE FAILURE MECHANISM EXISTS FOR A PIECE OF BROKEN CAM FOLLOWER TO JAM THE SBM ROTATING MECHANISM FOR AN ASSEMBLY OF THE SWITCHES WHICH FEEDS MULTIPLE COMPONENTS AND FUNCTIONS. BASED ON THE ABILITY TO MANUALLY OPERATE BREAKERS, FAILURE OF CRACKED SWITCHES WAS DETERMINED TO HAVE NO IMMEDIATE SAFETY IMPLICATIONS WITH THE PLANT IN A SHUTDOWN MODE.
REPLACEMENT OF 4160V SWITCHGEAR SBM SWITCH ASSEMBLIES WITH OPEN CRACKS OR MISSING PIECES IS IN PROGRESS IN A SEQUENCE COMPATIBLE TO SUPPORT SAFETY FUNCTIONS DURING HEATUP AND PLANT RESTART. OTHER ACTIONS TO ADDRESS SWITCH CRACKING ARE BEING DEVELOPED.
THE LICENSEE ALSO NOTED THAT THEY SUCCESSFULLY COMPLETED SAFEGUARDS TESTING

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IN THE PAST COUPLE OF WEEKS IN WHICH THESE SWITCHES SATISFACTORILY PERFORMED THEIR DESIGN FUNCTION.
THE NRC RESIDENT INSPECTOR HAS BEEN NOTIFIED. NO OTHER NOTIFICATIONS ARE REQUIRED OR ANTICIPATED.