

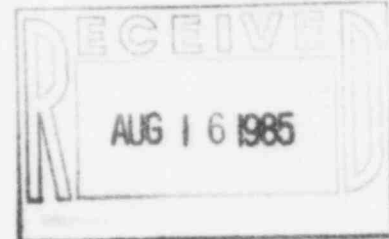


KANSAS GAS AND ELECTRIC COMPANY

GLENN L. KOESTER
VICE PRESIDENT - NUCLEAR

August 12, 1985

Mr. R.P. Denise, Director
Division of Reactor Safety and Projects
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011



KMLNRC 85-196
Re: Docket No. 50-482
Ref: KMLNRC 85-195 dated 08/09/85
from G.L. Koester, KG&E, to R.P. Denise, NRC
Subj: Cutler-Hammer Type E30 Pushbutton Switches

Dear Mr. Denise:

The purpose of this letter is to provide additional information concerning Cutler-Hammer Type E30 pushbutton switches installed at Wolf Creek Generating Station (WCGS). Pursuant to your request of August 9, 1985, a description of the operational concern regarding these switches, investigations and analyses that have been or are being performed, interim compensatory actions, and plans regarding resolution of this concern are herewith provided.

On July 12, 1985, at 1246 hours Central Daylight Time a Control Room Ventilation Isolation Signal (CRVIS) occurred as a result of an electrical "spike" on Control Room intake radiation monitor GK-RE-04. All required Engineered Safety Features equipment responded properly with the exception of Control Building dampers GK-HZ123 A, B, and C which failed to close on the isolation signal. Redundant Control Building dampers GK-HZ13 A, B, and C did close on the isolation signal, thereby isolating air flow to and from the affected areas. This event was fully described in Licensee Event Report 85-057-00 transmitted by the reference.

A work request was immediately written to investigate the failure of these dampers to reposition during the CRVIS. The electrician investigating this matter determined that momentary contact pushbutton handswitch GK-HIS 123 was not in its normal operating position. The pushbutton plunger which is normally flush with the rear of the contact blocks was in an extended position. The electrician adjusted the alignment of the associated contact blocks at which time the plunger retracted and the affected dampers repositioned since the isolation signal was still present.

The Cutler-Hammer Type E30 pushbutton switches are comprised of a spring return pushbutton with an upper and lower stack operating plunger. Up to four (4) single circuit contact blocks (Types KLA1 and KLA2) or two (2) two circuit contact blocks (Types KLA3, KLA4, and KLA5) can be stacked behind both the upper and lower stack operating

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plungers. Each single circuit contact block contains a pair of contact terminals and rectangular spring return plunger/contacter which is moved by the stack operating plunger in the pushbutton switch (See Attachment). Two circuit contact blocks are identical to the single circuit contact blocks except a longer contact block and two pairs of contact terminals are provided. Two single circuit contact blocks can be utilized in place of a single two circuit contact block. The contact blocks are secured to the pushbutton switch with screws. Alignment pins are also provided to insure good contact block alignment with virtually no alignment "free play".

While gathering information for Licensee Event Report 85-057-00 further investigation of this matter was deemed warranted. An Engineering Evaluation Request was prepared on July 25, 1985 in order to fully investigate this concern. Two additional switches (GG-HIS 44, AC-HS 181B) were observed by Engineering. Hand indicating switch GG-HIS 44, associated with the Fuel Building Heating, Ventilation and Air Conditioning System (HVAC), was observed to have its plunger/contacter extended beyond the back of the contact block. Handswitch AC-HS 181 B, associated with the Main Turbine System, was also inspected, however, its plunger/contacter was observed to be in the normal position. All inspected switches utilized two circuit contact blocks.

GG-HIS 44 was removed to facilitate in-depth examination and was replaced with a pushbutton switch assembly composed of single circuit contact blocks. Although not easily reproducible, the plunger/contacter of a two circuit contact block did at times remain in the extended position after its associated pushbutton was released. The affected contact block was removed from the pushbutton switch assembly and shipped to Cutler-Hammer for further evaluation. Preliminary investigation by Cutler-Hammer identified a piece of foreign material near the contacts which may have "bound" the plunger/contacter.

Subsequently GK-HIS 123 was removed and replaced with a pushbutton switch assembly composed of single circuit contact blocks. The "bound" plunger/contacter condition was repetitively duplicated on this hand indicating switch. The entire pushbutton switch assembly has been shipped to Cutler-Hammer for further evaluation.

As a result of these events and the fact that all observed problems had occurred on switches utilizing the two circuit contact blocks Engineering requested that all safety-related momentary contact Cutler-Hammer Type E30 pushbuttons switches, including those recently replaced, be inspected to determine the type of contact block assemblies and the "as found" plunger/contacter position. These inspections, which involved approximately 478 switches, were completed on August 9, 1985. The information obtained from these inspections is going through a final reconciliation effort to assure overall accuracy. The finalized inspection results will be transmitted by separate cover. During the inspections three safety-related pushbutton switches were observed with their plunger/contacters in an extended position (BM-HIS 4A, Steam Generator Blowdown System; GT-HIS 28,

Containment Air Purification and Cleanup System; EG-HIS 102, Component Cooling Water System).

Due to evidence suggesting a possible generic problem and the potential consequences of a pushbutton switch plunger/contactator failing to return to its normal position Kansas Gas and Electric Company (KG&E) instituted several compensatory measures, which are described below, to give added assurance that the identified operational concern with these switches would not affect the safe operation of Wolf Creek Generating Station.

All safety-related switches of this type will be identified with a small label. Any Operator using one of these switches will immediately verify that the plunger/contactator is not extended from the back of the switch. If the Operator cannot practically verify the plunger/contactator position, an electrician will be notified to promptly perform this surveillance. Any switch observed with its plunger/contactator in the extended position will be identified on a work request and the Superintendent of Operations will be notified.

In the event of a plant emergency, an electrician shall be notified to report to the Control Room to observe and verify normal switch operation and, with Operator consent, reset any plunger/contactors observed to remain in the extended position. Resetting a switch plunger/contactator involves applying pressure to the end of the plunger/contactator, this restores the switch to normal operation.

Additionally a weekly independent inspection of all identified switches will be performed to confirm that all plunger/contactors are in their normal position. The frequency of this independent verification may be adjusted on the basis of information gathered on switch performance. Any pushbutton switch identified as having a plunger/contactator in a "bound" condition will be replaced contingent upon the availability of replacement pushbutton switch assemblies and/or single circuit contact blocks, and appropriate plant conditions.

A review of all WCGS Emergency Operating Procedures has identified references to approximately 157 of the potentially affected switches. An initial review of switch function by Shift Supervisors revealed no situation where there would not be adequate time to verify the plunger/contactator position prior to subsequent usage.

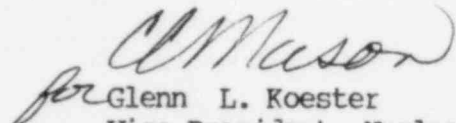
A separate Engineering analysis identified that the preponderance of applications for the affected safety-related switches are valves and HVAC dampers. This engineering analysis has identified all situations where an individual stack plunger/contactator in the "bound" condition could inhibit an automatic Engineered Safety Features Actuation; whether this would or would not be obvious to the Operator; and whether manual switch actuation resulting in a "bound" plunger/contactator condition could inhibit subsequent component actuation. The detailed results of this analysis are being verified and will be transmitted by separate cover.

Cutler-Hammer, KG&E and Bechtel are continuing to investigate this matter in order to completely resolve the operational concerns

associated with these switches. However, it is KG&E's position that the compensatory actions initiated are both thorough and conservative. The aforementioned actions assure the continued safe operation of Wolf Creek Generating Station.

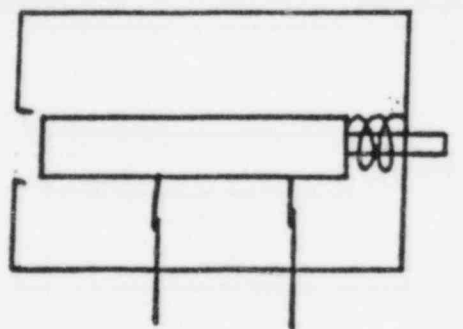
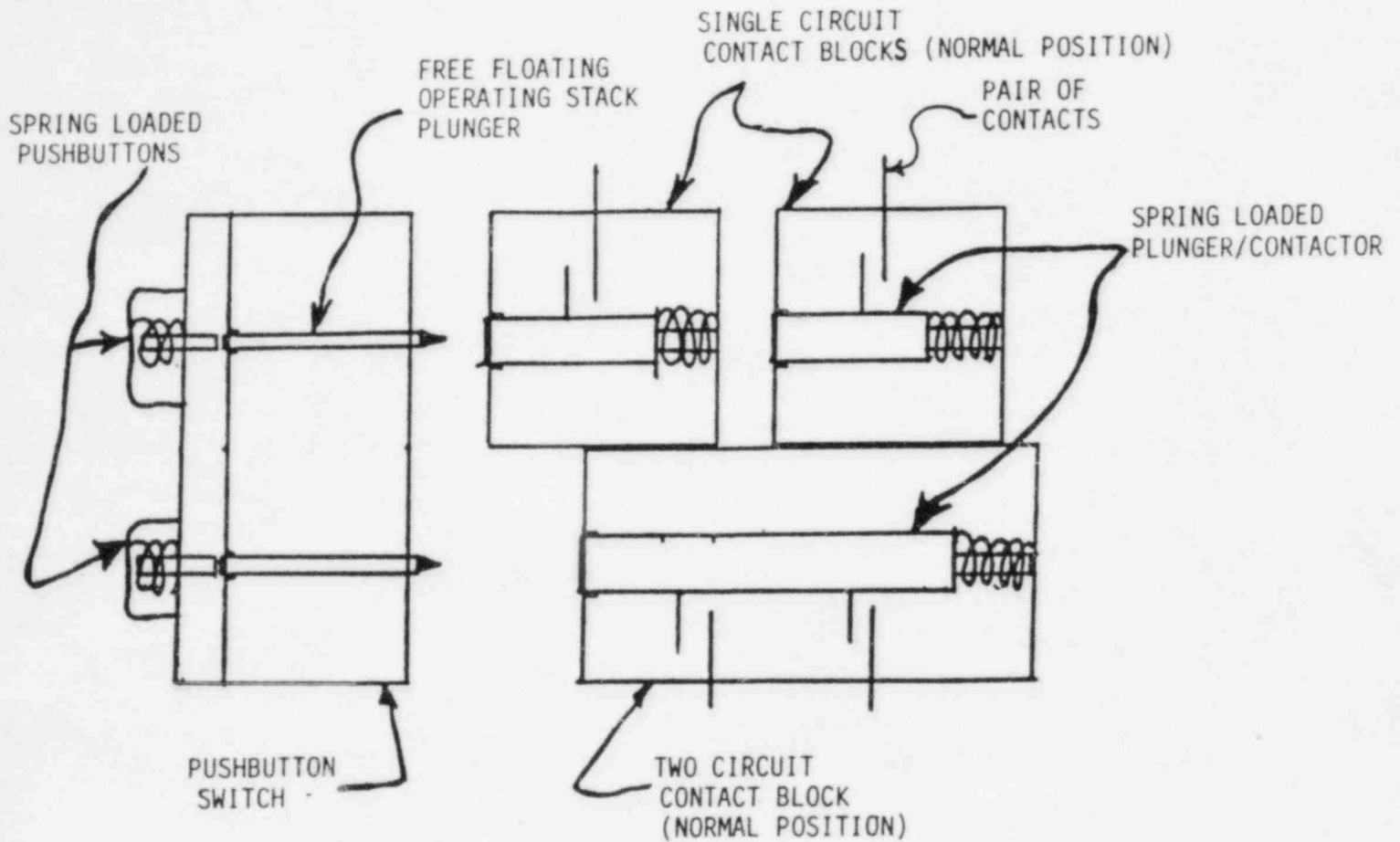
If you have any additional questions concerning this matter, please contact me or Mr. Otto L. Maynard of my staff.

Yours very truly,


for Glenn L. Koester
Vice President, Nuclear

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TWO CIRCUIT CONTACT BLOCK (PLUNGER/CONTACTOR EXTENDED)