

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INTERNATIONAL PROGRAMS
WASHINGTON, DC 20555

PRIORITY

UNCLASSIFIED

Original Signed by
Howard J. Faulkner



JULY 2, 1982

X

H.J. FAULKNER / J.D. LAFLEUR, JR., OIP

492-7788

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MR. BORUT MAVKO, IJS
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INFO: U.S. EMBASSY - BELGRADE
ATTN: S. SMITH, SCI
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THE ADDITIONAL INFORMATION PROVIDED TO US REGARDING THE KRSKO STEAM GENERATOR MODIFICATIONS DO NOT CHANGE ANY OF OUR INTERIM COMMENTS SENT TO YOU ON JUNE 9. AS STATED THEN, THE PROPOSED MODIFICATIONS SEEM REASONABLE TO OUR REVIEW EXPERTS. HOWEVER, BECAUSE OF BOTH LIMITED INFORMATION AND LIMITED TIME, OUR EXPERTS WERE UNABLE TO COMPLETE A FULL AND FINAL EVALUATION.

IN CONNECTION WITH YOUR INTEREST REGARDING THE POSSIBLE DELETION OF THE LOW FEED FLOW TRIP, YOUR FOUR QUESTIONS AND OUR RESPONSES FOLLOW.

QUESTION 1 - WHICH WESTINGHOUSE U.S. PLANTS ARE OPERATING WITHOUT THE LOW FEED FLOW TRIP (STEAM FLOW/FEED FLOW MISMATCH AND LOW STEAM GENERATOR LEVEL)?

ANSWER 1 - BASED ON DISCUSSIONS WITH WESTINGHOUSE ONLY MCGUIRE, UNIT 1 IS OPERATING WITHOUT THE TRIP. WE WERE INFORMED THAT IT HAS BEEN

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PROPOSED FOR DELETION ON SEVERAL OTHER OPERATING PLANTS.

QUESTION 2 - FROM WHICH WESTINGHOUSE U.S. OPERATING PLANTS WAS THE LOW FEED FLOW TRIP DELETED PRIOR TO AN OL AND AFTER AN OL?

ANSWER 2 - BASED ON DISCUSSION WITH WESTINGHOUSE THE TRIP WAS DELETED ON MCGUIRE, UNIT 1 PRIOR TO THE OL. WESTINGHOUSE WAS NOT AWARE OF ANY PLANTS FOR WHICH THE TRIP WAS DELETED AFTER THE OL. THE TRIP HAS BEEN PROPOSED FOR DELETION ON ^{MOST} WESTINGHOUSE PLANTS CURRENTLY UNDER OPERATING LICENSE REVIEW.

QUESTION 3 - WHAT IS THE PRESENT NRC POSITION WITH RESPECT TO THE LOW FEED FLOW TRIP? IN CASE OF DELETION, ARE THERE ANY ALTERNATE MEANS OF PROTECTION?

ANSWER 3 - THE LOW FEED FLOW TRIP FUNCTION WAS ADDED IN WESTINGHOUSE-DESIGNED REACTORS BECAUSE THE STEAM GENERATOR LOW-LOW LEVEL TRIP DID NOT MEET THE CONTROL/PROTECTION SYSTEM INTERACTION CRITERIA OF IEEE STANDARD 279-1971 (SECTION 4.7). SPECIFICALLY, ONE OF THE LEVEL CHANNELS USED FOR THE LOW-LOW LEVEL TRIP FUNCTION WAS ALSO USED FOR STEAM GENERATOR LEVEL CONTROL. THEREFORE, A FAILURE OF THE CHANNEL CONTROLLING STEAM GENERATOR LEVEL (THE INITIATING EVENT) IN CONJUNCTION WITH A SINGLE FAILURE IN ONE OF THE TWO REMAINING LEVEL CHANNELS, WOULD PRECLUDE A LOW-LOW LEVEL TRIP. THUS THE FEED FLOW TRIP WAS ADDED TO MEET REGULATORY REQUIREMENTS. THE WESTINGHOUSE FIX WAS TO ADD ANOTHER STEAM GENERATOR LOW-LOW LEVEL CHANNEL FOR LEVEL CONTROL WHICH IS INDEPENDENT OF THE PROTECTION SYSTEM CHANNELS, SUCH THAT THE LOW-LOW LEVEL TRIP FUNCTION IN ITSELF COMPLIES WITH THE REQUIREMENTS OF IEEE-279. THE NRC STAFF POSITION IS THAT THIS MODIFICATION IS ACCEPTABLE. IN ADDITION, THE LOW FEED FLOW TRIP INPUT TO THE REACTOR PROTECTION SYSTEM WAS REPLACED WITH A HIGH STEAM PRESSURE RATE TRIP SIGNAL WHICH IS TIME DELAYED TO PREVENT

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SPURIOUS TRIPS. THIS ALLEVIATED OPERATIONAL PROBLEMS OF FREQUENT SPURIOUS TRIPS FROM THE LOW FEED FLOW FUNCTION.

AN ALTERNATE MEANS OF PROTECTION IS THE HIGH STEAM PRESSURE RATE TRIP FUNCTION WHICH REPLACES THE LOW FEED FLOW TRIP FUNCTION. IN ADDITION, ALL TRIP FUNCTIONS DIVERSE TO THE STEAM GENERATOR LOW-LOW LEVEL TRIP HAVE REMAINED UNAFFECTED BY DELETION OF THE LOW FEED FLOW TRIP.

QUESTION 4 - ^{WERE} WHERE THERE ANY BEST ESTIMATE COMPARATIVE ANALYSED PERFORMED FOR THE LOSS OF FEEDWATER ACCIDENT FOR THE CASE OF THE LOW-LOW STEAM GENERATOR LEVEL TRIP VERSUS THE LOW FEED FLOW TRIP?

ANSWER 4 - THE WESTINGHOUSE ACCIDENT ANALYSES HAVE NEVER TAKEN CREDIT FOR THE LOW FEED FLOW TRIP FOR THE MITIGATION OF ANTICIPATED OPERATIONAL OCCURRENCES OR ACCIDENTS. CREDIT IS TAKEN FOR THE STEAM GENERATOR LOW-LOW LEVEL TRIP INSTEAD.

I HOPE THIS INFORMATION IS HELPFUL IN YOUR STEAM GENERATOR SAFETY ASSESSMENT.

REGARDS. JOSEPH D. LAFLEUR, U.S.N.R.C.

END

Information for this Telex was provided by Bill Kane, NRR.

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