

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9808070049 DOC.DATE: 98/07/31 NOTARIZED: YES DOCKET #
 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
 50-316 Donald C. Cook Nuclear Power Plant, Unit 2, Indiana M 05000316
 AUTH.NAME AUTHOR AFFILIATION
 SAMPSON, J.R. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
 RECIP.NAME RECIPIENT AFFILIATION
 Records Management Branch (Document Control Desk)

SUBJECT: Forwards resolution of specific issues identified in insp
 repts 50-315/96-12 & 50-316/96-12. Resolution will enable
 NRC to close out review of GL 89-10 program.

DISTRIBUTION CODE: A064D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
 TITLE: Response to Generic Ltr 89-10, "Safety-Related MOV Testing & Surveill

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD3-3 PD	1 1	STANG, J	1 1
INTERNAL:	AEOD/SPD/RAB	1 1	<u>FILE CENTER 01</u>	1 1
	NRR/DE/EMEB	1 1	RES/DET/EIB/B	1 1
	RES/DST	1 1	RES/DST/PRAB	1 1
EXTERNAL:	NOAC	1 1	NRC PDR	1 1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE. TO HAVE YOUR NAME OR ORGANIZATION REMOVED FROM DISTRIBUTION LISTS
 OR REDUCE THE NUMBER OF COPIES RECEIVED BY YOU OR YOUR ORGANIZATION, CONTACT THE DOCUMENT CONTROL
 DESK (DCD) ON EXTENSION 415-2083

TOTAL NUMBER OF COPIES REQUIRED: LTTR 10 ENCL 10

Indiana Michigan
Power Company
500 Circle Drive
Buchanan, MI 49107 1373



July 31, 1998

AEP:NRC:0966AH

Docket Nos.: 50-315
50-316

U.S. Nuclear Regulatory Commission
ATTN:Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2
GENERIC LETTER (GL) 89-10, CLOSE OUT INFORMATION
SAFETY-RELATED MOTOR OPERATED VALVE (MOV)
TESTING AND SURVEILLANCE

Reference: Letter to E. E. Fitzpatrick from G. E. Grant, "NRC
Motor-Operated Valve (MOV) Close-Out Inspection Report
No. 50-315/96012 (DRS); 50-316/96012 (DRS) and Notice of
Violation", dated December 27, 1996.

The referenced inspection report concluded that there were several
items requiring resolution to enable the NRC to close out its
review of Cook Nuclear Plant's GL 89-10 program. The resolution of
the specific issues that were identified in the inspection report
are summarized in the attachment to this letter.

Sincerely,

J. R. Sampson
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 31st DAY OF July, 1998

Valerie A. Buswell
Notary Public

My Commission Expires 09-05-2002

/vlb

Attachment

c: J. A. Abramson
A. Dunlop - NRC Region III
MDEQ - DW & RPD
NRC Resident Inspector
C. J. Paperiello

9808070049 980731
PDR ADOCK 05000315
Q PDR

1/1
A064



ATTACHMENT TO AEP:NRC:0966AH

SUMMARY OF RESPONSES TO NRC MOTOR OPERATED VALVE (MOV) CLOSE-OUT
INSPECTION REPORT NO. 50-315/96012 (DRS); 50-316/96012 (DRS)

Inspection Report Item E.1.1.b.1.2

During the inspection, several motor operated valve (MOV) groupings were determined to have had minimal justification for the applied valve factor (VF). The specific valve groups were BAAC, GL10, and GL11. It was agreed that an attempt would be made to find additional data to support the use of the applied VF for these valve groups.

Additional information was received and incorporated into 0012-00204-R03, "Valve Factor Report".

Inspection Report Item E.1.1.b.1.3

One of the inspection follow-up items was the proposed modification to the pressurizer power operated relief valve block valves. The modification would allow the valves to support the use of the 0.51 VF with sufficient margin. This item remains open pending completion of the modification and inspector review of the obtained margin.

The modifications to the stem and wedges are complete. The modification increased the valves' structural thrust limit by replacement of stem and disc. At the same time, the test equipment accuracy was improved by the use of direct mounted strain gauges. When the structural limit was increased, the torque switches were reset to increase thrust margin.

Inspection Report Item E.1.1.b.1.5

This item requests the licensee to provide:

1. the methodology and justification to address open capability when the appropriate stem friction coefficient is taken into account;
2. for all valves with an open safety function, provide the valves' capability margin using the proposed methodology; and
3. provide assurance that this issue will continue to be addressed during the periodic verification program.

The methodology for open capability is to apply the coefficient of friction in the closed direction, along with a 15% rate of loading to determine the amount of thrust that can be produced in the open direction. The justification for this methodology is provided in reports 0012-00204-R01, "Stem Nut Coefficient of Friction", and 0012-00294-R02, "Rate of Loading". Application of this methodology to actuators with an open safety function found no actuators that have negative margin. To provide assurance of continued application, maintenance procedure 12-IHP 5030.EMP.002 has been revised.

Inspection Report Item E.1.1.b.1.6

This item requested, "...a revision to the static test acceptance criteria to address the motor-operated valve (MOV) unseating force versus the operator and valve structural limits, and operator capability needs to be completed prior to program review closure."

Maintenance testing procedure 12-IHP 5030.EMP.002 was revised to address unseating force and operator capability. The MOV thrust calculation was revised to include maximum open thrust and torque, and calculation section 7.11.5 was revised to include a check to determine whether thrust and torque are within acceptable limits.

Inspection Report Item E.1.1.b.1.9(a)

This item questioned the methodology for determining the torque necessary to open/close non-differential pressure tested butterfly valves. The method used involves calculating a bearing torque from similar valves that could be tested, then applying this bearing torque to the non-tested valves. The inspection report requested a formal response on the impact of the changes on the bearing equation and whether any proposed changes impacted the methodology.

A letter was received from the EPRI project manager, providing a copy of the new application guide. A review of the information found the bearing equation to be the same as used in the Cook Nuclear Plant closure form to calculate seating and unseating factors. Because the bearing question was not affected, our review concluded that there is no impact on our methodology.

Inspection Report Item E.1.1.b.1.9(b)

In our methodology for determining the torque necessary to close a butterfly valve, we assumed the closing torque for symmetrical butterfly valves is negligible, and therefore, it is not included when comparing actuator capability versus the required seating force. This was based on the 1993 EPRI application guide, page 3-47. The inspection report requested that a formal response on this issue be submitted. This request was based on testing that EPRI was performing at the time to validate the butterfly model.

A letter dated January 30, 1997, was received from the EPRI program manager, stating the testing performed confirmed that symmetric butterfly valves are self-closing. The revised application guide assumes that the torque requirements for such valves are zero, even though some flow assistance is expected. Therefore, we have concluded that our original assumption is still conservative.

Inspection Report Item E.1.1.b.1.9(c)

This item concerns applying structural weak link analysis to butterfly valves. The inspection report requests a summary tabulation detailing the structural and weak link margins. At the time of the inspection, we had no structural limits incorporated into the MOV torque calculation.

To accomplish this task, assistance of a contractor was obtained to provide the weak link analysis. The structural analyses for Pratt, Enertech, and Grinnell butterfly valves were completed first. These valves' dimensions were available from plant documentation or vendors. However, the analysis of the Centerline valves required certain valve dimensions that were not available from plant documents or from the vendor directly. Since the time the plant was constructed, the Centerline Company has been sold to Crane Nuclear. Discussions with Crane indicated that the original shop drawing could not be located, but Crane did provide dimensions for valves manufactured to the same requirements and in the same time

period. Because this is the best available data, the structural analysis for Centerline was performed with these dimensions. Once the structural weak links were calculated, the weak link torque limits were input to the closure form.

Condition report (CR) 97-1744 was written on valves that exceed the valve's continuous structural limits. The CR identified forty-one valves that exceed the continuous structural limit. The operability of the valves was assessed, and all were determined to be operable. These determinations are being reviewed to assess their acceptability using the current expectations for operability determinations. The new determinations are scheduled for completion by August 15, 1998. If any valves are determined to be inoperable following the review, they will be repaired in accordance with the Cook Nuclear Plant restart plan.

Inspection Report Item E.1.1.b.1.9(d)

This item serves as a placeholder, to indicate that the NRC will perform a review of our methodology for extrapolating tested torque to design basis conditions in conjunction with the review of items E.1.1.b.1.9(a), (b), and (c).

Inspection Report Item E.1.1.b.1.10

This item requested that, prior to program closure, the licensee submit any plans to address the licensee's marginal actuators.

On February 5, 1997, a review was performed of MOV thrust margin. As a result of this review, plans for increasing thrust margin for valves with less than 10% margin were generated. The review identified nineteen valves with less than 10% closed thrust margin. Additionally, four valves were identified with less than 10% open thrust margin.

The review divided the nineteen actuators with less than 10% closed thrust margin into three groups: 1) valve replacement; 2) stem and wedge replacement; and 3) torque switch increase. To date, groups 1 and 2 have been completed. The group 1 valves (1-QMO-225, 226, and 200) have been replaced. Valve replacement decreased the amount of thrust necessary to close the valve and therefore, increased the thrust margin. This group now has a margin greater than 10%. The group 2 valves have had the stem and wedges replaced to increase the structural thrust limit. This increase in structural limits allowed the torque switch setting to be increased, and thus, the margin increased. This group now has a margin greater than 10%. For group 3, the torque switch settings have been increased on six of the ten valves identified (2-FMO-211, 1-ICM-250, 2-IMO-331, 2-IMO-910, 2-IMO-911, and 2-IMO-350). The margin on one of these valves (2-IMO-911) remains less than 10%. The actuator capability still exceeds the valve thrust requirements for opening and closing. Therefore, no additional action is planned at this time. The remaining four valves (1-IMO-270, 2-IMO-270, 1-CCM-453, and 1-IMO-911) are scheduled to be worked during the next preventive maintenance cycle.

Of the four valves identified with less than 10% open thrust margin, one (2-IMO-256) was worked, but no problems could be found. The remaining three valves (1-IMO-256, 1-IMO-310, and 1-IMO-320) are scheduled to be worked during the next preventive maintenance cycle.

Inspection Report Item E.1.1.b.5

In April of 1996, CR 96-0687 was generated to document the manual operation of MOV 2-ICM-311 into the valve seat with enough force to exceed the torque switch settings. Of concern to the inspectors was the identification of many valves in the preliminary review that indicated maximum handwheel rim pull forces as low as 10 pounds. The inspectors requested that the resolution of the issue raised in the CR be forwarded to the NRC staff for their review.

The investigation of the CR determined that 2-ICM-311 had not been damaged as a result of overtorquing. To preclude hammer blow operation in the future, operations department guidance has been revised to prohibit use of the hammer blow feature.