

Docket

JAN 21 1974

Docket No. 50-331

Iowa Electric Light & Power Company
ATTN: Mr. Duane Arnold, President
Security Building
P. O. Box 351
Cedar Rapids, Iowa 52406

Gentlemen:

Inspection of hydraulic shock suppressors (snubbers) in nuclear power plants has revealed that a large percentage of the seals in units supplied by the Bergen-Patterson Company were defective and that defects can recur in six weeks time or less. Two different seal materials have been used in Bergen-Patterson (B-P) snubbers; a millable gum polyurethane which contains plasticizers and other additives and a molded polyurethane known to be free of these additives. Based on limited available information it is postulated that dissolving of the plasticizer into the silicone hydraulic fluid has caused seal shrinkage and deterioration. Therefore, millable gum polyurethane should not be used in hydraulic snubbers, except on an emergency basis.

The performance and reliability of molded polyurethane free of additives in a reactor environment has not yet been established. Test data indicate that an incompatibility may also exist between molded polyurethane and the silicone fluid which may limit the inservice life of the molded material. The use of molded polyurethane seals should, therefore, be considered only as an interim measure until more data is available or an improved material is established. Bergen-Patterson is coordinating a development program to determine a long-term solution to the current snubber problem.

Based on the above considerations, we are requiring that the following actions be taken. If the Duane Arnold Energy Center has B-P snubbers installed on any safety related systems, you will be required to modify the seals on these snubbers with a material that has been demonstrated to be compatible with the hydraulic fluid in the operating environment. If such a material is not available on a schedule compatible with your fuel loading date, the use of molded polyurethane seals known to be free of additives will be acceptable as an interim measure. However, you will be required to reinspect these interim seals whenever the reactor is shutdown for 24 hours or longer and these snubbers have not been inspected for 30 days, but in no event shall the interval between inspections exceed 120 days.

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Any defective units found during these inspections shall be repaired before returning to power operation. If unavailability of materials dictates the use of millable gum seals, only defective units need be repaired. Under these conditions, you will be required to reinspect every 30 days until compatible seal material is installed, which should be accomplished at the earliest practical time.

For those snubbers accessible during reactor operation, you will be required to reinspect the snubbers every 30 days or less and repair defective units as needed.

During the required inspections of B-P snubbers, you will also be required to inspect all snubbers supplied by manufacturers other than Bergen-Patterson. You will also be required to report the results of all inspections and any repairs or corrective actions taken to the Directorate of Licensing.

Periodic surveillance of all snubbers installed on safety related systems will be required by the Technical Specifications for the Duane Arnold Energy Center. If interim seal materials are used, the Technical Specifications must reflect the inspection and reporting requirements as discussed above. If seal materials of demonstrated compatibility with the hydraulic fluid and operating environment are used, the Technical Specifications should reflect inspection requirements that consider the potential degradation rate of the snubber seal material used and be consistent with assuring that the snubbers will perform satisfactorily when needed.

You are hereby requested to inform us within 60 days of your plans for making snubber seal modifications and to submit proposed Technical Specifications for a surveillance program for the snubbers in the Duane Arnold Energy Center.

Please contact us if you have any questions concerning this matter.

Sincerely,

/s/

R. C. DeYoung, Assistant Director
for Light Water Reactors Group 1
Directorate of Licensing

cc: See next page

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cc: Jack R. Newman, Esq.
Harold F. Reis, Esq.
Newman, Reis & Axelrad
1025 Connecticut Avenue, N.W.
Washington, D. C. 20036

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