



HELPING BUILD ARKANSAS

ARKANSAS POWER & LIGHT COMPANY

8TH AVENUE AND PINE STREET • PINE BLUFF, ARKANSAS 71601 • (501) 534-1330

July 16, 1973

Mr. D. F. Knuth
Director of Regulatory Operations
United States Atomic Energy Commission
Washington, D. C. 20545

SUBJECT: ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE - UNIT 1
DOCKET NO. 50-313
MAIN FUEL HANDLING BRIDGE

Dear Mr. Knuth:

On May 18, 1973, Arkansas Power & Light Company informed the Regulatory Operations Office in Atlanta, Georgia of a situation which could be considered reportable under 10 CFR 50.55(e), "Conditions of Construction Permits". This situation concerns the material of the lower tube of the control rod mast of the main fuel handling bridge at the location where the tube is held by six (6) cap screws and relates to deformed metal over these screws. Evaluation of this situation by our NSSS has been completed and the final report is attached.

POOR
ORIGINAL

Very truly yours,

J. D. Phillips
J. D. PHILLIPS
Senior Vice President

JDP:NAM:mb

cc: Mr. Norman C. Moseley, Director
Directorate of Regulatory Operations
Region II
United States Atomic Energy Commission
230 Peachtree Street, N.W. - Suite 818
Atlanta, Georgia

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ATTACHMENT

Letter Phillips to Knuth
July 16, 1973

MAIN FUEL HANDLING BRIDGE
CONTROL ROD MAST INCIDENT

Description of Incident

The lower section of the Control Rod Grapple tube on the main fuel handling bridge is fastened to the upper section by six (6) three-eighths inch (3/8") diameter cap screws. During checkout of the equipment, it was discovered that some of the screws were loose and that there was deformed metal over several screw holes. Failure of these screws could result in dropping the lower tube section of the fuel assemblies in the reactor core during refueling operations.

Analysis of Deficiency

The upper and lower sections of the control rod grapple tube are vertically assembled in the field per the Field Erection Procedure. The procedure references drawings which require that the socket head cap screws be staked after assembly to prevent the screws from becoming loose and backing out of their respective tapped holes. If the upper and lower sections of the control rod grapple tube were assembled without tightening the cap screws and staking the heads, then a loose joint would result. The loose joint, along with limited lateral movement of the control rod grapple tube (lateral movement would be approximately 1/4" total from contact with one guide roller to another guide roller) could result in working the 3/8" tapped holes and deformation of the metal over the tapped holes as reported.

The manufacturer has been contacted and they have reviewed this incident and are unable to determine a set of circumstances other than the above that would cause the deformation of the bolt holes as reported. They have also checked their design and verified its adequacy.

From the above we conclude that the reported damage resulted from improper assembly or reassembly at the site in violation of the Field Erection Procedure. Therefore, the deficiency is in field assembly and not equipment design or manufacture.

Safety Implications

We have made an analysis of the velocity, energy, and momentum of the lower portion of the control rod grapple tube after having fallen through water to the top of a fuel assembly in the reactor core. We have not con-

ducted a detailed analysis of the effect of the impact upon a fuel assembly. However, we feel that the impact is of sufficient magnitude to damage one or more fuel rods such that a release of fission products can be expected.

Corrective Action

The equipment has been unaccessable and as a result we have been unable to make a first hand inspection and evaluation. In order to verify our analysis and to provide further insurance against reoccurrence of this incident, we are initiating the following actions:

- 1) The manufacturer has been instructed to send his technical personnel to the job site to inspect firsthand the damage to the bolt holes. This site visit is tentatively scheduled at the end of July.
- 2) The manufacturer will analyze the damage and report his suggested corrective action. We expect the corrective action to be similar to one of the following:
 - a) Use existing bolt holes and tack weld bolts
 - b) Drill and tap new holes and tack weld bolts
 - c) Drill additional holes and tap and tack weld bolts.