

JUL 19 1978

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MEMORANDUM FOR: J. Carl Stepp  
FROM: O. Thompson  
THRU: L. Heller  
SUBJECT: SEEPAGE OF JOCASSEE DAM - SITE MEETING

PLANT NAME: Oconee Nuclear Station  
LICENSING STAGE: Operating Reactor  
DOCKET NUMBER: 50-269/270/287  
RESPONSIBLE BRANCH: OR-1; Morton Fairtile, PM

On July 10, 1978, Lyman Heller and I visited the Jocassee Dam site. Representatives from Duke Power Company (Duke) and Law Engennering and Testing Company (Law) presented the results of a study of leakage through the west abutment. The presentation was made to the Federal Energy Regulatory Commission (FERC) and NRC was invited by Duke.

In my memorandum for Files dated July 3, 1978, the status of leakage was summarized. The On-going investigations referred to in that Memorandum were verbally reported by Duke at the site meeting on July 10, 1978. The investigation is not yet complete and a written report has not yet been prepared. The findings to date are summarized below.

There has been seepage from the west abutment of the dam since the reservoir was first filled in about 1972. The foundation and the abutment have been grouted and this procedure has reduced the seepage from about 1200 gpm to about 800 gpm.

The seepage from the downstream abutment has been monitored and no problems were observed by Duke until two sink holes developed -- one in 1977 and a second in early 1978. The sink holes were repaired by excavating loose soil and backfilling with filter stones. Drain pipes were installed to carry the water into the valley.

Because of turbidity of the water at the recent sink hole, Law started an investigation in order to determine the cause of the seepage. Observation wells were installed on the downstream abutment. Tracer dyes were introduced into various wells and Law believes that the path and velocity of seepage have been identified. It is their conclusion that a "window" remains between the zones previously grouted and that, with a small amount of additional grouting, the seepage might be reduced to as

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low as 200 to 300 gpm. Duke indicated that it would be worthwhile to perform additional grouting even though it could not be guaranteed that the seepage would be significantly reduced.

The field investigation is still being performed so that the area to be grouted can be made precisely defined. Duke indicated that they anticipated starting the grouting program in August or September, 1978.

The findings of Law showed that the abutment seepage does not compromise the safety of the embankment dam. The water collected and tested from the sink hole areas showed quantities of suspended solids an order of magnitude less than in the reservoir. This indicates that backward erosion into the abutment is not occurring. Also, the testing program has shown that there is no seepage around the end of the dam at the abutment/embankment interface. Law stated that the grouting program would not cause the seepage path to migrate toward the embankment but that this assumption would be carefully monitored during and after grouting.

After the meeting, the dam and west abutment were inspected. The field drilling and dye testing was in progress during our visit.

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DOCKET FILE 50-269/270/287

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