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Sequoyah v. TVA, 6th Circuit, Docket No. 79-1633: Affidavit of Dr. Ernest F. Brater

Ernest F. Brater

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AFFIDAVIT OF DR. ERNEST F. BRATER

STATE OF MICHIGAN)
COUNTY OF WASHTENAW)

Dr. Ernest F. Brater, being first duly sworn, deposes and says:

I am a professor of hydraulic engineering in the Department of Civil Engineering at the University of Michigan, Ann Arbor, Michigan. I received my PhD degree from the University of Michigan, and was appointed Professor in 1950. I am the author of approximately 50 publications in the field of hydraulic engineering, including the Handbook of Hydraulics (co-authored, with King, published by McGraw-Hill) and Hydrology (co-authored, with Whistler, published by Wiley).

These comments are based upon a review of the affidavit (attachment B) submitted by the Tennessee Valley Authority in Sequoyah et al v. TVA, Docket No. 79-1633, of drawings contained in the Tellico Environmental Impact Statement, and a paragraph reference from the TVA 1978 Alternatives Report. My comments are not based upon an independent study or figures on streamflow, etc. since these are not presented in the affidavit and other references.

These comments focus upon the statements concerning dam safety, at pages 5,6, and 7 of the affidavit.

The statement is made on page 5 that "from a dam safety standpoint, Tellico will be safer in the event of a major flood when it is connected with Fort Loudon [reservoir] and water can be released from the Tellico reservoir through the canal into Fort Loudon reservoir." This undoubtedly refers to the fact that a portion of the flow of a major flood could be passed safely through an inter-reservoir canal to the adjacent reservoir. The statement, however, does not make clear what degree of risk it is dealing with. The term "dam safety" is

relative. An inter-reservoir canal would undoubtedly add to the structure's ability to pass a major flood safely, but without data and greater specificity in the statements made it is not possible to judge the degree of such added "safety". As an example, even with the canal, the dam has been stated by the TVA to present dam safety problems. The design flood "is slightly larger than the maximum flood that can be contained by the Tellico Dam as originally designed with the canal open.... The estimated cost of adding spillway capacity at Tellico to safely pass the flood is [\$14.5 million]." TVA Alternatives Report, pages 13, 42.

Apparently the river has been flowing for four years without the canal, and will be flowing for a number of months without either the sluice gates or the canal open. The plaintiffs apparently seek a further year before the opening of the canal. It seems to me that more data would be needed to determine the degree of risk this option would present compared to the previous years. It would also be necessary to know how serious it would be if the Tellico Dam's spillway capacity were exceeded for a short time. Would the dam fail, or would the plug in the canal be over-topped which would relieve the pressure on the dam? Apparently there is a possibility that the dam would fail even with the canal open, and the degree of seriousness of this risk should be examined.

To compare the relative degrees of risk of the various modes of operation requires more detail in given facts and descriptions.

On page 6 the affidavit discusses the need to withhold water in the large upstream Fontana reservoir in order to lower Tellico from its present level. The implication seems to be that such upstream flows would have to be withheld if the level of Tellico is to be dropped

quickly. It does not appear to deal with the option of allowing the Little Tennessee River to lower itself over a period of time by passing over the spillway with the radial gates open. It would be useful to know how the capacity of the sluice gates which passed the river discharge for four years compares with the capacity of the spillway. Without further data and explanation no analysis of the ability to lower Tellico levels over time can be made.

Finally, on page 7 the affidavit states that use of Fontana reservoir to lower Tellico's level "could result in floods actually being more destructive than if no dams had been built." This statement, like the others, is difficult to understand, since the presence of any reservoir in a river system will cause a reduction in flood peak discharge even if the reservoir was full at the beginning of a flood. The statement requires further specificity in order to have meaning.

Dr. Ernest F. Brater

Sworn and subscribed before me
this _____ day of January, 1980.

Notary Public

My commission expires _____.

OFFICE OF THE CLERK

U.S. COURT OF APPEALS FOR THE SIXTH CIRCUIT

CINCINNATI, OHIO 45202

TO WHOM IT MAY CONCERN:

ENCLOSED PLEASE FIND THE ORIGINAL AND TWENTY-FIVE COPIES
OF AN AFFIDAVIT PREPARED BY ME FOR ENTRY IN THE CASE OF
AMMONETA SEQUOYAH et al versus TENNESSEE VALLEY AUTHORITY, DOCKET
NO. 79-1633.

Thank you.

DR. ERNEST F. BRATER

JAN. 3, 1980