DEPARTMENT OF ARMY
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT
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FEB 2 0 2015

Engineering and Construction Division
Hydrology and Hydraulics Branch

Mr. Dan Sullivan
Chief Executive Officer
Grand River Dam Authority
Post Office Box 409
226 West Dwain Willis Avenue
Vinita, OK 74301

Dear Mr. Sullivan:

At the request of Senator James M. Inhofe, the U.S. Army Corps of Engineers, Tulsa District, performed a peer review of a 2014 study titled "Floodplain Analysis of the Neosho River Associated with Proposed Rule Curve Modifications for Grand Lake O' The Cherokees" by Alan C. Dennis. This study was completed as part of a long-term cooperative partnership between the Grand River Dam Authority (GRDA) and the University of Oklahoma, whereby GRDA supports graduate students working on watershed issues. The GRDA did not participate in the study or sit on the review board.

We find that this study is of high quality and consistent with previous studies that were completed by the Tulsa District (1998) and Dr. Forrest Holly (2004). Specific findings from the study include:

- The rule curve adjustment for the August-September time frame has a minimal impact on flooding at higher flood stages.
- The occurrence of minor/intermediate floods may become slightly more frequent.
- Rise in stage above flowage easement is limited to two tenths of a foot.
- Rise in stage during a 25-year flood event is limited to one quarter of a foot.

- The largest change in stage (as much as two feet) occurs below flowage easement.
- Stream flow is the major flood driver, not a backwater effect as the result of starting pool elevation.
- Impacts are correlated with the constricted flood waters at bridge abutments (Highway 10 and railroad bridges in the Miami vicinity).
- A limited evaluation of unsteady flow for the September 2009 storm when compared with steady flow analysis shows lower water surface elevations.

The modeling used in this study relied upon a limited set of calibration storms from 2008 through present that occurred during the same time of year as the proposed rule curve change. Therefore, a significant recent flood that occurred in July 2007 was not included. Even though this flood occurred outside of the season associated with the proposed rule curve change, it was larger than any of the calibration storms, and its addition to the study should be considered.

Although a more diverse set of calibration storms would have been preferable, the results of this study are consistent with previous efforts, and we concur with the findings that were presented.

Sincerely,

Richard A. Pratt
Colonel, U.S. Army
District Commander