IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

State of Oklahoma,	)	
Plaintiffs,	)	Case No.: 4:05-cv-00329-GKF-PJC
v.	)	
Tyson Foods, Inc., et. al.	)	
Defendants.	)	

DECLARATION OF MICHAEL HANEMANN, Ph. D.

I, William Michael Hanemann, hereby state as follows:

1. I am a Chancellor's Professor in the Department of Agricultural & Resource Economics and the Goldman School of Public Policy at the University of California, Berkeley

2. In 1978 I received my Ph.D in Economics from Harvard University. I have 35 years of experience in the fields of environmental economics, welfare economics, and non-market valuation, including using surveys and stated and revealed preference methods to measure economic value.

3. I am one of the authors of the State of Oklahoma's expert report entitled "Natural Resource Damages Associated with Aesthetic and Ecosystem Injuries to Oklahoma's Illinois River System and Tenkiller Lake – Expert Report for State of Oklahoma, in Case No. 05-CV-0329-GKF-SAJ" (hereinafter "CV Report").

4. I have reviewed Defendants' Motion to Strike Portions of Plaintiffs' Damages Experts' Report and Integrated Brief (Dkt. # 1950).

5. Surveys have long been used in market research and economics. A major use of surveys in those fields over the past four decades has been to measure preferences for items including market commodities and public programs, and to assess behavioral intentions. This is often accomplished through evaluative techniques such as conjoint analysis, choice experiments, and contingent valuation – a general rubric for such analyses is "stated preference."

6. These surveys often involve commodities that do not currently exist, attributes that do not currently exist, attribute levels that do not currently exist, combinations of attributes that do not currently exist and, indeed, commodities, attributes, attributes levels or

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attribute combinations that could not exist. This is a well accepted practice in the literature on market research, transportation economics, health economics, and environmental economics. This is done in *ex ante* analyses by firms to evaluate consumer purchase intentions for new or modified commodities and by government agencies to gauge the public's preferences for new or modified programs. These surveys provide useful and reliable information because the commodities/products, the attributes, the attribute levels, or the attribute combinations are seen as plausible by survey respondents who take them seriously and respond in a thoughtful manner to the questions involving them.

7. The survey presented in the CV Report is an example of this type of survey, aimed at preference measurement, and using the contingent valuation method with the willingness-to-pay metric of preferences.

8. Willingness to pay is one of two ways by which economists measure, in monetary terms, the preferences of individuals for an item, the other being willingness to accept. Together, these are the metrics for the economic measure of value. The economic measure of value is defined in terms of a tradeoff. The economic value of an item to an individual is the amount of money that the individual would be willing to exchange (trade off) for the item, if this exchange were possible. The willingness to pay measure, in particular, is the maximum amount of money that the individual would be willing to pay to obtain the item, if this payment were necessary and feasible.

9. The survey set forth in the CV Report measures what individuals would be willing to pay for a program to accelerate future improvements in public trust resources in the Illinois River System and Tenkiller Lake. To do this it presents a scenario in which the injuries in the Illinois River system and Tenkiller Lake could be reduced more quickly through a particular program using alum. This creates the tradeoff that serves to measure the Oklahoma public's monetary value for accelerating the reduction in future natural resource injuries. It is important that respondents find this tradeoff plausible and take it seriously.

10. The alum scenario set forth in the CV study is *not* being used to design a restoration program for the Illinois River System and Tenkiller Lake; it is being used to create a tradeoff for survey respondents in order to elicit their truthful valuations of the scenario *outcome*, namely an accelerated reduction in future natural resource injuries to the Illinois River System and Tenkiller Lake.

11. The key to the survey is that respondents accept that the outcome can be secured at a given cost to themselves. It is immaterial to the validity of the results whether the mechanism generating the outcome is fictitious as long as it is accepted by respondents.

12. The use of a tradeoff based on a scenario which is seen by respondents as plausible, while actually containing factually inaccuracies, is a well accepted practice in stated preference analysis, including contingent valuation and choice experiments. It is a well-established and accepted method for achieving valid and reliable measurements of value.

In many *ex ante* analyses of government programs, the means of accomplishing and delivering a program is not known at the time, and analyses of the public's preferences proceed with an assumed scenario that people find plausible and respond truthfully to.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on April 19, 2009

/s/ Michael Hanemann
Michael Hanemann, Ph.D.