## Cowper Chadbourn

I am both a recreational floater and a retired engineer who has had to deal with issues in a complex regulatory environment. I know the beauty and economic value of the Buffalo due to tourism, but I also know the difficulty of getting professionals to agree on how to interpret complex regulations, and I know the importance of a stable regulatory environment where the interpretations are not changed to suit the political leanings of the day.

I have been floating the Buffalo since the 1960's, and the changes in the river and water quality are dramatic and having a very negative impact on the recreational value of this public resource. The extent of algae blooms in the river in the summers of 2017 and 2018, while not "new", have been noted by many to be far in excess of what has been historically observed, and without a doubt the current level of algal growth is degrading the recreational experiences that this river provides and will have negative economic impact on the tourism industry of the region.

That said, these changes did not begin suddenly after December of 2013 when C&H first began spreading on local fields. But this comment period is not about every potential influence on water quality – it is about one specific facility, so I will return to that: As was noted in ADEQ's draft permit denial, the latest draft 303(d) list clearly documents that water quality in Big Creek and associated reaches of the Buffalo River is now "degraded". I agree that is an issue that needs to be considered in reviewing the permit application, as the farm is very likely one of the factors impacting water quality in Big Creek.

ADEQ has admitted in writing that their own review was sharpened following the unprecedented level of public comments. ADEQ should enforce regulations and provide rigorous, science-based reviews that protect water quality independent of whether or not the public provides numerous comments on the matter at hand.

If it is the determination of ADEQ using peer-reviewed science that any significant portion of this degradation is being caused by the Hog Farm, then ADEQ should deny the permit application.

If evidence is not sufficient at this time to deny the permit on the basis of degrading water quality, then the permit should be approved but with additional stipulations as needed to protect water quality in the future. Since it is unlikely that there will ever be agreement among the experts as to what borings would eliminate doubts about pond leakage, I believe that the new requirements should include addition of a synthetic liner. Further, as more data becomes available there must be a rigorous process for revising the Nutrient Management Plan (NMP) as needed in response to scientific data from soil samples, water samples, and any other changes that may impact key NMP inputs such as changes in land use.

Harmon Chadbourn