

Seaton, Gina

n: drpdrp@windstream.net
Sent: Monday, June 15, 2020 3:34 PM
To: BLR Rules
Subject: Comments on Item 9 (moratorium) of the Rules subcommittee on Wednesday, June 17, at 8 AM
Attachments: Rules committee, June 17, 2020.docx

BL staff,

I have attached comments for my testimony on item 9 (BR moratorium) for the Rules subcommittee meeting on Wednesday June 17 at 8 AM.

I have made copies for distribution if that is appropriate.

Thank you,

David Peterson, President, Ozark Society
56 Ridge Drive, Greenbrier, Arkansas
501-679-2935h, 501-472-9290c

Support for the Permanent Moratorium: Dr. David Peterson, President, Ozark Society

I am a retired Professor of Mathematics from UCA and President of the Ozark Society, whose mission, since 1962, has been to preserve and conserve the Buffalo River waters and watershed. I want to thank the Rules subcommittee for this opportunity to offer support to making the current moratorium on medium and large hog CAFO's in the Buffalo River watershed permanent.

Although the medium sized C&H hog CAFO experiment is now in the past, over some 5+ years of study the Big Creek Research and Extension Team (BCRET) collected an extensive data set that bears on the issue. Keeping in mind that the Big Creek watershed above the farm is only 4% of the entire Buffalo River watershed and its effect on the Buffalo River is diluted by the other 96%,

Is this what we want for the entire river?

- **Elevated stream and ground water nitrate levels** – see Figure 1.
Nitrate levels in Big Creek below the farm are 125% higher than above the farm. During low flows (< 10 cubic feet/sec) when ground water dominates, the difference increases.

- **Increasing nitrate levels in the “house” well** – see figure 2.

The house well is adjacent to the C&H lagoons with water drawn from more than 250 feet deep.

The nitrate levels in the ephemeral stream adjacent but downhill from the lagoons has similar but higher nitrate trends.

- **Increasing phosphorus levels in fields** – see figure 3.
Legacy phosphorus problems due to long term release from high phosphorus field levels.

- **High E. coli levels** – see figure 4.

E. coli levels decrease from high levels just below the farm to good levels in the main stem of the Buffalo River. The higher E. coli levels at Carver raise the Buffalo River levels about 10% on average.

Personal Testimony.

Thank you for your time.

Turbid waters from Big Creek (lower left) enter the cleaner water in the Buffalo River at Carver.



Big Creek Nitrate Concentrations: Upstream (BC7) vs Downstream (BC6), 5/1/15-6/25/19

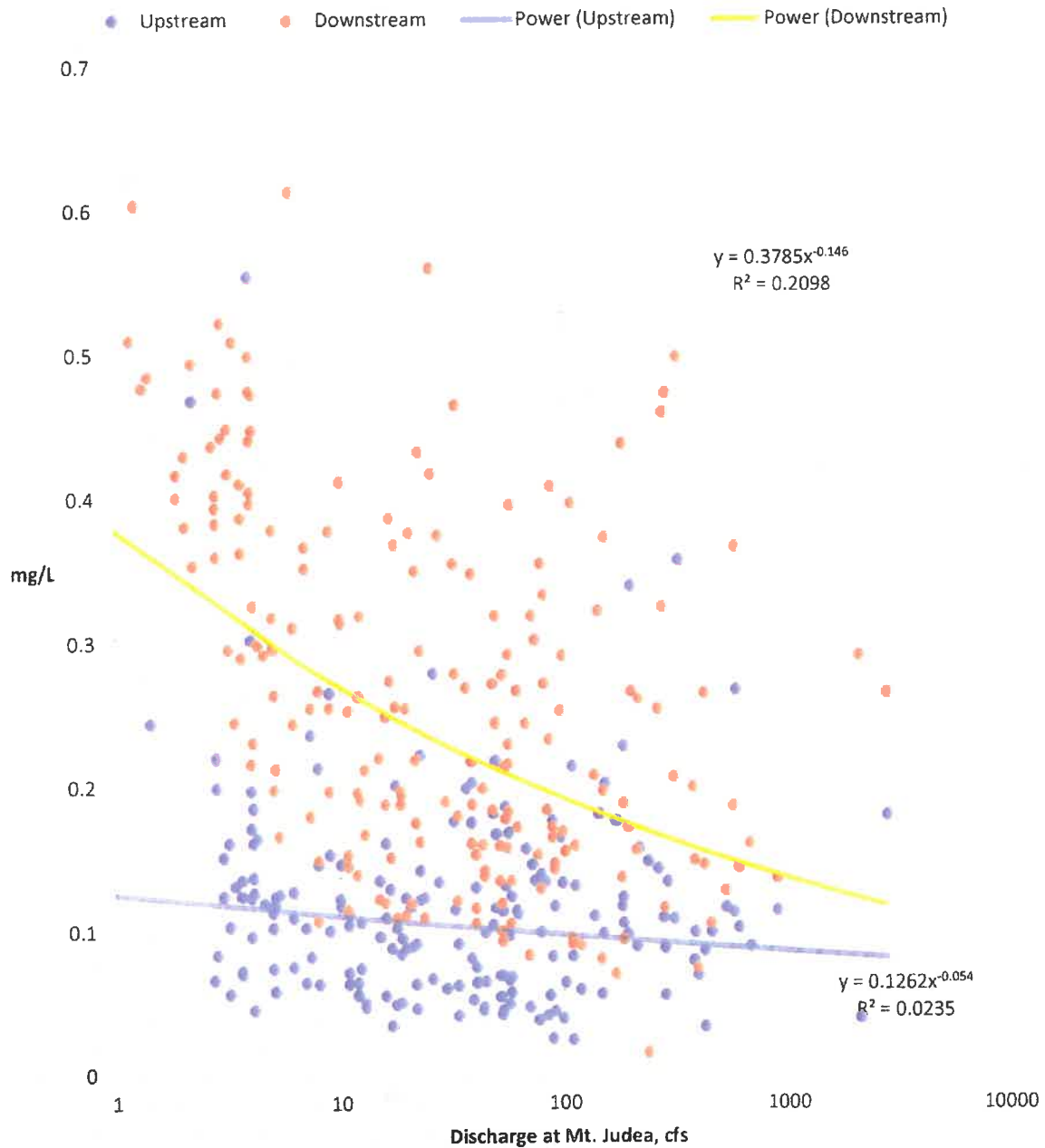


Figure 1. The nitrate concentrations downstream from the farm (orange) are, on average, 125% higher than upstream from the farm (blue) ($p < 10^{-10}$, paired difference test). The difference is greatest, a factor of 4 or more when groundwater flow dominates, discharge < 10 cfs. The groundwater influence is washed out during high flows. (BCRET data)

House Well Nitrate, 5/1/14-6/25/19

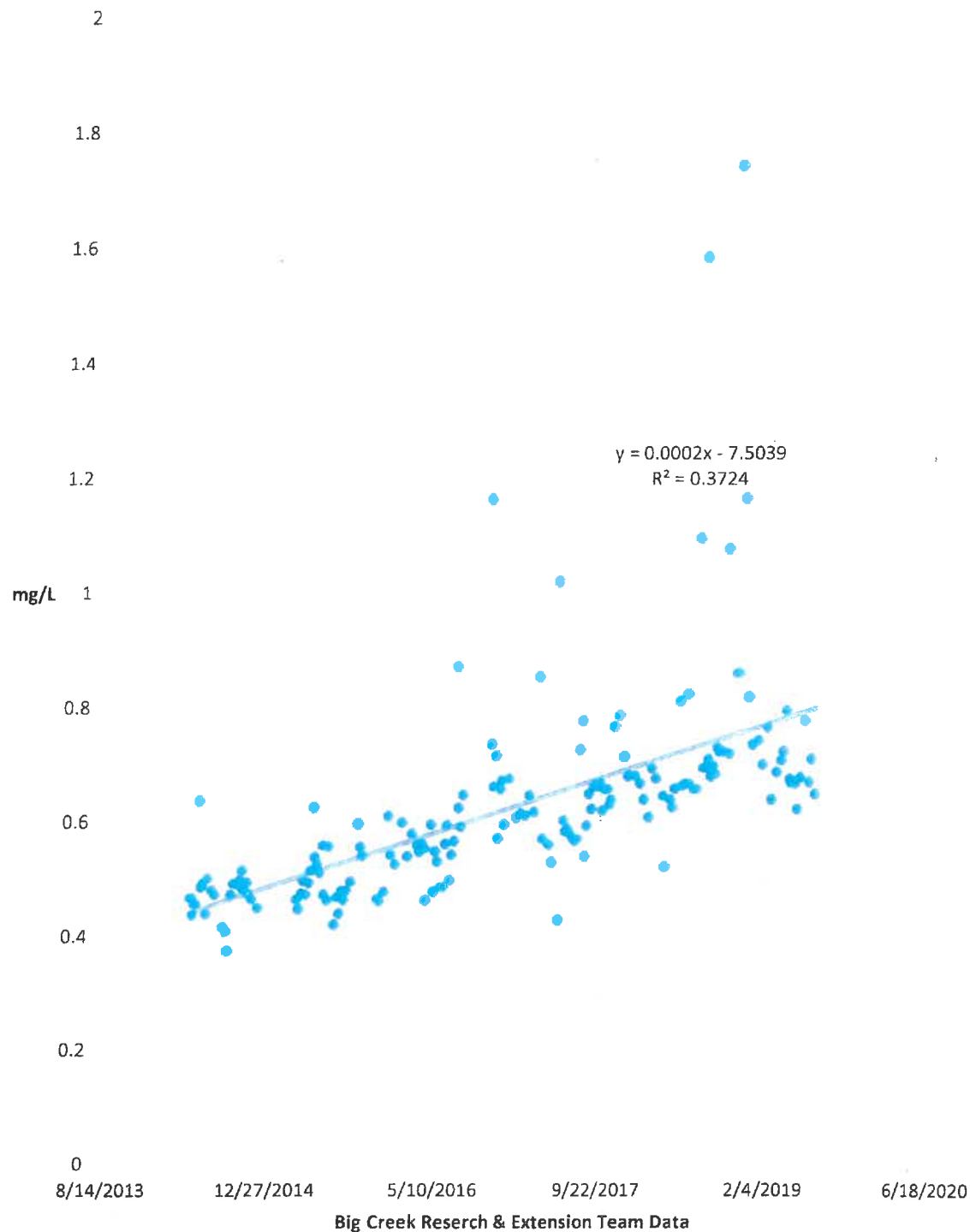


Figure 2. The well is some 500 ft deep and water is drawn from about half way down. The steady increase in nitrate levels implies a long-term source, perhaps a plume from the lagoons or ephemeral stream, which may be contaminating a larger area. Nitrate is mobile, especially in karst. (BCRET data)

Legacy Phosphorous

Can Pollute Streams for a Lifetime

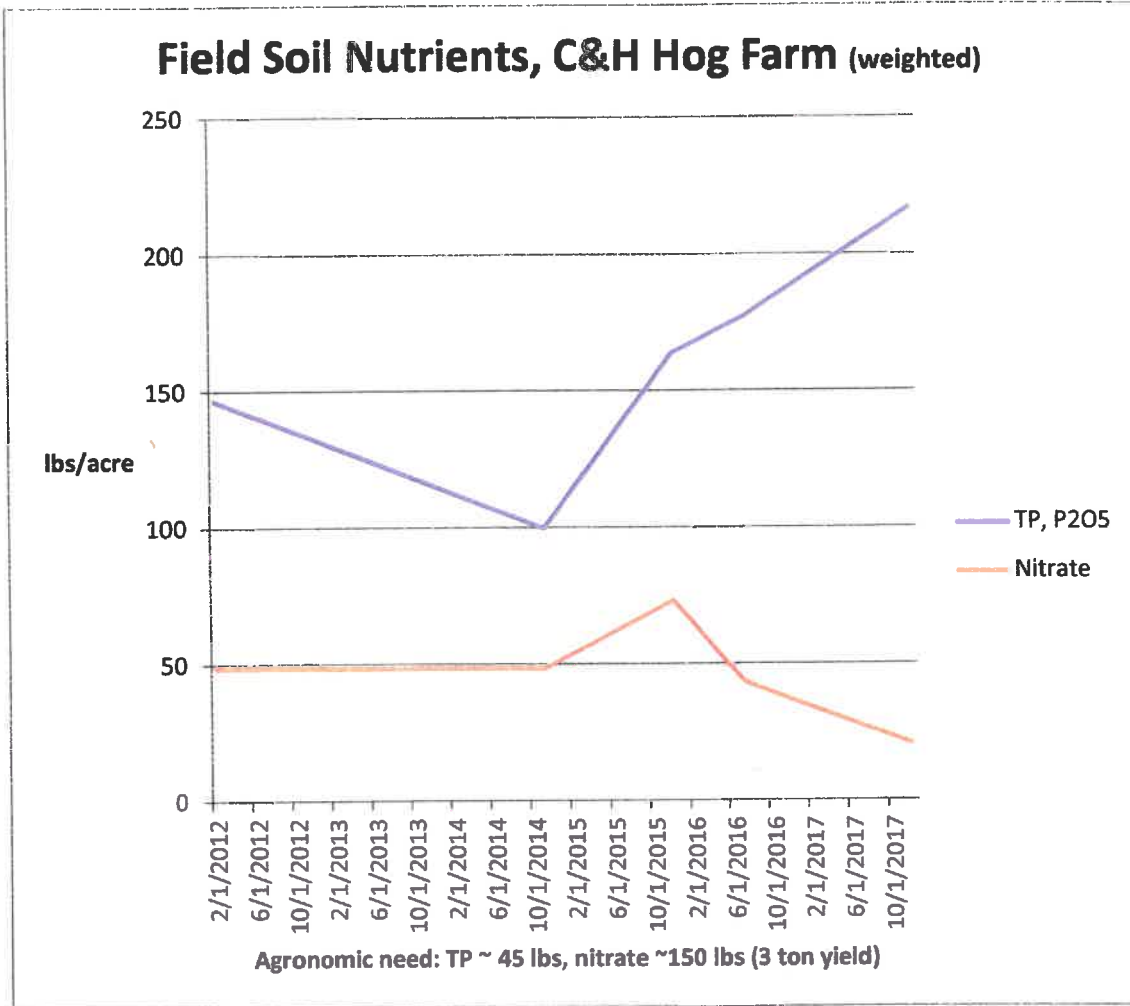
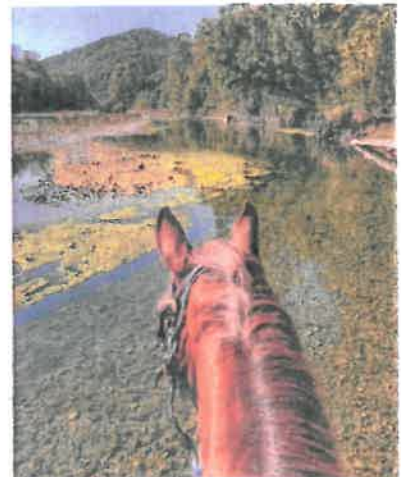


Figure 3. The over application of phosphate (blue) causes soil levels (TP) well above agronomic need. The phosphate can then erode into streams or slowly leach into groundwater for years. Excess phosphate is a primary cause of eutrophic water conditions, nuisance algae, and dead zones in the Gulf of Mexico.

Photo: Carol Bitting

Graphical data: C&H annual reports, Arkansas Department of Environmental Quality



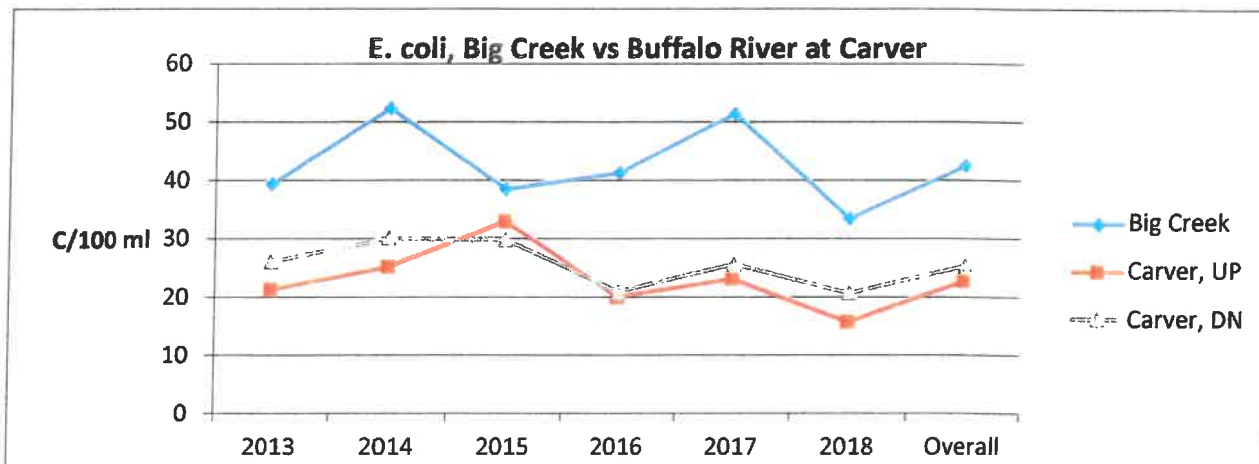
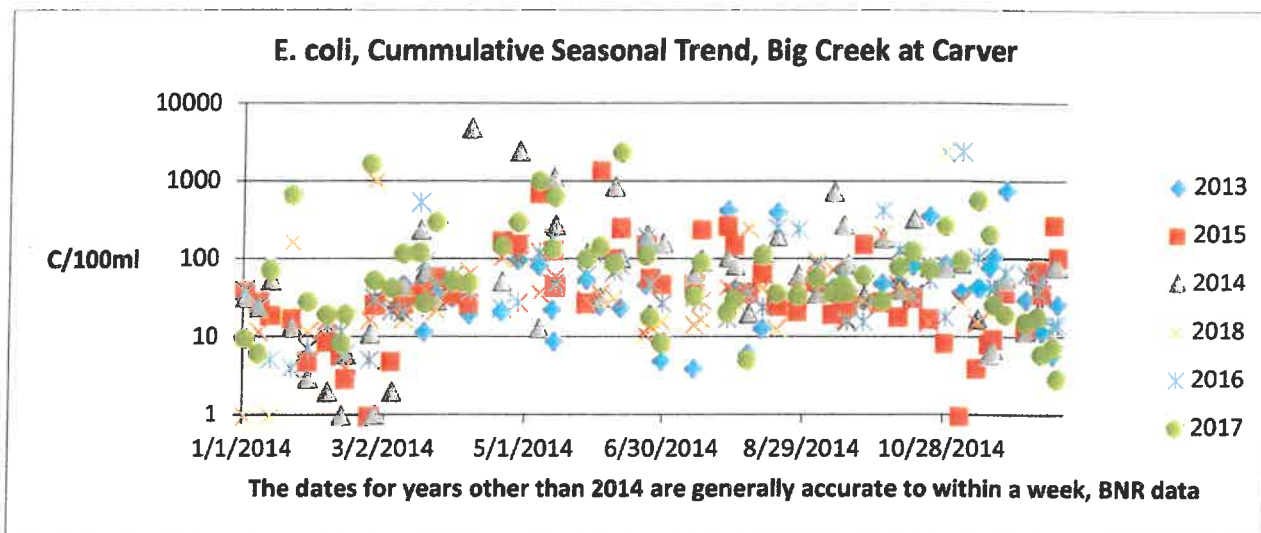
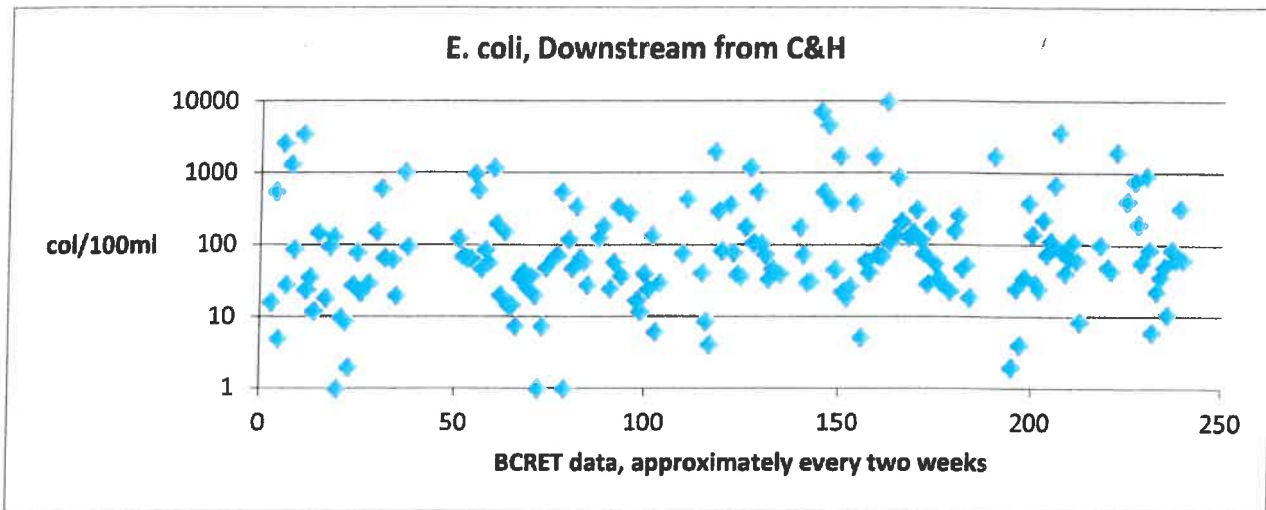


Figure 4. *E. coli* levels are high just below the farm (top), they decrease somewhat in the 6 miles down to Carver (middle), and finally meet the much lower levels in the Buffalo (bottom).

Seaton, Gina

From: Francis Millett <millett@uark.edu>
Sent: Tuesday, June 16, 2020 1:50 PM
To: BLR Rules
Subject: Reg 5: Permanent moratorium on medium and large CAFO's in the Buffalo River watershed

Dear members of the ALC Rules committee:

I strongly urge you to support adoption of the revision to Reg 5 making permanent the moratorium on medium and large CAFO's in the Buffalo National River watershed.

I have been a resident of Arkansas since 1972, and have canoed and hiked on the Buffalo National River every year since it became the first National River in 1972 by an act of congress. Our children were born and raised in Arkansas, and have spent a great deal of time on the river both with us and as part of scouting and youth church activities.

The Buffalo National River is a national treasure, and draws over 1 million visitors a year from all over the world, and contributes over \$40 million a year to the state's economy.

DEQ has found that engineering standards as applied to C&H CAFO near Big Creek in a karst area were not adequate to protect Big Creek and the Buffalo River. Also, possible remediation methods for waste disposal (sewage treatment, sludge removal, concrete holding tanks, or phosphorus removal from the watershed) have not proven to be technically or financially feasible. Therefore, a permanent moratorium is the best solution.

There is strong evidence that the Big Creek watershed has been contaminated by C&H with excess nutrients. If this were replicated on several other tributaries of the Buffalo River, water quality, recreational opportunities, and aquatic life would surely suffer. Hence the need for a permanent moratorium.

Sincerely,

Francis Millett
1675 W. Cleveland St.
Fayetteville, AR 72701

Seaton, Gina

From: Lisa Orton <lisa_m_orton@yahoo.com>
Sent: Tuesday, June 16, 2020 12:39 PM
To: BLR Rules
Subject: Please strongly protect the Buffalo River

Dear committee members,

Please make the moratorium permanent in Arkansas to prevent contamination of our waters, including the Buffalo River and its watershed.

We have a responsibility to protect the water quality and scenic wonder of the beautiful Buffalo River. I realize things have become political, but please look at the abundance of scientific evidence that the C&H Hog farm caused increased nitrate in Big Creek and the house well adjacent to the waste lagoons, that the phosphorus level in fields has doubled over time, and E. coli levels below the farm are high, much higher than the Buffalo River itself.

In addition, tourism has an enormous economic impact in Arkansas with the Buffalo National River being a key element of a million or more visitors each year.

My parents didn't have a lot of money when I was growing up. Our vacations consisted of camping and canoeing on the Buffalo River. Learning to swim, putting out catfish lines, climbing the bluff to explore Peter Cave, listening to the frogs at night, singing around the campfire, hunting for arrow heads in the adjacent fields. These memories have been with me my entire life. Please strongly protect the Buffalo River for generations to come so that they can have memories like mine. If we make a mistake by being too lenient on the protections, all could be lost.

Sincerely,
Lisa Orton
1663 W Halsell Rd
Fayetteville, AR 72701

Seaton, Gina

From: Emily McCoy <emilymccoy2@gmail.com>
Sent: Tuesday, June 16, 2020 12:04 PM
To: BLR Rules
Subject: Buffalo River

Please protect the water quality of the Buffalo River, which--in addition to being a crucial component of our reputation as the natural state--brings in lots of income for our residents. Run-off from hog farms can destroy this state treasure.

Respectfully submitted,
Emily McCoy

Seaton, Gina

From: L <ldmullinix@aol.com>
Sent: Tuesday, June 16, 2020 9:51 AM
To: BLR Rules
Subject: Protect the Buffalo River

Dear friends,

Please do whatever you can to protect the Buffalo River, esp. the water quality. Creating a permanent moratorium on hog farms in its watershed seems vital to the river's health. The Buffalo provides both much economic income from tourism, and appreciation of nature (and state history) by Arkansans. I enjoy introducing young folks to the floating/camping experience. The river has been part of my life since my first float trip there 1978, working as a therapist in the Hot Springs Rehab Hospital.

Please do what you can to protect the Buffalo River in our Natural State, and ***prevent irreparable damage.***

Thank you,
LaDeana Mullinix
Farmington, AR
72730

Seaton, Gina

From: Ken Leonard <kenleonard57@gmail.com>
Sent: Monday, June 15, 2020 2:47 PM
To: BLR Rules
Subject: Buffalo River - CAFO Moratorium

Dear Sir or Madam,

I am writing to ask you to support the Permanent Moratorium on CAFO's in the Buffalo River Watershed. The degradation of this natural asset, the Buffalo River will bring economic harm to the State of Arkansas. Tourism is an extremely important economic engine in Arkansas and the Buffalo River is one of the driving forces. There is an abundance of evidence that CAFOs in the Buffalo River Watershed will degrade this economic engine. Your support of this permanent moratorium will demonstrate that you care about the entire state of Arkansas as well as our natural resources.

The Buffalo River is a beautiful resource. Lets not destroy it. Support this permanent moratorium and help the State of Arkansas protect this beautiful piece of creation.

Sincerely,

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Ken Leonard
207 NW O St,
Bentonville, AR 72712
479-366-9929
kenleonard57@gmail.com

Seaton, Gina

From: Charles Mullins <cwmullins2000@gmail.com>
Sent: Monday, June 15, 2020 11:01 AM
To: BLR Rules
Subject: Hog farm moratorium for the Buffalo River

I am writing to strongly support the total moratorium on hog farms. The Buffalo River is an Arkansas treasure which we must take all steps to protect. Of course, we in Arkansas value it for so many reasons but it is also a national monument bringing people in from all over the country and even the world. I have spent innumerable wonderful hours on and around it. It is clear that any hog farm would (and there is strong evidence one has already done some) damage to this beautiful River. It is crucial to allow comments and testimony on this issue.

Charles Mullins
Little Rock 72227

Sent from my iPad

Seaton, Gina

From: Yolanda Dreher <ydreher@hotmail.com>
Sent: Sunday, June 14, 2020 7:05 PM
To: BLR Rules
Subject: protect the Buffalo River watershed

From large and medium sized hog farms.

Thank you for your service to the people of Arkansas, the environment, and all the species that depend on it.

Yolanda Dreher
12 Pleasant Tree CV
Little Rock AR 72211-1619

Yolanda Dreher
501-681-1116
Sent from Outlook Levono desktop

Seaton, Gina

From: Scharmél Roussel <scharmél2008@gmail.com>
Sent: Sunday, June 14, 2020 3:32 PM
To: BLR Rules
Subject: Protect Buffalo River

Please protect the water quality at the Buffalo River.
The moratorium is still necessary to protect its scenic beauty.

My family camped often on the Buffalo River when I was growing up.
I am now 63 years old and retired. I live in Conway.
I want my grandchildren to enjoy its natural beauty for decades to come.

Thank you.

Scharmél Roussel
(501) 772-9906

Map 1 shows the unique geology of the northwest section of Arkansas.

Caves of Arkansas 2018

Total reported caves by county: 1,450
 Total reported caves by quad (7.5' x 15'): 457
 Data courtesy of Association for Arkansas Cave Studies, Inc.,

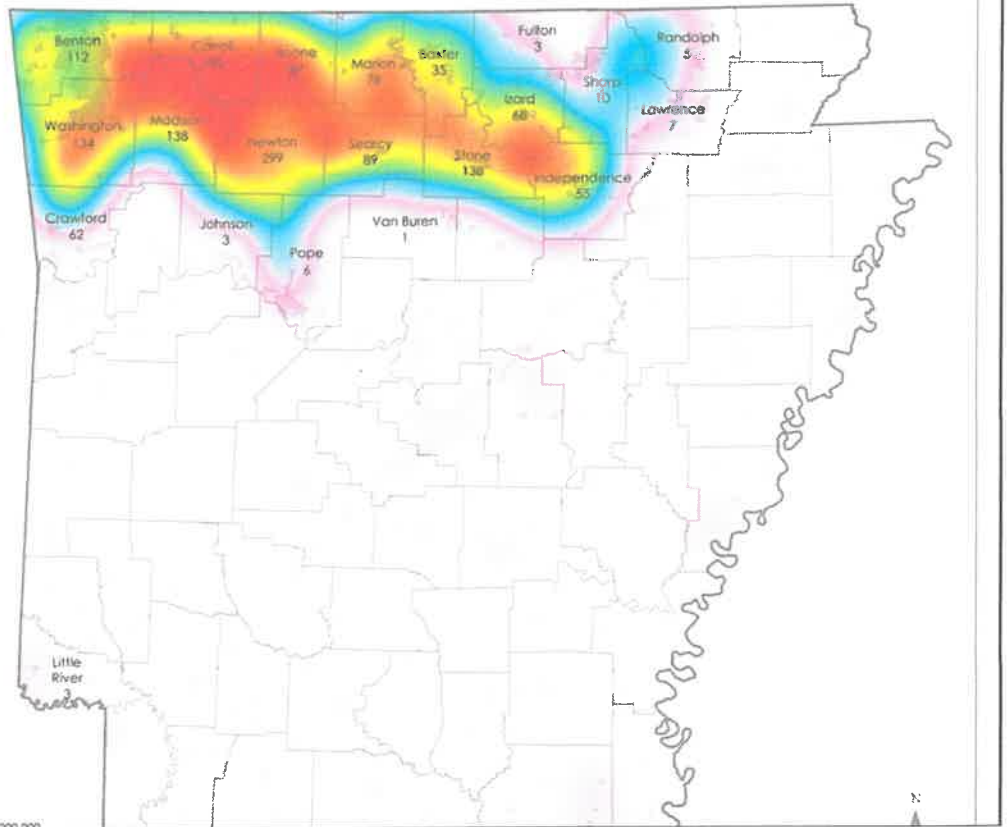
Cave is a natural opening in the earth's surface, large enough to permit a person to enter and exit. Caves are formed by the dissolution of limestone by slightly acidic water. Caves also form in other soluble rocks such as gypsum, salt, and dolomite. Caves are found in all parts of the world, but are most numerous in limestone regions.

Counties with number of caves

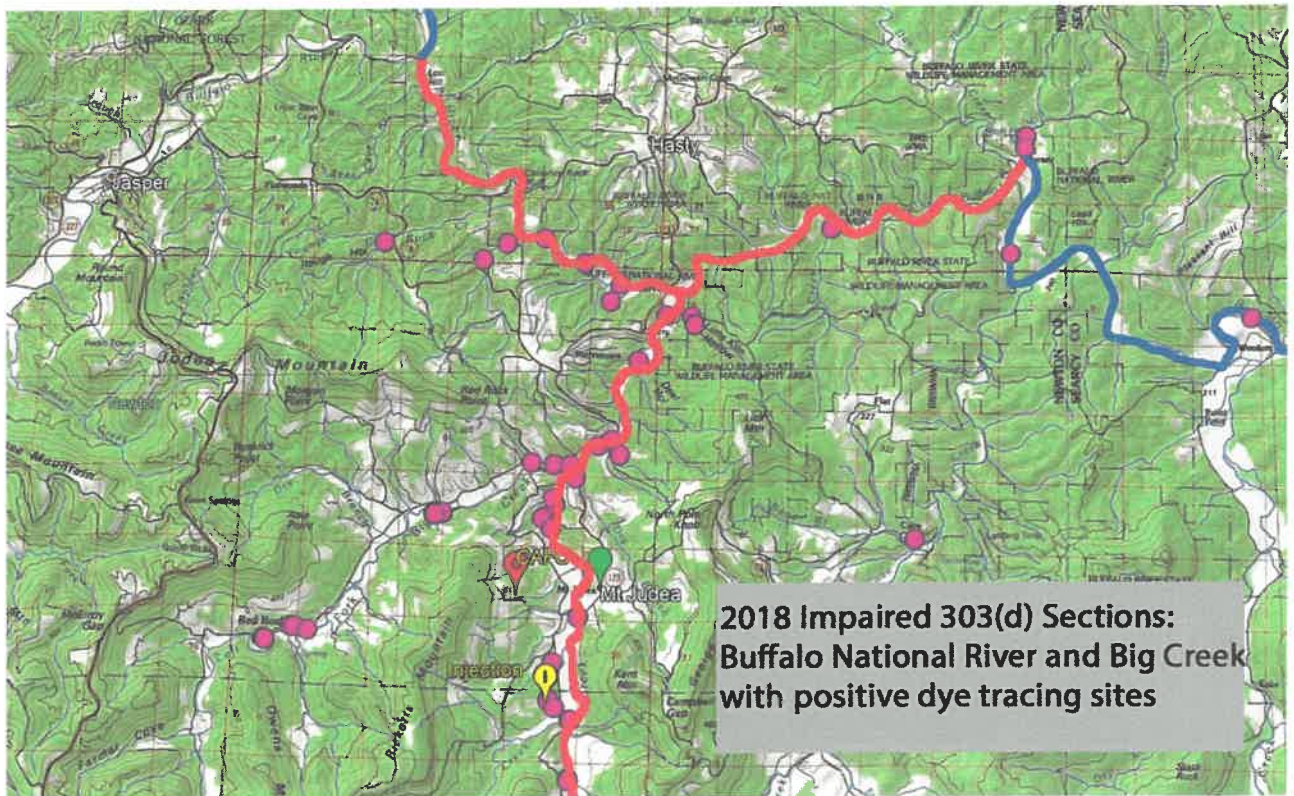
Cities
 Cave Density
 High
 Low

0 25 50 Miles

0 25 50 Kilometers 1:2,000,000



Map 2, showing the results of a dye trace study cited by BCRET. The yellow mark is the dye injection point and purple dots represent detection sites. Red lines represent sections of Big Creek and the Buffalo River designated by ADEQ as officially impaired due to E.coli bacteria and low dissolved oxygen.



2018 Impaired 303(d) Sections: Buffalo National River and Big Creek with positive dye tracing sites

Comments to the Administrative Rules Subcommittee of the Arkansas Legislative Council
June 17, 2020

Gordon Watkins, on behalf of the Buffalo River Watershed Alliance

Chairman Eads, Chairman Sullivan and members of the committee, thank you for the opportunity to address you today. My name is Gordon Watkins and I live in Newton County where I operate a farm and tourism business along the Little Buffalo River. I am also president of the Buffalo River Watershed Alliance with 2,500 supporters who care deeply about the Buffalo National River. I am here to speak in support of the proposed changes to Rule 5 and 6, specifically the permanent moratorium on medium and large swine CAFOs in the Buffalo River watershed.

This moratorium is very narrow in scope and will only affect an extremely limited sector of agriculture – certain sized swine CAFOs located within the Buffalo River watershed. Swine CAFOs are singled out because of the high environmental risk posed by liquid animal waste facilities, as reflected by the fact that ADEQ requires permits for such operations under Rule 5 or 6. The Buffalo River watershed is singled out because it contains the state's preeminent recreational stream and because its karst geology makes the Buffalo particularly vulnerable to groundwater contamination from excessive nutrients and bacteria. (See map 2) Dye trace studies cited by BCRET show how rapidly and extensively contaminants from liquid waste can travel underground in this watershed. Dye injected near CAFO fields was detected at several locations in the Buffalo River, including in springs *upstream* of the mouth of Big Creek. (See map 1) Yes, water can apparently flow uphill.

The BCRET report states, there was a *“statistically significant increase in soil phosphorus”* on the fields receiving swine slurry, which prompted the warning, *“To limit further accumulation of nutrients in excess of levels optimal for forage production future applications, along with grazing, must be carefully managed”*. Excess phosphorus contained in swine waste is stored in the soil and then slowly released to surface and groundwater over many years in a phenomenon described as *“legacy phosphorus”*, which can lead to chronic algae blooms and eutrophication of streams.

The BCRET data was collected over only a five-year period but modern swine CAFOs are typically designed to operate for 20-25 years. The BCRET report stated, *“One farm generally changes water quality at the field level but the cumulative effects of many farms can influence water quality at the larger watershed, such as Big Creek and the Buffalo National River.”* The BCRET data clearly shows negative impacts to surface and groundwater after only 5 years, which if extrapolated out to the typical life span of a swine CAFO, would be exponentially worse, ultimately impacting the Buffalo National River. If this moratorium is not approved, and multiple CAFOs appear in the watershed, the impacts described by BCRET from this short-term study of a single CAFO will be compounded. A moratorium will ensure that that does not happen.

Finally, it should be noted that this proposed moratorium is not new, it is not unique among Arkansas regulations and it does not establish a precedent. In 2010, A.P.C.&E. adopted Rule 6.601, a much more broad watershed-specific moratorium which states, *“All surface discharges of wastewater in the Lake Maumelle Basin are prohibited, with the exception of discharges permitted under the NPDES stormwater discharge program.”* This rulemaking underwent thorough review including by the legislature, before being adopted by PC&E. The state recognizes that certain watersheds warrant enhanced protections. The Buffalo is our nation's first National River and is a symbol of the Natural State which deserves such protection to ensure that future generations can swim, fish and enjoy this iconic treasure.

Thank you.