

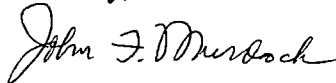
01/29/2016

C&H Hog Farms EA  
C/O Cardno, Inc  
501 Butler Farm Road  
Suite H  
Hampton, VA 23666

Please accept all the information I am submitting in regard to the Final Environmental Assessment for C&H Hog Farms, Newton County, Arkansas dated December 2015.

I would like this to be included as part of the legal record in regard to this Environmental Assessment (EA). I also want to go on record due to the flawed nature of the EA, that a **full Environmental Impact Statement should be required as to protect the Big Creek Tributary of an "Outstanding National Resource Water and Extraordinary Resource Water", also known as America's First National River, The Buffalo National River (BNR).**

Sincerely,



John F. Murdoch  
11908 Elk Ridge  
Wesley, AR 72773-9111

**cc:**

Governor Asa Hutchinson  
Governor's Office  
500 Woodlane St,  
Little Rock, AR. 72201

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Arkansas Department of Environmental Quality  
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Judge Charles Moulton  
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**Comments on the "Final Environmental Assessment For  
C&H Hog Farms Newton, Co. Arkansas"**

My name is John Murdoch. I worked for the University of Arkansas (UA) for over 22 years before retiring at the end of 2012. Many of those years involved working with various departments within the UA Agriculture System. Some involved multi-year field projects that monitored and observed surface and groundwater movement in response to precipitation. These studies often included water budgets, some studies included the fate of applied animal waste to fields that were underlain by mantled karst, very similar to some of the work Big Creek Research and Extension Team (BCRET) are undertaking in the Mt. Judea, Arkansas area currently. I admit I am not an expert, but I have worked with some people I consider to be experts. In fact some of the ones I have worked with are members of BCRET. I do not want to bore you with my work history, but I included a bibliography at the end of my comments that may help give an overview of why I feel I can at least offer my opinions with some degree of firsthand knowledge and experience.

I would like to say there are many things that appear to be technically incorrect and flawed in this EA-FONSI (FONSI). I am only going to focus on a couple of issues. The reference "sections or comments" are from the FONSI report you provided online. There is no attempt, on my part, to put things out of context, but an effort to keep things short as possible. The FONSI is online and available for others to review. If not, they can contact you for a hardcopy.

First, I wanted to refresh my memory on how things got to the point where a "**Hard Look**" was needed and hadn't already been done in the first place, before the C&H Hog Farms CAFO (C&H) Notice of Intent (NOI) had been stamped and initialed with a State of Arkansas Engineering Seal, approved by the State of Arkansas and in operation for months.

I am going to try and focus on the BCRET section that the FONSI relies on heavily to make their case why this area is safe for this large CAFO. I started refreshing my memory with the Arkansas Times.

**(Previous Governor Beebe was quoted in the Arkansas Times August 15, 2013)**

***"We'd always do normal monitoring under existing laws," Beebe said. "I felt like, with all of the concern that exists with regard to potential harm to the Buffalo or any of the watershed up there, I just thought we'd go further, be double sure and put in extensive monitoring — so if there is a problem, if the fears are legitimate, then we've got data and can immediately take steps to do whatever it takes to protect the environment."***

***The monitoring would be conducted by water experts from the University of Arkansas, who are still developing the details and scope of the program.***

<http://www.arktimes.com/ArkansasBlog/archives/2013/08/15/beebe-state-funded-independent-monitoring-of-hog-farm-doesnt-need-landowner-permission>

**The focus of my comments are about the BCRET "Monitoring Stations" and ask how well are these stations actually "Monitoring" any effects this CAFO might be having on the surface and groundwater of the area and beyond, including the BNR.**

**Final Environmental Assessment  
C&H Hog Farms  
Newton County, Arkansas**

**Comments:**

Comment 1

Why were the following pieces of information not mentioned at all in some cases, and in others cases, only a hint of their content. There are many concerns and issues addressed by these experts that contributed their time to explain in great detail for your review. Your assessment relies heavy on the BCRET findings and appears like “one scientific source fits all and answers all”, with the exclusion of some key feedback from other top scientist and experts, that are equally qualified and deserved to be reviewed and addresses, but basically ignored.

**Why?**

**This is a partial list of very important information that appears to be selectively not addressed:**

- Sept 2015 testimony on draft EA by Tom Aley a Professional Geologist licensed in the state of Arkansas. He has worked in this basin and other areas on the same Geological Formations and is very knowledgeable of the movement of ground and surface waters of this region.  
<http://buffaloriverwatershedalliance.wildapricot.org/Resources/Documents/Tom%20Aley%20hog%20farm%20assessment.pdf>
- NPS 303(d) Letter of Oct 6, 2015:  
[http://buffaloriverwatershedalliance.wildapricot.org/resources/Documents/NPS%20303\(d\)%20Letter.pdf](http://buffaloriverwatershedalliance.wildapricot.org/resources/Documents/NPS%20303(d)%20Letter.pdf)
- Sept 2015 testimony of Steven B. Wing, Ph.D.  
<http://buffaloriverwatershedalliance.wildapricot.org/Resources/Documents/Ex.%205%20-%20Wing%20declaration%20FINAL%20w%20Exhibits%20-%20reduced%20size.pdf>
- Sept 2015 testimony of Michael D. Smolen, Ph.D.  
<http://buffaloriverwatershedalliance.wildapricot.org/Resources/Documents/Ex%204%20-%20FINAL%20Smolen%20comments%20with%20CV.pdf>
- Kopic: Sustainable Water Resources Management Oct 27, 2015:  
<http://link.springer.com/article/10.1007/s40899-015-0032-5/fulltext.html> ,

## Comment 2

I am selecting some of the (8 possible BCRET) "Monitoring Stations" that in my opinion, might offer the best sources of data for surface water, groundwater and at some stations, a combination of both. The stations may also allow early detection and warning of potential problems, positive or negative impacts Big Creek Tributary and associated Buffalo National River downstream. This appears to be the goal Mr. Beebe suggested in this comment "***I just thought we'd go further, be double sure and put in extensive monitoring — so if there is a problem, if the fears are legitimate, then we've got data and can immediately take steps to do whatever it takes to protect the environment.***"

Two monitoring stations, the USGS [07055790] Big Creek at Mt. Judea, AR and station USGS [07055814] Big Creek at Carver, AR, provide real time stage, precipitation data, and some water quality parameters. It is my belief the Big Creek at Mt. Judea, AR station is part of the USGS/BCRET collaboration. I am not sure, but I believe the Big Creek at Carver, AR station may be a BRNPS/USGS collaboration. These stations offer the potential for individuals who have online computer access a means of checking conditions offered by each site. (Their data is recorded every 15 minutes). These are the only access the public have combined with the BCRET quarterly reports as they become available for most information.

There was a **third** monitoring station: USGS [07055792] Left Fork Big Creek near Vendor, AR, that was operational briefly and also offered "potential" but the station appeared to go offline after the end of June 2015 and only operational for approximately 2 months.

### **Page 3-8**

***In May/June 2015, an additional monitoring station was established in Left Fork as it enters Big Creek and the USGS has installed height gage at that location (USGS 07055792). Nutrient and bacteria concentrations from this location, which drains a watershed similar to Big Creek but does not contain a CAFO operation, can be compared to the concentrations sampled at the site downstream of the farm (BCRET 2015b).***

One of the things that really puzzles me and hopefully others, is why was this CAFO ever permitted in the first place based on the flawed NOI. I will leave that for others to address. Since there is a large portion of the EA focused on the monitoring efforts, that is what I am going to focus on.

If one wanted to monitor groundwater quality and effects from the CAFO properly, whether good or bad, why wouldn't you first have proper spatial **groundwater monitoring network** installed, with true monitoring wells for that dedicated purpose, instead of relying on **Three Monitoring Access Points Total** for the whole **23 acre** site ???

### **Page1-1**

***The farm site is located on an approximately 23-acre parcel in the southwest ¼ of the northwest ¼ of Section 26, Township 15 North, Range 20 West of Newton County, Arkansas (see Map 1 in Appendix A).***

I don't want to sound like a broken record, but I do want to emphasize the importance of the following statement that covers the BCRET's only set of **3 monitoring stations** for the complete approximately ~23 acres of the C&H CAFO. **That is it; 3 points!** (A well and two trenches).

**Page 3-8**

*An interceptor trench to sample water quality and flow was installed below the manure-holding ponds in the summer of 2014 (BCRET 2014b). A water well adjacent to the barns is also sampled (BCRET 2014c).*

One of those points is a well that was already in use to provide some of C&H water needs. The other two monitoring points are the interceptor trenches below the two waste lagoons. The interceptor trenches may provide useful information. I was not able to locate technical drawings that showed their construction or orientation, only Latitude and Longitude, no Elevation. I want to assume they were placed down gradient with proper fall, from any conduits that might be under **lagoons that could leak in a direction other than down or south in the direction of the trenches**. I see no other monitoring wells or points beyond this that could cover say the other three directions around the farm. I do not believe these three points alone can provide, with confidence, where the groundwater is going and the quality of it. **There are three points only. That is it.** I would like to address the issue of water samples extracted from these three monitoring stations later in this comment letter.

Comment 3

The three fields BCRET are monitoring (Field 1, 5A, and Field 12) may make good visual demonstration plots for research publications and maybe as educational tools for Best Management Practices (BMP). The focus of these fields seems to remain on surface water monitoring, litter applications and treatments compared to a field 5A, that is the "control" field. There still appears to be **no Piezometer data** in the BCRET reports to date. Piezometers might be used for localized **shallow groundwater level and some water quality monitoring** and maybe in the case of Field 5A, real groundwater data down gradient of C&H and their application fields as well as the main fork of Big Creek down from the farm. These might offer a means of looking at the groundwater/surface water response to precipitation and how fast this occurs (or not). At this time, I have seen no groundwater data from those fields in BCRET reports only that some piezometers were flooded early on (it seems like there would be some data in the form of water level data and groundwater samples before or after the flooding at least).

I feel some of the most important information that has been reported by BCRET, was the initial geophysical survey reports with maps. Hopefully BCRET will continue to expand on that work and any subsurface information relating to epikarst, gravel lens and feature that may or may not be potential conduits from surface water to groundwater. Of all the "unknowns" explored by BCRET, this could provide a better insight to things we can not see from the earth's surface. I feel the two Geophysical Teams did a good job, but welcome the follow up with additional spatial transects and definitely ground truthing to support their findings or lack of. Some of the features they observed lay only a few feet deep. It seems if BCRET team can have interceptor trenches installed at even greater depths, then they have the tools they need, even if it was a backhoe. In addition to continuing the geophysical current survey field areas, the CAFO around the structures, especially below the lagoons could supplement their trench study and extra protection for possible detection of potential risk areas.

### Page 3-8

*The first year of the 5-year study was funded by the State of Arkansas. Research began in October 2013. The BCRET report their findings on a quarterly basis to the ADEQ and the Governor's office (BCRET 2013). The quarterly reports can be accessed online at <http://www.bigcreekresearch.org/>. The study was designed to evaluate the potential impact and sustainable management of the C&H Hog Farms operation. The major study tasks are: to monitor the fate and transport of N, P, sediment, and bacteria from land-applied swine effluent to pastures; to assess the potential impact of farming operations on the water quality of Big Creek below the farm; and to determine the effectiveness and sustainability of alternative manure management techniques (BCRET 2014a). The study has been peer-reviewed by a panel of four independent, out-of-state water quality experts (BCRET 2014b).*

*While the BCRET study does have limited baseline data, it has been ongoing for 21 months, was developed to specifically evaluate C&H Hog Farms potential impacts to water quality, and is considered the best available scientific information.*

*The BCRET study currently has eight monitoring stations that are sampled on a weekly basis and following storm flow events (Map 5). Ten stations have been established over the course of the study; however, one station was abandoned following vandalism and one due to access issues. The two locations upstream and downstream of the farm on Big Creek and the spring located below Field 1 have been sampled since September 2013. Runoff from three of the application fields is also sampled; Field 1 (pasture/slurry applied), Field 12 (hay/slurry applied), and Field 5a (hay/no slurry applied) (BCRET 2014b). Field 5a somewhat serves as a control since no slurry from the farm is applied, but it is likely the landowner does fertilize the field on a routine basis using chicken litter and/or Triple 19 or another commercial product (pers. comm. Sharpley 2015). Field 5a is not a natural baseline but can be compared to the fields where slurry is applied at a managed rate to evaluate the differences in nutrient or bacteria contributions to surface water. The three fields give a range in landscape position, topography, and soil fertility levels and are considered a representative strata of all the fields where C&H Hog Farms is permitted to apply nutrients (BCRET 2013). An interceptor trench to sample water quality and flow was installed below the manure-holding ponds in the summer of 2014 (BCRET 2014b). A water well adjacent to the barns is also sampled (BCRET 2014c). In May/June 2015, an additional monitoring station was established in Left Fork as it enters Big Creek and the USGS has installed height gage at that location (USGS 07055792). Nutrient and bacteria concentrations from this location, which drains a watershed similar to Big Creek but does not contain a CAFO operation, can be compared to the concentrations sampled at the site downstream of the farm (BCRET 2015b).*

### Page 3-12

*The BCRET study conducted a Ground Penetrating Radar of Fields 1, 5, and 12 (BCRET 2013, 2014a). However, due to the sensitivity of the equipment and the dampening effect of clay particles the results were inconclusive in confirming the presence of karst features (pers. comm. A. N. Sharpley 2015). Piezometers were installed in the three monitored fields by the BCRET team. These were flooded in the spring and currently the private landowner has denied access. There are no quality data available for this study effort (pers. comm. A. N. Sharpley 2015).*

*An electrical resistivity imaging (ERI) analysis of Fields 5a and 12 was initiated in December 2014 by the School of Geology, Oklahoma State University. The preliminary analysis showed that additional data were needed and a second field effort was conducted in May 2015 (BCRET 2014c, pers. comm. A. N. Sharpley 2015). For the second quarter of 2015, a preliminary report on the December 2014 analysis was completed. The results of the May surveys are not yet available. The 2014 ERI surveys confirmed the soil thickness, presence, extent, and depth of epikarst features and bedrock material. The average epikarst thickness underlying the two fields was found to be highly variable ranging from 6 to 75 feet thick. There appears to be a large doline feature, a closed topographic depression caused by dissolution or collapse of underlying rock or soil, within the weathered bedrock underlying Field 12. Additional analysis could enhance the delineation of possible karst features and further information is needed to*

*have a more complete view of the field to understand connections between surface and groundwater (Fields and Halihan 2015). These studies need ground truthing to determine the correlation of ERI data to epikarst and alluvium and especially to characterize those units' hydraulic characteristics.*

#### Comment 4

##### **USGS Gaging Stations (3 - Monitoring Stations – Surface/Groundwater)**

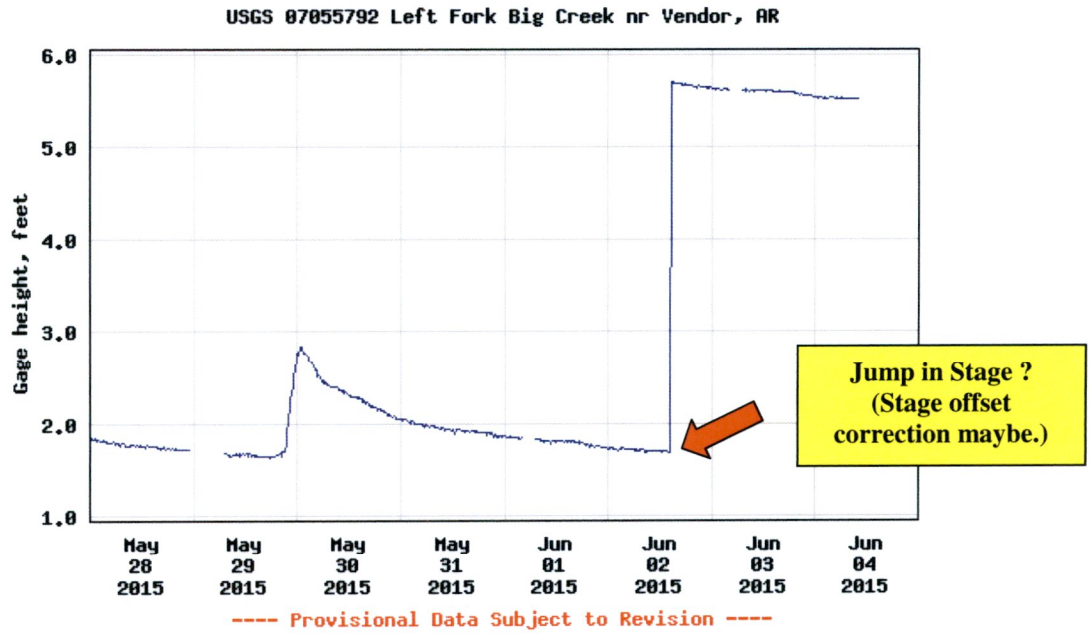
The next section concerns the three USGS stations that monitor the two major forks and outlet of the Big Creek Tributary. Of the eight monitoring stations, these three stations could add information concerning surface water as well as the combination of surface and groundwater that run in the channels of Big Creek. These stations measure the fraction of water in the tributary, the fraction that passed over the surface at the point of these stations and being able to monitor them over time and have access from remote online by all is good. One can see the water at these stations, and watch it online. But this again is only a fraction of the water budget for the Big Creek Tributary, there is a lot more water that you can't see from these stations or that is being monitored for quality and volume. This makes it even more important to insure the quality of the data the stations do monitor is meaningful.

USGS 07055792 Left Fork Big Creek Near Vendor, AR had a few startup issues, but that could be expected. The station reported May 2015-June 2015. Where is that online “preliminary” data that as of today it is not available online? The image below are screen dumps from from when the station was operational and had data available.

**Instantaneous-data availability statement**

Gage height, feet

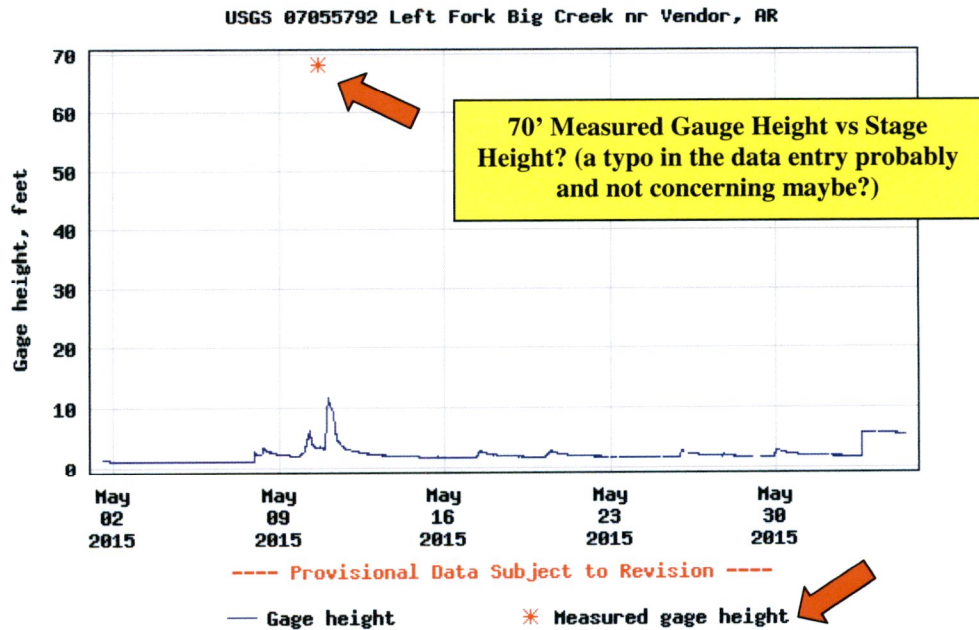
Most recent instantaneous value: 5.52 06-04-2015 10:00 CDT



**Instantaneous-data availability statement**

Gage height, feet

Most recent instantaneous value: 5.52 06-04-2015 10:00 CDT





**Page 3-9 (Figure 3-1)**

This station has provided useful information and would provide a very important point to keep an eye on parameters like “**Nitrate plus Nitrite**”, gauge height and precipitation for that fork of the Big Creek Tributary. It is in close proximity of the CAFO. Unfortunately there have been several issues that have been reported to the USGS office in Little Rock, AR about accuracy of some of the parameters and asking for information about calibration data for the sensors. It is clear to see that the field data available for establishing a rating curve to determine discharge is in progress, but the other parameters appear to be without calibration data. So there might be a lack of confidence by some questioning how meaningful this water quality aspect of this data truly is. These stations could provide precursors to threats to the surface and groundwater. Many feel that these stations are standing guard and there is nothing to worry about.

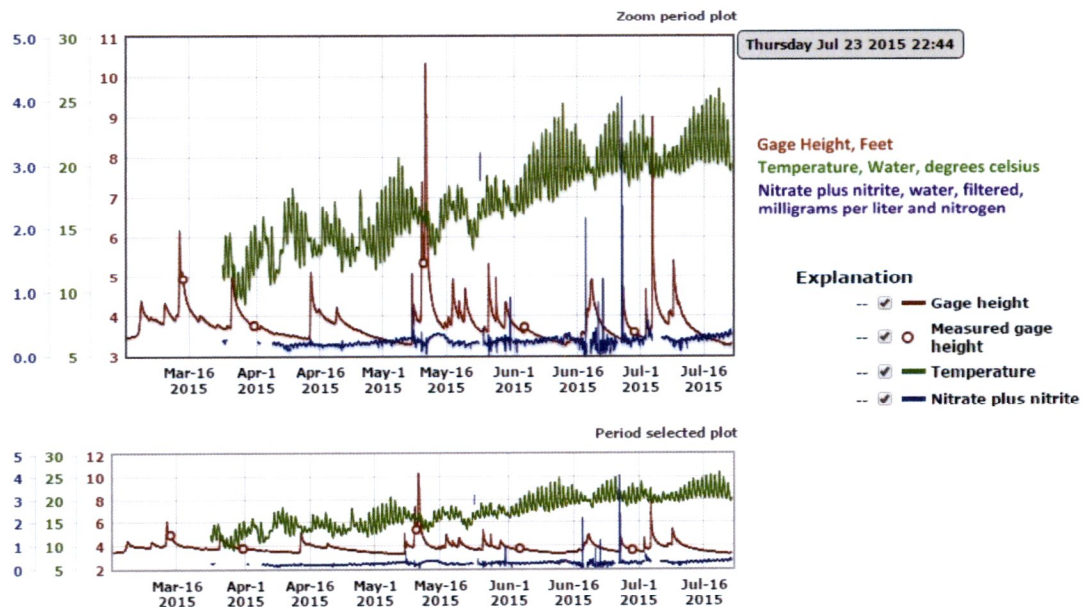
**BCRET water quality sampling methodology uses EPA approved sampling protocols and analyses. Samples are analyzed for dissolved P, total P, ammonia, nitrate-N (nitrate plus nitrite), total N, total suspended solids, dissolved organic carbon, E. coli, and total coliform (bacteria).**

**As part of the BCRET study, the USGS gaging station on Big Creek (07055790) was instrumented with continuous flow gaging equipment and a nitrate sensor, which provides real-time flow, water temperature, water nitrate, and precipitation data. Stream data recordation began in April 2014 and the additional parameter data recordation began in February 2015 (BCRET 2014b). The data are available online at:**

**[http://nwis.waterdata.usgs.gov/nwis/uv?cb\\_00065=on&cb\\_00010=on&cb\\_00631=on&format=qif\\_mult\\_parms&site\\_no=07055790&period=&begin\\_date=2015-01-01&end\\_date=2015-06-11](http://nwis.waterdata.usgs.gov/nwis/uv?cb_00065=on&cb_00010=on&cb_00631=on&format=qif_mult_parms&site_no=07055790&period=&begin_date=2015-01-01&end_date=2015-06-11)**

**Streamflow, nitrate plus nitrite concentrations, and temperature from the site from January 1 through July 16, 2015 are shown in Figure 3-1 (USGS 2015a). As shown gage height relates to discharge, or flows. Nitrate-N concentrations increase with increasing temperatures. Nitrate levels are below the thresholds set to provide protection to aquatic species. Long-term trends can be assessed using a continuous monitor.**

**USGS 07055790 Big Creek near Mt. Judea, AR**



**Figure 3.1. USGS 07055790 Big Creek near Mt. Judea, AR**

A recent attempt online to access USGS 07055790 Big Creek at Mt. Judea, AR gaging station, where are the water quality parameters like Nitrate plus Nitrite that the FONSI speaks of should be available? They have been available in the past. Some of the earlier “preliminary” data is not there as well.

## USGS 07055790 Big Creek near Mt. Judea, AR PROVISIONAL DATA SUBJECT TO REVISION

Available data for

Click to hide station-specific text

Station operated in cooperation with:



United States Geological Survey



University of Arkansas Division of Agriculture

This station managed by the Little Rock Office.

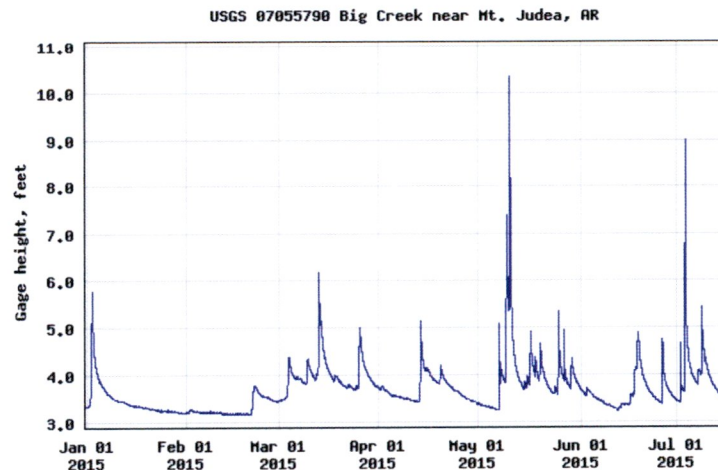
Available Parameters	Available Period
<input type="checkbox"/> All 3 Available Parameters for this site	
<input checked="" type="checkbox"/> 00065 Gage height	2014-04-22 2016-01-25
<input checked="" type="checkbox"/> 00045 Precipitation	2015-09-27 2016-01-25
<input checked="" type="checkbox"/> 00010 Temperature, water	2015-09-27 2016-01-25

Summary of all available instantaneous-data availability statements

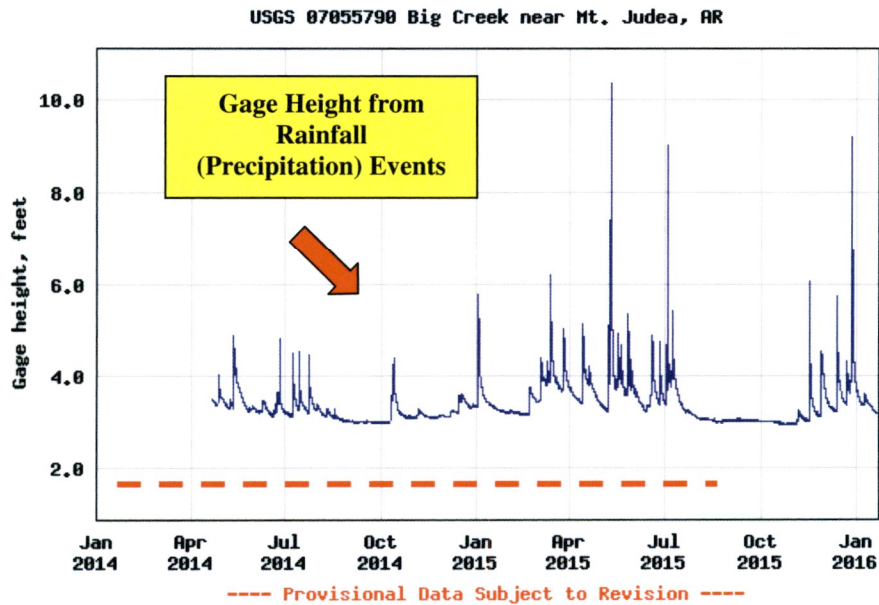
Where are the other “real-time” parameters like Nitrate plus Nitrite ?

Gage height, feet

Most recent instantaneous value: 3.19 01-25-2016 13:15 CST



# USGS 07055790 Big Creek at Mt. Judea, AR gaging station.

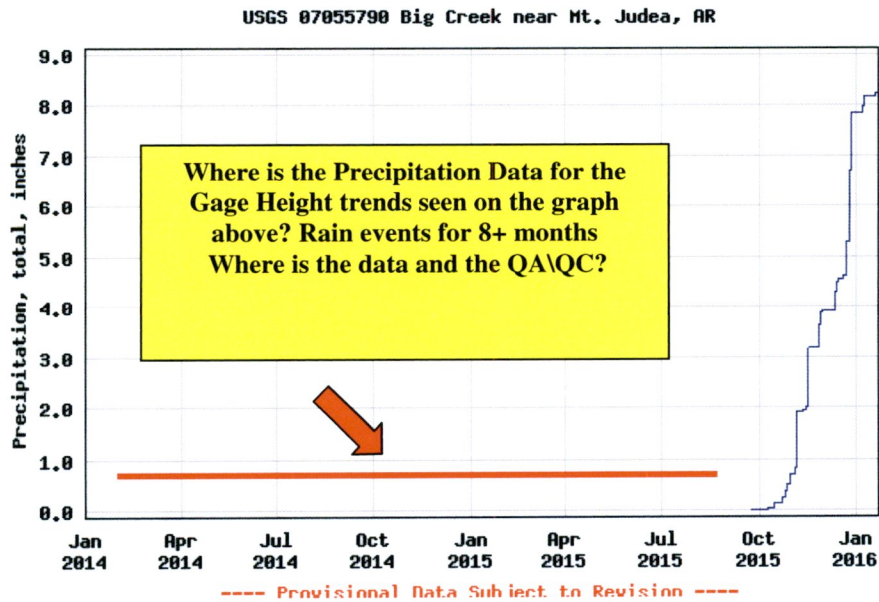


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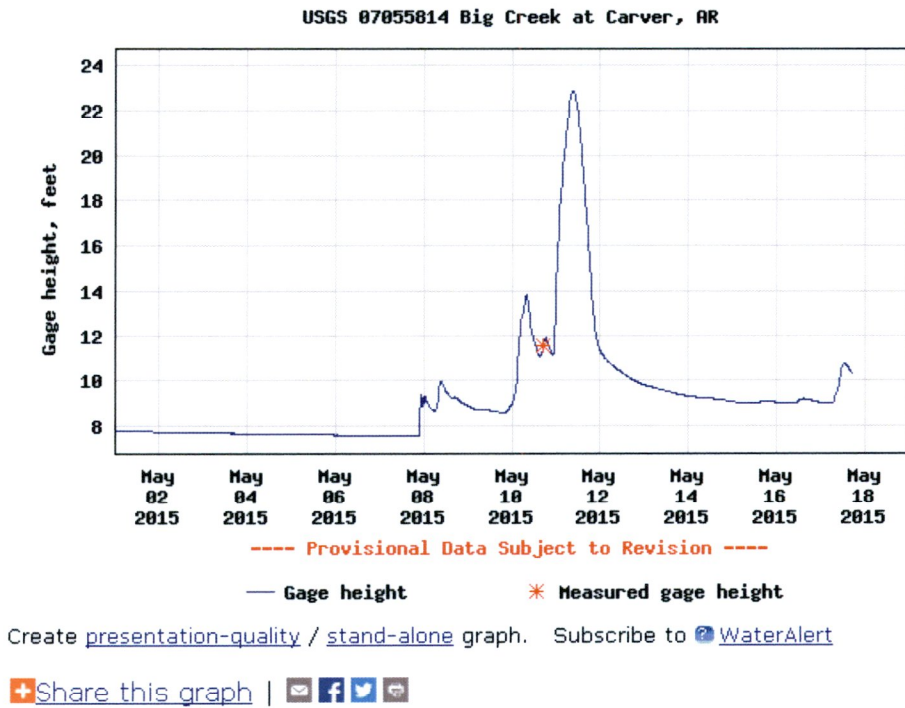
[+ Share this graph](#) | [f](#) [t](#) [e](#) [g](#)

## Precipitation, total, inches

Most recent instantaneous value: 0.00 01-22-2016 16:15 CST

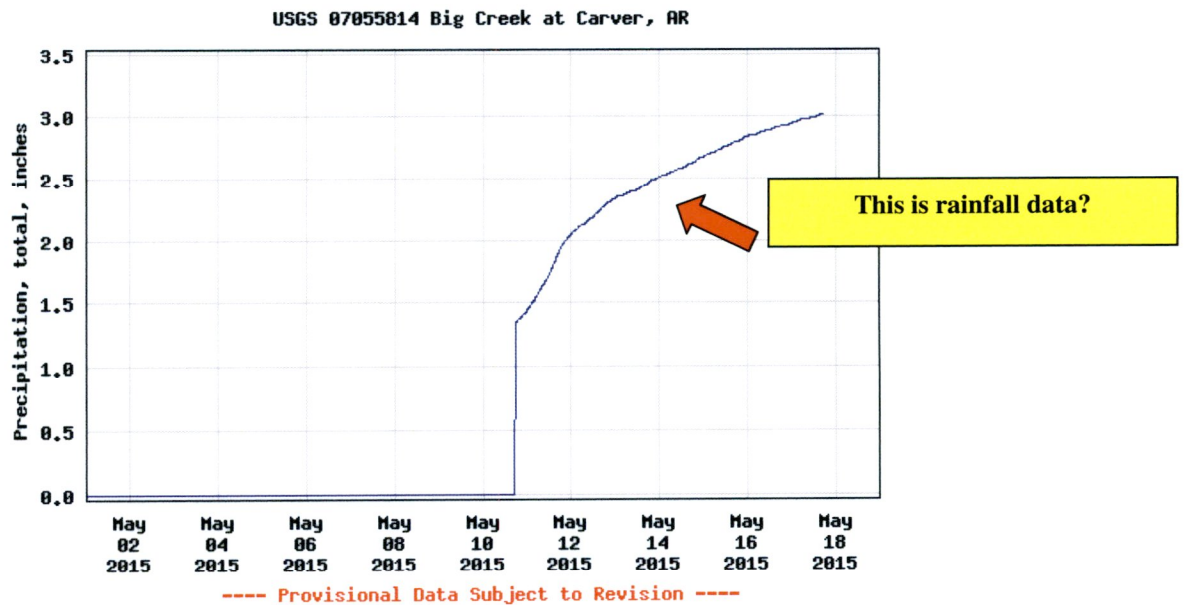


This is from USGS 07055814 Big Creek at Carver, AR monitoring station. This station was instrumented with Nitrate plus Nitrite, turbidity, DO sensors etc. I know there have been some high water issues as you can see, but the precipitation gauge was flat a long time and then he slow drip curve for many days?



### Precipitation, total, inches

Most recent instantaneous value: 0.00 05-17-2015 17:15 CDT



Comment 5

**The Only 3 Groundwater Quality “Monitoring Stations” for the entire ~23 Acre Site...**

(Previous Governor Beebe was quoted in the Arkansas Times August 15, 2013)

*"We'd always do normal monitoring under existing laws," Beebe said. "I felt like, with all of the concern that exists with regard to potential harm to the Buffalo or any of the watershed up there, I just thought we'd go further, be double sure and put in extensive monitoring — so if there is a problem, if the fears are legitimate, then we've got data and can immediately take steps to do whatever it takes to protect the environment."*

*The monitoring would be conducted by water experts from the University of Arkansas, who are still developing the details and scope of the program.*

It appears there are only 3 groundwater monitoring stations to cover the entire ~23 acre site and offer information about the fate of hog waste, treated or un-treated, from lagoons, line or unlined, the houses, the plumbing, as well as other potential waste transport to spreading field issues that may or may not be leaving the CAFO surface. If there were a catastrophic failure, these 3 monitoring stations are the only thing monitoring the spatially limited subsurface they cover. It seems a more adequate monitoring network that would at least surround the buildings and lagoon might have been installed. Geophysical data preconstruction or post would also help in case of a failure due to hillside slump, sinkhole, collapse etc.

It appears the three groundwater monitoring stations are comprised of one house water well (supply), and two interceptor trenches both appear to be located somewhere below one side of the buildings and lagoon to the south. No comments on the interceptor trenches except, the trench might be useful in conjunction with a proper spatial groundwater network of true monitoring wells that would insure the groundwater may be protected. Considering that **“Outstanding National Resource Water and Extraordinary Resource Water and America’s First National River”** is at stake, **why gamble?**



The labels include questions marks “?” for this reason, I used the best information I could locate for Latitude and Longitudes to make the map for the monitoring stations. There is a lot of confusion as to where the actual water supply, water well, water and sampling collection actually are located. The “best guess” information came from one well that was included in the “State of Arkansas Reports on Well Construction & Pump Installation”. This well is located close to the CAFO buildings shown in the image above, so I feel it may be one well used? The EPA Region 6 Assurance and Enforcement Division Inspection Report”, dated 06/12/2014, supports this in their “photograph log”. There maybe BCRET Latitude and Longitude information concerning location of the well they are using and he actual sample collection location if it is not at the “Wellhead” of the well they consider the supply for groundwater monitoring. I have seen that are photographs from BCRET supporting that though. Some photos but I believe no coordinates were reported in some of their quarterly reports. Does this meet Mr. Beebe’s original quoted goals, is this an inadequate safe guard when money was available to do a more extensive site groundwater monitoring effort? I don’t think so. Why not use some of the money for Geophysical Surveys as seen on demonstration Field 5A and Spreading Field 12 to insure there are no known conduits?

## A Water Well located at the CAFO

Source: State of Arkansas Report On Well Construction & Pump Installation  
[https://wise.er.usgs.gov/driller\\_db/view.php?well\\_id=930439355545&dated=15-FEB-13](https://wise.er.usgs.gov/driller_db/view.php?well_id=930439355545&dated=15-FEB-13)  
 The only Water Well in use, who knows?

STATE OF ARKANSAS			
REPORT ON WATER WELL CONSTRUCTION & PUMP INSTALLATION			
MAIN MENU		RESET	SUBMIT
<b>A</b>	1. Contractor Name & Number:	1077	ARNOLD WELL DRILLING & PUMP SE
	2. Driller Name & Number:	2819	JOSHUA ARNOLD
	3. Pump Installer Name & Number:	0	
	4. Date Well Completed: <u>02/15/2013</u>	New Well	
5. COUNTY: NEWTON ( 101 )	6 FRACTION % of %	8 TOWNSHIP	
	7 SECTION:	9 RANGE	
11. LONGITUDE <u>93-04-39</u>	12. LATITUDE <u>35-55-45</u>		

<b>B</b>	DESCRIPTION OF INFORMATION	DEPTHS IN FEET		WATER BEARING	IF YES.. DEPTH
		FROM	TO		
	RED CLAY	0	54	Yes	145
	GRAY LIMESTONE	54	310	Yes	265
	WHITE LIMESTONE	310	320	Yes	285
	GRAY LIMESTONE	320	325	No	0

2. TOTAL DEPTH OF WELL <u>325</u>
3. STATIC WATER LEVEL <u>138</u> Ft. below land surface
4. YIELD <u>30</u> gallons per MIN
5. DIAMETER OF BORE HOLE <u>6</u> IN

<b>C</b>	PUMP REPORT
1	TYPE PUMP
2	SETTING DEPTH <u>0</u> FEET
3	BRAND NAME AND SERIAL NUMBERS:
4	RATED CAPACITY <u>0</u> gallons per minute
5	TYPE LUBRICATION
6	DROP PIPE OR COLUMN PIPE SIZE
7	WIRE SIZE
8	PRESSURE TANK: SIZE: MAKE: MODEL:
9	DATE OF INSTALLATION OR REPAIR <u>12/31/1999</u>
10	Is there an abandoned water well on the property?

CASING FROM <u>0</u> TO <u>0</u> w/ <u>0</u> Inner Diameter
CASING FROM <u>0</u> TO <u>74</u> w/ <u>6.25</u> Inner Diameter
TYPE CASING <u>STEEL</u>
3. SCREEN
TYPE: DIA SLOT/GA
SET FROM FT TO FT
TYPE: DIA SLOT/GA
SET FROM FT TO FT
4. GRAVEL PACK FROM: FT TO: FT
5. BACK FILLED WITH: <u>CUTTINGS</u>
FROM: <u>0</u> FT TO: <u>69</u> FT
6. SEALED WITH: <u>BENTONITE</u>
FROM: <u>0</u> FT TO: <u>0</u> FT
FROM: <u>69</u> FT TO: <u>74</u> FT
7. DISINFECTED WITH: <u>CHLORINE</u>
8. USE OF WELL: COMMERCIAL OTHER
A/C HEAT PUMP TYPE WELLS
(For A/C only) Will system also be used for purposes other than Heating and Air Conditioning? If yes, name use:
(For A/C open-loop only) Into what medium is water returned?
11. REMARKS <u>LONG: 093 04 396, LAT: 35 55 452</u>
12. SIGNED _____ DATE _____



Best guess at the Groundwater Supply mentioned in comments





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



Photo File Name: DSCN1336.JPG  
Date of Photo: 04/15/2014  
Time of Photo: 09:56:17  
Latitude: N 35°55.440' (35°55'26.4")  
Longitude: W 93°4.383' (93°4'23.0")  
Heading: 359.51 (T)  
UTC: 04/15/2014 14:55:00  
Map Datum: WGS-84  
Photographer: Carl E. Willis

Description: View to the north of the water supply well. The well has a total depth of 320 feet with the depth of water being at approximately 280 feet.

**Please Note:**  
No concrete pad around well.  
(probably not required)  
Runoff across the red soil area in  
the direction of the well head



"Wellhead"  
?

State AR Well Report

Parking Area for Waste  
Handling & Spreading Trucks?

EPA-Inspection Sample WS - 11A

EPA Inspection Sample WS - 11

I know I repeated myself in many sections of this public comment. I appreciate your patience at trying to get to my main thought I am trying to convey. There appears to me, there are not enough Groundwater Monitoring Stations that reflect the fate of animal waste from the C&H Hog Farms operation, be it spreading fields, or the actual CAFO ~23 Acre Site. I ask if you have read nothing else please review the following. Thank you for taking the time to look at my public comments.

John Murdoch

*Unannounced inspection of CAFO on April 15, 2014 This is a 97 page report which includes soil and water test results. Page 95 shows the field applications to date.*



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Photograph Log

Photo No. 29

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas



***“A valve should be added inline prior to the vault/tank so that a fresh water sample could be collected at that point. WS-11A (@ 10:14 on 04/17/2014) was collected from a refrigerator in the employee breakroom. That water (WS-11A) goes through a water softener and filtering system before it is dispensed.”***



Photo File Name: DSCN1387.JPG  
 Date of Photo: 04/17/2014  
 Time of Photo: 10:05:08  
 Latitude: N 35°55.423' (35°55'25.4")  
 Longitude: W 93°4.408' (93°4'24.5")  
 Heading: 49.42 (T)  
 UTC: 04/17/2014 15:03:48.00  
 Map Datum: WGS-84  
 Photographer: Carl E. Wills

Description: View to the northeast of the northwest corner of the farrowing barn, under which a 55,000-gallon concrete tank holds water pumped from the facility's only water supply well onsite. The supply well pumps directly into this holding tank and another pump transfers water to a pressure tank, that then supplies water to the animals and employees. That pressure tank connects to the black hose, just to the left of the cool cell, which was where we collected WS-11 (@ 09:54 on 04/17/2014). The only other way to collect a sample from the well would be to shower in/out and dip the water out of the concrete vault/tank. A valve should be added inline prior to the vault/tank so that a fresh water sample could be collected at



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 30

Location: C & H Hog Farms		
City: Vendor	County/Parish: Newton	State: Arkansas

that point. WS-11A (@ 10:14 on 04/17/2014) was collected from a refrigerator in the employee breakroom. That water (WS-11A) goes through a water softener and filtering system before it is dispensed.

## Comments Section FONSI Report Page 3.6

### Ground Water and Karst Water Well Contamination

**Comment:** Several comments noted the presence of *E. coli* in the well water sampled.

**Response:** Monitoring has identified *E. coli* in the water obtained from the on-site well. However, the well has not been sampled at the wellhead. The BCRET team was unaware that the well pump and pipe were removed and transported for repairs and then reinstalled, creating the opportunity for contamination. Since the water is also stored in a cistern, there is also potential for contamination. The BRCET team has been in the process of changing their sampling protocol by installing a new line to sample directly at the wellhead. The ADEQ has reviewed the data from the BCRET and found the current data do not show persistent contamination of groundwater (ADEQ 2015c).

Change to EA: **No change.**

---

### My Last Comment

>> Basically the EPA made a recommendation in June 2014 for one of the 3 only groundwater monitoring stations as you can see in the page above. BCRET appears to be "in the process" of addressing.

"BRCET team has been in the process of changing their sampling protocol by installing a new line to sample directly at the wellhead."

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