

March 15, 2017

Jamal Solaimanian, PHD., P.E
Engineer Supervisor
Permits Branch, Office of Water Quality
5301 North Shore Drive
North Little Rock, AR 72118-5317

RECEIVED
MAR 17 2017
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J. J. Crowe

**RE: Comments Regarding ADEQ's Draft Decision to Approve C&H Hog Farms
Application for a No Discharge Permit
Permit 5264-W; AFIN 51-00164**

Dear Jamal:

I would like to submit the following comments and observations regarding C&H Hog Farms Application for a No Discharge Permit to land apply liquid hog waste, in accordance with ADPC&E Regulation No. 5. As you are well aware, prior to my retirement in February of 2014, I had worked at ADEQ for over thirty (30) years initially as a Geologist and later as a Professional Geologist, P.G. in the Mining Division, the Water Division, the Solid Waste Division and the Regulated Storage Tanks Divisions. The initial permit for C&H HOG Farms was issued approximately 9 months after I had retired from ADEQ.

As one of my previous Supervisors in the Water Division, you are well aware as a Professional Geologist working for the Water Division and other ADEQ Divisions, I was intimately familiar with and participating in the review of all types of permit applications, writing permit requirements, responding to public comments on Draft Permits and ADEQ's permitting process in general. Given this familiarity, I have the following comments regarding the initial permit issued to C&H and the current proposed changes to the C&H land application permit under Regulation No. 5.

The review and approval of the initial C&H Hog Farms permit application (Permit 5264-W) by Water Division Engineers to allow the land application and disposal of a large volume of untreated hog waste in the Big Creek watershed under a General Permit using Confined Animal Operation (CAFO) regulatory guidelines was at best poorly conceived and poorly executed, by Water Division staff. The initial C&H permit application for a General Permit to land apply hog waste at this location was never reviewed by any of the Professional Geologists working in the Water Division or by any other ADEQ staff geologists, prior to the permit being issued. To my knowledge, NONE of the ADEQ staff Geologists were ever offered the opportunity to participate in the C&H permit application review process.

The C&H permit application was reviewed and approved exclusively by the ADEQ Engineers working in the Water Division. Consequently, any potential problems concerning the release of liquid waste into the local groundwater supplies from the manure holding ponds at C&H were never discussed or evaluated by ADEQ Geology staff. In addition, the potential for waste contaminated surface water runoff to be discharged into Big Creek and the potential for the

infiltration of waste contaminates into ground water from the land application sites through the underlying karst limestone geology was never discussed or reviewed by any ADEQ Geology staff, prior to issuance of the C&H Farm's initial permit.

ADEQ staff Engineers never requested any geologic borings be installed or performed any additional geologic evaluation of the proposed holding pond locations prior to issuing the C&H Hog Farm permit. The known presence of karst geology beneath the proposed locations for the manure holding ponds and the proposed land application sites should have raised a major "Red Flag" for any ADEQ Engineer reviewing this permit application.

The limestone geology beneath the hog farm site and beneath the land application sites and the region is known to be highly fractured, with numerous voids and conduits which move surface water and ground water rapidly through a vast system of inter-connected fractures, solution channel and springs just inches below the soil profile.

Given the sensitive geologic nature of this proposed hog farm location, the appropriate thing to do would have been for ADEQ Water Division to expand the permit application review process to include the ADEQ Professional Geologist staff in the review process. There was little or no geologic information about the hog farm or the land application sites provided in the C&H permit application. Therefore, in order to evaluate the geology of a site you need site specific information. Therefore, the reviewing Geologist would have most likely requested an additional geologic evaluation be performed in and around the proposed holding pond locations prior to approving construction of these manure holding ponds.

Additional borings placed in and around the proposed holding pond locations would have provided the additional data needed to determine if there are any karst features present beneath the holding ponds such as solution channels, caves, or void spaces which could impact the integrity of the constructed pond liners and/or provide an avenue for rapid transport if and when any liquid wastes are released from these liquid waste holding ponds. If this data had been requested and provided by the applicant, the reviewing Geologist could have in turn, had input in the permit review process and assisted the reviewing Engineers in making informed decisions regarding the site itself and the larger issue of whether it was appropriate to approve a permit a hog farm at this location at all.

If ADEQ had given its Geologists an opportunity to review and comment on C&H's permit application, it is highly unlikely any of the Professional Geologists performing the review would have signed off on or approved the proposed permit for the C&H holding ponds locations without requesting additional geologic data be gathered about the proposed holding pond locations and proposed land application sites.

I believe the permit application review process conducted by the Water Division Engineers for the C& H Hog farm permit application was severely flawed, as it failed to adequately consider several issues the first being the potential impact of locating this hog farm and its associated land application sites on the shallow karstic limestone geology found beneath the site, prior to issuing the final approved permit to C&H. In addition, Water Division Engineers were clearly

malfeasant in their review of the C&H permit application as they failed to consider missing key data needed to properly and adequately evaluate the potential environmental impact of this hog farming operation on the local environment. As an example, the Applicant was required to submit an Environmental Assessment (EA) as part of the hog farm permitting process.

The EA prepared for and submitted by C&H in its permit application barely mentions and/or discusses the subsurface geology found beneath the sites and failed to even mention the shallow karst limestone found beneath the site and/or discuss any possible impacts hog farm operations may or may not have on shallow local ground water supplies present beneath the farm and land application sites. The EA also failed to discuss any potential impacts to surface water quality or ground water quality from waste infiltration or waste water runoff at the land application sites associated with this hog farming operation.

It is clear, Water Division Engineers and ADEQ Senior Staff by over looking these omissions in the C&H permit application and by not requesting additional information be provided by the Applicant in regards to these omissions, ADEQ failed to adequately review the C&H permit application as submitted, and therefore should not have issued the final permit to C&H until such time as these deficiencies in the permit application were addressed. It is also my opinion, ADEQ was also malfeasant by not having an ADEQ Registered Professional Geologist or any other Geologist from any Agency Independent or otherwise review and comment on this proposed hog farm permit prior to its approval and issuance.

After the C&H Hog Farms permit was issued, efforts were undertaken to begin the collection of water quality data by water quality scientists to determine if the ongoing hog farm operations were having any impact on Big Creek. Data is now being collected by the Big Creek Research and Extension Team (BCRET) and other scientists in the field. Background water quality samples were collected from Big Creek upstream from the hog farm location and the land application sites adjacent to Big Creek. Water samples were also collected downstream from the farm and the waste manure land application sites after the farm was operational.

The data collected by BCRET shows nitrate levels downstream from C&H Hog farms are consistently higher the upstream samples. Additional water quality data recently collected by the National Park Service and the USGS confirmed low Dissolved Oxygen (DO) levels in Big Creek downstream from C&H. This data strongly suggests operation of the C&H Hog Farms may already be adversely impacting the water quality of Big Creek and potentially water quality further downstream.

C&H Hog Farms, has now made application to modify its existing permit for a "No Discharge" permit to store and land apply waste manure in accordance with APPC&E Regulation No. 5. The preliminary water quality data from Big Creek, collected by independent research teams, seems to indicate this farming operation is already having an impact on Big Creek.

Given this, the responsible thing to do would be for ADEQ to suspend the issuance of the C&H permit from thirty (30) to sixty (60) days to allow Water Division staff, stakeholders and other interested parties to sit down and evaluate the water quality data collected to date by all parties,

USGS, BCRET, and other research teams collecting water quality data. Once an evaluation of the most recent water quality data has been completed, ADEQ Water Division staff could make a better informed decision on whether it is appropriate to approve C&H's request to modify its current permit.

Otherwise, if ADEQ Senior Staff refuse to look at and evaluate the existing water quality data collected to date from Big Creek and objectively evaluate the potential environmental impact of this hog farm on Big Creek, they are again, just blindly stumbling along while, extending the initial flawed permit review process into the current proposed permit modification review process. Furthermore, as previously stated, any review of the proposed permit modification by C&H Hog Farms should also include an ADEQ Professional Geologist in the review process.

ADEQ Senior Staff claim they want the permit modification process for C&H Hog Farms permit to be open, transparent and above board for all citizens in the State of Arkansas. Senior Staff also have said the permit review process would be fair and impartial. However, the failure of ADEQ Office of Water Quality staff to consider, evaluate and interpret the current water quality data already collected in regards to the pending permit modification application for C&H would be inappropriate, unprofessional and demonstrates the lack of transparency from the agency which is extremely frustrating to me and most citizens of the State of Arkansas.

If the data suggests the ongoing hog farming operations at C&H are indeed having an adverse environmental impact on Big Creek and possibly downstream, then ADEQ should reconsider whether it is appropriate to allow the proposed permit modification from C&H to expand its farming operation to be approved. If current waste storage and land application of manure are found to be already impacting Big Creek then, C&H should not be allowed to expand its current operation under Regulation No. 5.

As a long time former ADEQ employee I am keenly aware of the dedication and professionalism required by the employees who presently work for and or have worked for ADEQ in the past. The job is often difficult, tedious and without reward but, the job gets done, day in day out by the Department's staff. Many of my former co-workers in the Water Division as well as current ADEQ employees were shocked, dismayed and disgusted the C&H Hog Farms Permit was ever approved and issued given its sensitive location. Engineers working in the Water Division who knew the permit process was flawed and who adamantly disagreed the C&H Hog Farms permit should have been issued, resigned and/or took early retirement.

It is well established the permitting process for C&H was flawed from the start as the C&H Hog Farm should have been required to submit an application for an individual permit. This would have allowed for having a traditional thirty (30) comment period on the draft permit prior to issuance to allow the appropriate interested parties (AR Game and Fish, NPS, Stakeholders, AR Citizens, etc.) to comment and have input into the C&H Hog Farms permitting process.

As we know, this was not done as the permit was issued under a General Permit for CAFO's which did not require a thirty (30) day comment period under the Notice of Intent (NOI) procedures. As a result, "the Department has been doing damage control" ever since this hog

farm permit was issued. Now the permit is approved, ADEQ employees are stuck in the unenviable position of having to defending its decision to issue this permit. Ultimately C&H and ADEQ are now essentially partners in running this hog farm operation. Many of my former ADEQ co-workers and current ADEQ staff members have expressed their disappointment to me that the Department would approve and issue a permit to store and land apply waste manure at the C&H hog farm without effectively evaluating existing site conditions, prior to issuance of the permit given its sensitive geologic location and the hog farms relative close proximity to the Buffalo River.

The fact is C&H Hog Farms now has a legally authorized permit to operate a hog farm at its present location. They appear to be here to stay regardless of the consequences. Based on my years of experience working as a Professional Geologist for the Department, all pond liners can eventually leak no matter how well they are constructed. In fact, the C&H manure holding ponds actually have a permitted, approved leakage rate. Clearly, shallow karst limestone environments in Arkansas are fragile and highly susceptible to having contaminates introduced both directly from a release or indirectly from the downward infiltration of wastes.

Unfortunately, based on my experience it appears most likely outcome for the environment as a result having this permitted hog farm, at this location, will be the continued, ongoing disposal of large volumes of waste manure on the land application sites associated with this permit will lead to an eventual overloading of the nutrients (phosphorous and nitrogen) in site soils which will eventually be leached into the environment. No matter how well the application of liquid waste manure is handled by C&H, it is highly likely over time, impacted surface water runoff from these land application sites will eventually enter and have an adverse impact on Big Creek.

Therefore, it is my professional opinion that ADEQ's final decision to issue the initial hog farm permit to C&H to allow storage and land application of extremely large volumes of waste manure at these permitted locations will ultimately lead to the slow, long term degradation of overall surface water quality in Big Creek and most likely will in the long term, adversely impact both local and regional groundwater supplies in this watershed.

In addition, if ADEQ staff decide to approve the current permit modification request from C&H Hog Farms to expand the number of land application sites and to increase the overall volume of liquid manure waste to be stored onsite and disposed off site, ADEQ by their approval they will have only increased the potential for the continued, ongoing degradation of water quality both locally and regionally as a result of the increase in waste storage and disposal volumes by C&H.

At this point in the C&H Hog Farms permit application review process, ADEQ staff have options. It is hoped the agency will do the right thing and step back from seemingly stumbling blindly along with the current hog farm permit application review process for C&H permit and take the time to evaluate all of the data collected by all of the researchers and scientists, prior to issuing the final permit to C&H.

Hopefully, this approach would allow ADEQ staff conducting the permit review to make a better informed decision regarding whether or not the proposed permit modification application for C&H Hog Farms should be approved and issued by ADEQ. If the data indicates the ongoing farming operation at C&H is already adversely impacting the water quality in Big Creek then, C&H Hog Farms is in violation of the Arkansas Air and Water Pollution Control ACT and there current permit. If this is the case, the proposed permit modification to expand the C&H hog farm operations should, in my opinion be denied by ADEQ.

it is my opinion ADEQ's final decision issue the permit and allow C&H Hog Farms to store and land apply extremely large volumes of waste manure at these permitted locations will ultimately lead to the slow, long term, inevitable degradation of overall water quality of both in surface water and groundwater supplies present locally and regionally within the watershed.

Thank you for your time and consideration in these matters. I await ADEQ's responses to the comments and questions contained in this correspondence. In addition, I also await your responses to the attached Questions and Comments concerning C&H's Hog Farms current permit modification application request for No Discharge Permit coverage under Regulation No. 5.

Sincerely,



Gerald Delavan, P. G. (Retired)
1800 Leander Dr.
Little Rock, AR, 72204

Attachment: Comments Regarding ADEQ's Draft Decision to Approve C&H Hog Farms Application for a No Discharge Permit; Permit 5264-W; AFIN 51-00164

Cc: Office of Governor Asa Hutchinson
State Capitol, Room 250
Little Rock, AR 72201

Xc: Caleb Osborne
Associate Director,
Office of Water Quality
ADEQ

**Comments Regarding ADEQ's Draft Decision to Approve C&H Hog
Farms Application for a No Discharge Permit; Permit 5264-W;
AFIN 51-00164**

Please respond to the following comments and questions concerning this permit application:

1. Will a Professional Geologist be included in the permit review process?
2. Will any additional geologic site investigations and/or environmental assessments going be performed as part of the permit review process?
3. Will any additional boring be placed down gradient from the existing holding ponds to monitor for possible pond leakage?
4. What will be the volume increase for the land application of waste under this new permit?
5. Is there any additional soils testing or nutrient loading tests required for the existing or new land application sites? and, If no, please explain why?
6. Is there any testing and/or monitoring of surface water runoff from the land application sites required in this permit? and, If no, please explain why not?
7. Please explain why the holding ponds have a permitted, allowable leakage rate under this permit.
8. The Applicant is applying for a "No Discharge Permit". Please explain how a no discharge permit can have a permitted leakage rate.
9. Again, the Applicant is applying for a "No Discharge Permit". Please explain how and why the disposal and application of waste manure to the land surface is not a discharge and is allowed under a "No Discharge Permit".
10. Why does Environmental Assessment submitted for its existing permit by the Applicant fail to mention or even discuss the presence of shallow karst limestone present beneath the farm and the land application sites?
11. Why is no additional Environmental Assessment required by ADEQ to determine if the existing, ongoing hog farming operation is having any adverse impact on Big Creek and the watershed?
12. If there is evidence this farm is impacting local water quality how can ADEQ allow the existing hog farm operation to expand and increase the volume of waste manure disposed?

13. I assume ADEQ's response to the previous question will be "there is no evidence of any adverse impact from the C&H farming operations, to date". However, has ADEQ reviewed any water quality data or performed any site investigations to determine if this hog farm is having any adverse impact on the environment both locally and regionally?
14. Why are monitoring requirements for C&H less stringent under this new permit and Regulation No. 5?
15. How do you determine if the nutrient loading capacity for site soils has been exceeded at the land application sites? What happens when the nutrient loading capacity of a specific field is reached?
16. Does this permit increase to volume of waste manure which can be stored in the holding ponds? Does this permit increase to volume of waste manure which can be land applied?
17. Does ADEQ staff plan to look at and evaluate existing water quality collected to date by all parties, to evaluate if farming operations at C&H are already having an adverse impact on Big Creek or the surrounding watershed? If no, please explain?
18. If it is determined by ADEQ staff that there is evidence to support the conclusion C&H farming operations have had already an adverse impact on Big Creek, will ADEQ still approve the current permit application to modify and expand the existing hog farm operation for C&H?