

Thank you for the opportunity to provide comment on the Proposed Rule 6 “Regulations for State Administration of the National Pollutant Discharge Elimination System (NPDES)”.

The following comments include background, concerns, and questions related to Draft Rule 6.103, Draft Rule 6.602(B) and (C) in the context of the recent transfer of authority for Liquid Animal Waste Systems from the Arkansas Department of Energy and Environment to the Arkansas Department of Agriculture,

Draft Rule 6.103 defines AFO and CAFO, respectively, as,

“Animal Feeding Operation” or (“AFO”) means a lot or facility (other than an aquatic animal production facility) where the following conditions are met: animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility,

“Concentrated Animal Feeding Operation” or (“CAFO”) means an AFO that is defined as a Large CAFO or as a Medium CAFO pursuant to 40 C.F.R. § 122.23, or that is designated as a CAFO in accordance with 40 C.F.R. § 122.23(c). Two or more AFOs under common ownership are considered to be a single AFO for the purposes of determining the number of animals at an operation, if they adjoin each other or if they use a common area or system for the disposal of waste

Draft Rule 6.602(B) and 6.602(C) states,

(B) The Director shall not issue a permit or coverage pursuant to Regulation No. 6 this rule for a new swine CAFO in the Buffalo National River Watershed.

(C) C) Reg. 6.602(B) This rule does not prohibit the Director from: issuing a new Rule 6 permit for a facility that holds an active Liquid Animal Waste Management Systems permit as of the effective date of this rule.

BACKGROUND

In 2017, the Department of Environmental Quality (DEQ) issued a proposed Regulation 5 permit to a concentrated animal feeding operation (CAFO) whose National Pollution Discharge Elimination System (NPDES) “Reg 6” permit had expired in 2016. The proposed permit was subject to public comment, and ADEQ received roughly 20,000 comments, many of which noted that the applicant had not submitted the required site specific planning information, or other required studies for operating in a karst environment. DEQ administered the Individual No Discharge permitting process,

including online availability of permit documentation, with seasoned expertise and precision to detail, and identified numerous deficiencies as outlined in the Department's "Statement of Basis".

Excerpt,

Deficiencies in the Geological Investigation:

The facility is located on the Boone Formation, an area known to have karst. The hydrology of karst terrain is "created from the dissolution of soluble rocks, principally limestone and dolomite." Karst terrain is characterized by springs, caves, and sinkholes. "Karst hydrogeology is typified by a network of interconnected fissures, fractures and conduits emplaced in a relatively low-permeability rock matrix." In karst, the groundwater flow usually occurs through these networks of interconnected fissures, and groundwater may be stored in that matrix. Aquifers in karst are extremely vulnerable to contamination. The presence of karst triggers additional considerations for siting and design as stated in the Agricultural Waste Management Field Handbook (AWMFH).

In 2018, the applicant applied for an Individual NPDES permit, but DEQ deemed it administratively incomplete and requested the following information.

4. Additional information is required to evaluate the requirements of 40 CFR Parts 122.23, 122.42(e), and 412(4):

- a. A hydrogeological site investigation report prepared and certified by a Professional Geologist registered in Arkansas that thoroughly characterizes all aspects of the property that may directly or indirectly affect the design, construction, operation and monitoring of the process wastewater lagoons and land application fields;
- b. A conceptual hydrogeological model of the site, including field specific assessments of the land application sites, must be developed and provided. All characterization studies must be integrated into a comprehensive geologic model that accurately describes and explains the site hydrogeology, including, but not limited, to the potential for transport of nitrogen and phosphorus to waters of the State from the processed wastewater lagoons and land application sites. The model must be of sufficient detail to be used as a predictive tool for potential contamination migration and serve as a basis for corrective action.
- c. Geotechnical characterization of the subsurface conditions and materials (i.e., soils, epikarst, and karst on the site must be clearly demonstrated, including all information required to base the design and operation of large load bearing structures and the design stability of major features including process wastewater lagoon berms and liners;
- d. Consideration of the recommendations and requirements contained in the United States Department of Agriculture Natural Resource Conservation

Service Technical publications – Field Office Technical Guide, as amended, and Agricultural Waste Management Field Handbook (AWMFH), as amended – must be provided to consider appropriate design and operational procedures and best management practices required by 40 CFR 122.42(e). For example, the following items from the AWMFH are applicable:

- i. Emergency Response Preparedness [AWMFH 651.0204(a);
- ii. Groundwater Assessment [AWMFH 651.0703(b);
- iii. Geologic Assessment [AWMFH 651.0704(b)(4); AWMFH 651, Table 10-4]
- iv. Berm Integrity Assessment [AWMFH 651.0704(b)(4);
- v. Pond Construction Quality Assurance [AWMFH 651, Table 10-4 and appendix 10E;
- vi. Assessment of High-Risk Areas of Land Application Sites [AWMFH 651.0504(a)-(n) and Table 5-3];
- vii. Design and Construction Guidelines for Wastewater Impoundments Lined with Clay Or Amendment-Treated Soil [AWMFH 651 Appendix 10D]
- e. Provide all liquid animal waste handling system design drawing and specifications developed and certified by a Professional Engineer licensed in Arkansas;
- f. Provide “as-built” construction documents and construction certification by a Professional Engineer licensed in Arkansas; and
- g. Provide an Operations and Maintenance Manual certified by a Professional Engineer licensed in Arkansas that includes requirements for inspection procedures, documentation, and recordkeeping to ensure continued reliability of all wastewater containment features, conveyance structures, and processing equipment.

Note: The facility has since been shuttered, and its NPDES permit status is listed as “Inactive” on DEQ’s database.

CONCERNS

An excerpt from a 2019 research paper entitled, “Phosphorus Runoff Risk Assessment in Karstic Regions of the United States”, authored by Andrew Sharpley and his colleagues, reinforces the need for site-specific measures as well as agency expert oversight and management of the permitting process for liquid animal waste systems.

Recent concerns have been expressed on the reliability of P Indices to address the risk of P loss in karst topography, where features such as dissolution fissures and sinkholes may provide rapid flow pathways, which can bypass the soil matrix and lead to an increased potential for P to enter streams and rivers (Alloush,

Boyer, Belesky, & Halvorson, [2003](#); Brahana et al., [2014](#)). For instance, studies of various agricultural land uses, including concentrated animal feeding operations in karst terrain, have shown that waste lagoons and manure application fields can be sources of nitrogen (N), P, and bacteria in groundwater (Brahana et al., [2016](#); Hutchins, White, & Mravik, [2012](#); Kelly et al., [2009](#)).

Accounting for subsurface flow and transport from agricultural fields in P Indices remains a challenge due to the large spatial and temporal variability of factors controlling these flows. Additionally, an inability to reliably quantify subsurface P fluxes from any given field hinders calibration and verification of P-Index risk factors. Karst landscapes impart an additional layer of complexity to subsurface flows.

In April 2020, the United States Supreme Court issued its opinion in *County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (2020) (Maui). This decision prompted the Environmental Protection Agency (EPA) to issue a Draft Guidance document (updated 2023) which states, in part,

The Supreme Court held that NPDES authorization is also required for certain discharges of pollutants from point sources that travel through groundwater to surface waters that are “waters of the United States”.

....the Maui decision’s functional equivalent standard, considerations for determining which discharges through groundwater may require coverage under an NPDES permit, and the types of information that may be useful to NPDES permitting authorities in developing appropriate permit conditions.

Further,

There are several general principles that inform a functional equivalent analysis. First, whether a discharge of pollutants to surface water through groundwater is the functional equivalent of a direct discharge is highly dependent on site-specific features. These features may include distance traveled to surface water, depth to groundwater, soil type, subsurface permeability, hydraulic conductivity, and other features that effect {sic} the fate and transport of pollutants through the subsurface.

EPA recommends permit applicants meet early with permitting authority early in the process to discuss site specific factors. And, the EPA’s Draft Guidance states clearly that state groundwater permitting programs are irrelevant in the analysis, and provided reasons why state groundwater protection programs are irrelevant to the Clean Water Act.

The Clean Water Act states that the appropriate authority (i.e., State Director or Regional Administrator, or both) may designate any AFO as a CAFO upon determining that it is a significant contributor of pollutants to waters of the United States.

Act 824 of 2023, SECTION 2. Arkansas Code Title 15, Chapter 20, Subchapter 1 contains the following important and noteworthy amendment (Bold emphasis added):

15-20-102. Liquid animal waste management systems.

(a) In consultation with the Division of Environmental Quality, the Department of Agriculture has authority over all liquid animal waste management systems in this state, including without limitation the authority to:

- (1) Promulgate rules related to liquid animal waste management systems;
- (2) Issue and modify permits related to liquid animal waste management systems;
- (3) Approve design plans and site requirements related to liquid animal waste management systems; and
- (4) Take any other action related to liquid animal waste management systems.

QUESTIONS

- What is the nature of DEQ's role as a consultant to the Division of Agriculture prior to issuance of new Rule Reg 6 permit?;
- What criteria will inform the DEQ State Director's decision to issue a new Rule 6 permit for a swine AFO that holds an active Liquid Animal Waste Management Systems permit as of the effective date of this rule?
- Will this criteria be applied before, during, or after possible discharge and/or pollutant enters waters of the United States?
- Will a Rule 5 No Discharge facility AFO that is issued a Rule 6 NPDES permit be deemed a CAFO under the Clean Water Act?;
- Will DEQ receive notice of Reg 5 No Discharge Swine AFO's permitted to operate in the Buffalo River Watershed?
- Does the proposed new Rule 6.602(B) exempt small and medium size AFO's, which as defined in the Clean Water Act are not CAFOs?

The mere use of the words "No Discharge" is in no way a safeguard against pollutants entering surface water or groundwater due to improper and faulty design of a liquid waste facility and storage area, faulty calculations of liquid waste amounts in storage ponds, and/or faulty nutrient management plans which allow for land applications in excess of nutrients, i.e., phosphorus, which in turn allows for waste disposal instead of appropriate agronomic utilization.

I urge the Division of Environmental Quality to lean heavily on its role as a consultant in regard to the planning process, site-specific considerations, hydrogeology, surface and groundwater interactions, for liquid animal waste systems, especially swine AFOs, regardless of size, in karst terrain.

Resident taxpayers and concerned citizens do not need another round of litigious battles and/or a state sanctioned 6.2 million buyout agreement related to ill-placed, insufficient design, and woefully lacking liquid waste management protocols.

Respectfully,

Dane Schumacher

Sources:

<https://www.arkleg.state.ar.us/Home/FTPDocument?path=%2FACTS%2F2023R%2FPublic%2FACT824.pdf>

[A.C.A. § 15-20-102](#)

<https://www.adeg.state.ar.us/home/pdfs/statement-of-basis-5264-w.pdf>

[Administratively Incomplete Application Letter](#)

<https://access.onlinelibrary.wiley.com/doi/full/10.1002/ael2.20001>

<https://www.epa.gov/system/files/documents/2023-11/maui-draft-guidance.pdf>

<https://cars.uada.edu/cars-projects/waste-management/>

<https://www.law.cornell.edu/cfr/text/40/122.23>