February 23, 2017

Ms. Becky Keogh
Director
Arkansas Department of Environmental Quality
5301 Northshore Drive
Little Rock, AR 72118-5317
Email: keogh@adeq.state.ar.us

VIA U.S. MAIL AND EMAIL

Re: **C & H Hog Farms, Inc. Regulation 5 Draft Permit - Number 5264**

Dear Director Keogh:

Thank you for the opportunity to comment on the draft Regulation 5 permit for C & H Hog Farm, Inc.

The Arkansas Department of Environmental Quality (ADEQ) in 2012 issued a National Pollution Discharge and Elimination System (NPDES) General Non-Stormwater permit to C & H Hog Farm, Inc. to operate a confined animal feeding operation (CAFO) in the Buffalo River watershed. According to ADEQ's website, "General permits provide a streamlined National Pollutant Discharge Elimination System (NPDES) permitting process for certain categories of industrial discharges. A facility seeks coverage under an applicable permit rule instead of an individual permit."

C & H Hog Farm, Inc. by legal definition (40 CFR 122.23) is a large concentrated animal feeding operation (CAFO). Under the Clean Water Act, CAFOs are considered point sources (U.S.C. 33 Section 1362 (14)); point sources are regulated by the NPDES permitting program.

The rationale on which ADEQ made its decision to permit the first large CAFO in the Buffalo River watershed is outlined in the "FACT SHEET FOR 2nd DRAFT GENERAL PERMIT NO. ARG590000, CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFO) IN THE STATE OF ARKANSAS"

The Fact Sheet states in part:

> The State of Arkansas has been authorized by the U. S. Environmental Protection Agency to administer the National Pollutant Discharge Elimination System (NPDES) Program in Arkansas, including the issuance of general permits to categories of dischargers under the provisions of 40 CFR 122.28, as adopted by reference in Arkansas Pollution Control and Ecology Commission Regulation (Reg.) 6.104.
>
> Under this authority, ADEQ may issue a single general permit to a category of point sources located within the same geographic area whose discharges warrant similar pollution control measures. Specifically, in accordance with 40 CFR 122.28, the ADEQ

is authorized to issue a general NPDES permit if there are a number of point sources operating in a geographic area that:

1.1. involve the same or substantially similar types of operations;
1.2. discharge the same types of wastes;
1.3. require the same effluent limitations or operating conditions;
1.4. require the same or similar monitoring requirements; and
1.5. in the opinion of the Director, are more appropriately controlled under a general permit than under individual permits.

It is clear that ADEQ made a mistake in issuing a Regulation 6 NPDES General Permit to C & H Hog Farm, Inc. to operate and discharge waste in the Buffalo River watershed. However, the Regulation 5 No Discharge permit is not the remedy for a point source large concentrated animal feeding operation that stores and land applies untreated waste in amounts comparable to a city the size of Harrison, AR.

According to ADEQ, the NPDES CAFO General Permit and the Reg 5 draft permit allow C & H Hog Farm, Inc. to discharge in a 25 year, 24 hour storm event; neither permit ensures adequate safeguards to protect the Buffalo River environs, including Big Creek and the Buffalo National River, from the impacts, i.e., discharges from waste storage ponds and/or fields in karst terrain, of a large industrialized point source facility.

The distinction between CAFO permits and Regulation 5 permits related to karst investigation is noted in a 2013 communication between ADEQ personnel and the Natural Resource Conservation Service. (Attachment)

Nonetheless, ADEQ failed to conduct the requisite geotechnical protocol/investigation in accordance with the Field Office Technical Guide and the Animal Waste Management Field Handbook with regard to C & H Hog Farm, Inc.

Further, ADEQ makes no mention of karst in its Reg 5 draft permit for C & H Hog Farm, Inc. A Freedom of Information Act request to ADEQ for communications (including memos, notes and/or reports) related to karst and/or karst features with regard to C & H Hog Farm, Inc. for the time period August 2016 to February 22, 2017 has produced no results to date.

The Regulation 5 No Discharge permit for C & H Hog Farm, Inc. is a mistake. I urge ADEQ to deny the permit.

Respectfully,
Dane Schumacher

Cc:
Katherine McWilliams

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Soils Evaluation and Clay Blanket Liner Design

Darr Swine Farm
Yell County, Arkansas

Site Description: On June 24, 2012, an on-site visit was made to the Darr Swine Farm in Yell County, Arkansas in order to conduct a soils investigation to determine site suitability for addition of an earthen, waste impoundment. (*See attached Soils Investigation Report*). Soil profiling from the soils investigation report shall be used in this design report.

NRCS has designed the system with the criteria found in the "NRCS Agricultural Waste Management Field Handbook (210-VI-AWMFH, amend. 31, August 2009) Chapter 10, Appendix 10D", as amended and the Field Office Technical Guide, as amended. The design of the earthen structure shall meet the minimum guidelines of this document including any liners for the system. The maximum allowable liner design indicates that a loss of 1,000 gal/acre/day is allowable (*AWMFH, Page 10D-2*). If conditions allow a lower specific discharge will be designed for the system.

This design report will look initially at the *in situ* soils underling the planned holding pond to determine if a liner is required and, if necessary, secondly will include the liner design.

In Situ Soils:
A soils investigation pit was excavated on the site of the planned holding pond. The investigation extended to a depth of 88" below normal ground surface. This is below the planned bottom by approximately 4 inches. Upon construction of the structure, additional investigation will be made to a minimum depth of 2 feet below the planned bottom. The bottom horizon, from a depth of 66" – 88", has a unified classification of ML, or Silt Loam.

From the investigation on the site and NRCS Soil Survey the ground water should be below 5 feet of the planned bottom. Hydraulic connectivity should not be an issue with the installation of the system. Karst formations should not be a problem for this site.

From Table 10D-3, AWMFH, typically a ML soil will typically be categorized as a Type II soil, thus an analysis of *in-situ* soils will be conducted, and if necessary, a liner will be designed and installed on the planned earthen holding pond (Holding Pond 2).

***In-situ* Evaluation**:
The soils investigation report found the following soils:

Soil Unified Classification	Soil Group	Permeability Range (cm/s)	Design Value (cm/s)	Design Value (ft/day)
ML	II	5×10^{-6} - 5×10^{-4}	5×10^{-4}	1.417
CL-ML	II	5×10^{-6} - 5×10^{-4}	5×10^{-6}	1.42×10^{-2}

***In-situ* soil (bottom) for existing ML soils**

$v = k \times \frac{H + d}{d}$

where: k = permeability of in-situ material = 1.417 ft/d
d = thickness of soil below pond bottom (assume 6 ft)
H = maximum liquid depth of pond above liner = 6 ft
v = allowable specific discharge (ft/d)

v = (1.417 ft/d) x $\frac{(6 \text{ ft} + 6 \text{ ft})}{6\text{ft}}$ = 2.834 ft/d = 923,399 gal/day which is > 1,000 gal/day allowable.

CL-ML In-Situ soils

Allowable specific discharge (v) shall be 1,000 gal/ac/day or less which converts to 3.1 x10^{-3} ft^3/ft^2/day.

As indicated in the attached soils investigation report, soils from 15" – 66" has a unified classification of ML-CL. This soil shall be utilized in creation of a pond liner.

An ML-CL soil material has a permeability range as a group II soil of 5x10^{-6} cm/s to 5x10^{-4} cm/s.(AWMFH, Table 10D-5). The design value shall be 5 x 10^{-6}.

Conversion to English units: (5 x 10^{-6} cm/s) x 2,835 = 1.42 x 10^{-2} ft/d

Specific discharge: $v = k \times \frac{H + d}{d}$

where: k = permeability of proposed liner material (ft/d)
d = thickness of planned liner (assume 2 feet)
H = maximum liquid depth of pond above liner = 6'
v = allowable specific discharge in gal/ac/day

v = (1.42 x 10^{-2} ft/d) x $\frac{(6 \text{ ft} + 2 \text{ ft})}{2 \text{ ft}}$ = 0.0568 ft/day = 18,507 gal/ac/day

A clay blanket liner will be required for this site.

CL-ML with Blanket Liner

From page 10D-15 a compaction factor of 1/10 to 1/100 may be applied: Use 1/25 = 740 gal/ac/day.
From page 10D-14 fines may be allowed to reduce the specific discharge up to ½ magnitude of order further reducing the specific discharge to allowable limits and essentially disconnecting the hydrologic connectivity to groundwater. Therefore: 300 to 400 gal/day/ac is not an unreasonable value.

The structure surface area at mid depth is 0.3 acres. Thus allowing a potential specific discharge of 111 gal/day.

A 24 inch, clay blanket liner shall be constructed in the bottom and sideslopes of the planned holding pond. This liner shall be constructed of the on-site CL-ML material, as indicated on the soils investigation report. CL or CH material will be searched for on-site, and if available will be used in the liner. A revised liner design shall be submitted if CL or CH material is located.

Installation:

From AWMFH Page 10D-18, the liner shall be constructed in 6 inch lifts of compacted fill, compacted by equipment such as a sheepsfoot exerting from 200 to 400 pounds per square inch pressure on the compacting effort. Not less than 6 passes of the sheepsfoot will be required on each lift with the soil moisture wet such that the sheepsfoot roller is difficult to pull due to the sinking of the roller or drag in the required backfill material. This condition is known as 2% to 4 % wet of optimum for the soil to reach 90% to 95% compaction of maximum Standard Proctor dry density, whereas moisture will control over compaction. Water shall be added if necessary to have sufficient moisture. If there is difficulty is determining moisture content, testing may be required.

NRCS will inspect and certify the clay blanket liner upon installation completion.

Date: June 24, 2012

From: Nelson A. Rolong, Acting State Soil Scientist/MO-16 Leader

To: Stan Rose, Civil Engineer, Fort Smith Service Center

Subject:On-site investigation at the Michael R. Darr Swine Farm, Yell County, Arkansas

A technical assistance was requested to the State Soil Survey Office to assess the soil suitability to the construction of an oxidation pond at the Michael Darr's swine farm. On June 26 2012, I traveled to Yell County and described the soil profile at the selected pond site.

The study area (Fig. 1) is located on the soil map unit Mountainburg gravelly fine sandy loam, 3 to 8 percent slope at latitude 35°07'26.182" North and longitude 93°08'26.508" West. The site is on the tread of an old stream terrace, the soil developed from loamy alluvium and consists of very deep, moderately well drained, slowly permeable horizons, and has high runoff. Vegetation is grasses (Fig.2).

A pit was excavated using a backhoe and the soil profile was described at 80 inches deep. The soil morphology (Fig.3) was not consistent with the Mountainburg soil series.

Ap1-- 0 to 2 inches, 7.5 YR 3/3 moist loam; moderate medium sub-angular blocky moderate medium platy structure; firm many fine roots; strongly acid; clear smooth boundary.

Ap2--2 to 6 inches; 10YR 4/3 moist loam; moderate medium platy structure; firm; many fine roots; strongly acid; abrupt smooth boundary

Bt1--6 to 16 inches; 5 YR 5/6 loam; moderate fine prismatic structure parting to moderate medium sub-angular blocky structure; firm; common fine roots; few thin faint clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2--16 to 28 inches; 5 YR 4/4 clay loam; moderate fine prismatic structure parting to moderate medium and coarse blocky structure; firm; few fine roots; ; common thin patchy clay films on ped faces; strongly acid; clear wavy boundary.

Bt3--28 to 44 inches; 7.5 YR 4/6 loam; moderate fine prismatic structure parting to moderately medium blocky structure; firm; few fine roots; few thin discontinuous clay films on ped faces; 30 percent coarse and medium prominent 10YR 7/2 iron depletions, 10 percent coarse and medium 2.5YR 3/6 masses of iron concentration, and 2 percent fine and medium prominent 10 YR 2/1 iron-manganese coatings; strongly acid; gradual wavy boundary.

Bt4--44 to 52 inches; 7.5 YR 4/6 loam; moderately medium blocky structure; firm; few thin discontinuous clay films on ped faces; 30 percent coarse and medium prominent 10YR 6/2 iron depletions, 10 percent coarse and medium 2.5YR 3/6 masses of iron concentration, and 8 percent fine and medium iron-manganese masses; 5 percent by volume of shale fragments; strongly acid; gradual wavy boundary.

Bt5--52 to 72 inches; 10 YR 5/6 loam; moderate medium blocky structure; few thin discontinuous clay films on ped faces; firm; 30 percent medium prominent 10YR 6/2 iron depletions, 10 percent medium prominent 2.5YR 3/6 masses of iron concentration, and 10 percent fine and medium prominent iron-manganese masses; gradual wavy boundary.

Bt6--72 to 80 inches; 10 YR 5/6 loam; moderate fine blocky structure; firm; few thin discontinuous clay films on ped faces; 20 percent medium prominent 10YR 7/1 iron depletions, 5 percent medium prominent 2.5YR 3/6 masses of iron concentration, and 10 percent fine and medium prominent iron-manganese masses.

Estimated soil properties significant to engineering

	Unified classification	Shrink-Swell potential
Ap1-- 0 to 4 inches,	ML	Low
Ap2--4 to 15 inches	ML	Low
Bt1--15 to 21 inches	CL-ML	Moderate
Bt2--21 to 27 inches	CL-ML	Moderate
Bt3--27 to 35 inches	CL-ML	Moderate
Bt4--35 to 66 inches	CL-ML	Moderate
Bt5--66 to 88 inches	ML	Low

Nelson A. Rolong, Ph.D.

Assistant State Soil Scientist

From: Vickerson, Casey
To: Deardorff, Amy
Cc: Yarberry, Katherine; Bailey, John
Subject: FW: Darr Swine CMNP
Date: Thursday, June 06, 2013 1:41:56 PM
Attachments: Darr_Clay_Blanket_Liner_Design.pdf

Updates to Darr NMP, 3814-WR-2.

From: Rose, Stan - NRCS, Fort Smith, AR [mailto:Stan.Rose@ar.usda.gov]
Sent: Thursday, June 06, 2013 1:22 PM
To: Vickerson, Casey
Subject: Darr Swine CMNP

June 6, 2013

Casey,

I will attempt to answer your questions regarding the Darr Swine Farm as indicated in your email, shown below, to Phyllis Darr.

From: "Vickerson, Casey" <Vickerson@adeq.state.ar.us>
Date: May 22, 2013, 4:21:18 PM CDT
To: "darrfarms@centurytel.net" <darrfarms@centurytel.net>
Cc: "monica.hancock@ar.nacdnet.net" <monica.hancock@ar.nacdnet.net>
Subject: Info

Hey Phyllis,

I know I asked for this information under the CAFO application, but we cannot use what was submitted for that permit under this Reg 5 so I will ask again:

What is the permeability of the ponds?

What is the distance from the surface to the groundwater?

Are there any sinkholes in the area?

Many thanks,

Casey Vickerson
Permit Engineer
ADEQ Water Division
501-682-0653

1. The attached liner design will should be inserted into the Darr's CNMP. This design is based on AWMFH guidelines.

2. The distance from the ground surface to groundwater is not known at this time. Regulation 5 and the NRCS AWMFH require us to conduct soil investigations to a depth of 2 feet below the planned bottom of the holding pond. We conducted a soils investigation on this farm to a depth of 88 inches, which is as deep as we could excavate and safely place personnel into the pit to classify the soils. No water table was observed to a depth of 88". After the pond is excavated, subsequent boring will be done in the pond bottom to ensure that soils are classified to a depth of 2 feet below the pond bottom.

3. There are no known sinkholes in the area, and this is not considered as an area with Karst Topography.

Stan Rose
Area Engineer, NW Area
USDA-NRCS
3913 Brooken Hill Dr.
Fort Smith, AR 72908
Phone: 479-646-8300 x137

From:	dane schumacher
To:	Water Draft Permit Comments
Subject:	Fw: Comments re Reg 5 draft permit-5264-W
Date:	Thursday, February 23, 2017 11:00:42 AM
Attachments:	DANE SCHUMACHER COMMENT RE PERMIT # 5264-W.docx 3814-wr-2_updates to cnmp_20130606.pdf

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FYI
On Thursday, February 23, 2017 10:28 AM, dane schumacher <dane.schumacher@yahoo.com> wrote:

Dear Ms. Keogh:
Please find attached comments with regard to the Draft Permit for C & H Hog Farm, Inc. - Permit # 5264. The attachment referenced in comment is also attached.

Best,
Dane Schumacher