VIA FIRST CLASS MAIL AND EMAIL (Water-Draft-Permit-Comment@adeq.state.ar.us.)

March 20, 2014

Ms. Teresa Marks
Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

Re: C & H Farms
Modified Draft Permit ARG590001 AFIN 51-00164

Dear Director Marks:

The comments below pertain to the modified portion of the permit as revised by C & H Hog Farm (hereinafter referred to as C & H) on February 17, 2014 in Section M - Plan for Pumping Waste Storage Ponds.

C & H's request to use a vac tanker to apply wastes from Waste Storage Pond #1 to fields 7, 8 and 9 is considered a major modification to the permit. However, it is not the only significant change that warrants consideration and subsequent approval by ADEQ. Additionally, the Plan states "the land application rate should be calculated based on (1) nutrient content of the wastewater, and (2) current soil tests." (Attachment A)

No calculations have been made which address the nutrient contents to be contained within the vac tanker or current soil tests of field 7 and 8.

NPDES Permit Section 3.2.5 states the NMP "must include the field available for land application; field specific rates of application properly developed as specified in Parts 3.2.5.1 through Parts 3.2.5.2 of this section, to ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater; and any timing limitations identified in the NMP concerning land application on the field suitable for land application. (Attachment B)

C & H has not provided any new information which would support the application of waste from Waste Storage Pond #1 to fields 7 and 8.

The data contained in the NMP and NOI is outdated, incomplete and inappropriate. The application of waste from Waste Storage Pond #1 to fields 7 and 8 is not a methodology listed in C & H's original NMP. The existing NMP does not support or provide a properly developed basis for C & H's request for modification to apply waste from Waste Storage Pond #1 to fields 7 and 8. (Attachment C)

ADEQ's Inspection Report (January 28, 2014) states, "Per Section M of your NMP please ensure you only use a vac tanker on fields 1-4 and 10-17, and only use the pipeline/sprinkler system on Fields 5-9. Your NMP will need to be revised if you wish to use both practices to apply on a given field." (Attachment D)

The modification requested designates fields 7, 8 and 9 to receive waste from Waste Storage Pond #1. When properly agitated, this waste will be significantly higher in nitrogen and phosphorus than Waste Storage Pond #2. Waste Storage Pond #1 should not be used without recalculating application rates. If Waste Storage Pond #1 is not agitated, then provision for the accumulation of biosolids in Waste Storage Pond #1 must be addressed before waste applications are applied to fields 7, 8 and 9.

An ADEQ report entitled "Land Application of Accumulated Solids From Liquid Waste Systems Demonstration Project" issued in September 2002 addresses this issue. The report states, "In order to land apply liquid manure in a way that will result in the least amount of nutrients being transported to lakes and streams as nonpoint source pollution every effort must be made to control the pertinent variables. Land application variables can best be controlled by accurately estimating the nutrient load contained within storage structures and then proceeding through a thoughtful, careful planning process in which an easily followed course of action is outlined and implemented." (Attachment E)

Fields 7 and 9 are among the fields with the highest soil test P of any of the fields. Field 7 has a soil test P of 356 pounds/acre. This value is so high that application of P as either manure or fertilizer should be discontinued. (Attachment F)

The above-mentioned ADEQ report also states, "Another nutrient management related concern identified in the Swine Project was the build up of phosphorus in the soil, generally described by soil test phosphorous (STP), on certain application sites. STP concentrations in the soils of the most convenient fields for land application, typically, those fields immediately adjacent to the LAWMS,

commonly exceeded 300 pounds per acre. This value exceeds the concentration considered by many professionals in the field of non-point source pollution to be an upper cut off level for additional applications of the nutrient. Values approaching or exceeding the upper limit of the Melich III test method are not uncommon in areas with high densities of confined animal production facilities. The high STP issue created additional difficulties when attempting to address solids and nutrient accumulation problems in LAWMS. Pastures exceeding the 300 pounds per acre concentration could not be recommended for land application of accumulated swine manure solids during the Swine Project."

The Swine Manure Demo Project (Karl Vandevender, et al) August 2013 report states, "The first concern in swine manure management is related to the phosphorus content of the manure. Typically the manure is applied based on the receiving crop's nitrogen requirements. As a result, more phosphorus is applied than the crop will normally utilize (around five fold), thereby resulting in a phosphorus buildup in the soil. The phosphorus content of surface soil directly influences the loss of phosphorus in runoff (Daniel et al., 1994), which can reduce surface water quality." (Attachment G)

Field 7 is in the floodplain of Big Creek and is also listed as the field available for land application of wastewater in an emergency. (Attachment H)

Wastes from WSP #1 applied to floodplain fields pose environmental risk as wastes from WSP#1 are too rich for use on fields with already existing very high soil test P. Surface to groundwater nutrient runoff can be expected now and for a long time into the future. Indeed, there is no discussion at all of the karst terrain underlying these fields which is a pathway for pollution wholly overlooked in the NMP and ignored by ADEQ. (Attachment I)

C & H's NMP does not contain P index calculations for fields 7 and 9. (Attachment J)

The Swine Demo Project states, "... application rates greater than crop needs has been shown to result in nitrate (NO3) movement through the soil into ground water and can result in an excessive rise in soil test P levels leading to increased phosphorus runoff concerns. This can be a problem, since phosphorus is normally the limiting nutrient for eutrophication in freshwater systems."

Field 7, perhaps the most problematic of all 17 fields, is "off limits" to the University of Arkansas Big Creek Research team and will not be monitored for any environmental harm related to the C & H operation. (Attachment K)

Per the U of A and ADEQ Memorandum of Agreement, ADEQ agreed to: Assist U of A with obtaining access to conduct the study if access is denied by any property owner. (Attachment L) Given the extraordinarily high existing P levels in the soils of Field 7, and the high nutrient values in the waste proposed to be spread, ADEQ should not approve the modification unless the landowner agrees to monitoring. If the landowner does not wish to have the field monitored, then this field should be removed from the NMP.

Governor Beebe has spoken succinctly and pointedly with regard to the U of A and ADEQ's role in the land access matter. (Attachment M) Field 7 lies at the heart of this issue.

Due to the close proximity of field 7 to the Mt Judea school and community and due to the known health risks of chronic exposure to swine waste (ammonia, hydrogen sulfide, airborne particulates and other components of swine waste known to be hazardous to human health) particularly among children and the elderly, ADEQ must consider the effects to the public health and impacts on the local community. (Attachment N)

C & H developed their NMP using a narrative rate approach. NMP's that are developed using a narrative approach must contain an essential term described as "the outcome to the field-specific assessment of the potential for nitrogen and phosphorus transport from each field." C & H's NMP does not contain this essential term for proposed Land Application Fields 7 or 9. Any such spraying of waste on fields 7 or 9 is a violation of the permit and the Clean Water Act.

Buffalo River Watershed Alliance respectfully submits these comments and requests that ADEQ, as the state agency charged with preventing, controlling and abating pollution that could harm Arkansas's valuable natural resources, deny C & H's request to spread manure on fields 7, 8 and 9 by vac-tanker.

In addition, BRWA requests that ADEQ reopen the permit in its entirety.

Respectfully Submitted,

Dane Schumacher

Dane Schumacher
Jack Stewart
Gordon Watkins
Buffalo River Watershed Alliance

Cc:
Governor Mike Beebe
Lynn Sickel, Chair, Arkansas Pollution Control and Ecology Commission (PC&E Comm'n)
William Thompson, Vice Chair, PC&E Comm'n
Stan Jorgensen, PC&E Comm'n
John Chamberlin, PC&E Comm'n
Joseph Bates, PC&E Comm'n
Lawrence Bengal, PC&E Comm'n
Mike Armstrong, PC&E Comm'n
Darwin Hendrix, PC&E Comm'n
Ann Henry, PC&E Comm'n
Joe Fox, PC&E Comm'n
John Simpson, PC&E Comm'n
Bekki White, PC&E Comm'n
Randy Young, PC&E Comm'n

Attachments (A-N)

ATTACHMENT A

Plan for Pumping Waste Storage Ponds

Operator Name C&H Hog Farms **Date** 02/10/14

County Newton **Pond ID or Legal Description** Waste Storage Pond 1 & 2

- **Method Selected for Land Application of Wastewater**

  X Pipeline/Sprinkler System (Permanent): *Waste Storage Pond 2*
  _____ Big Gun Sprinkler (Temporary)
  _____ Drag Hose System
  X Tank Wagon: *Waste Storage Pond 1*
  _____ Other (Explain)

- **Pre-Arranged Source of Application Equipment (List all necessary equipment and access to it).**

Type Equip.	Obtain Where
Pump	Proposed to Field 5-9
Pipe	Proposed to Field 5-9
Sprinkler	Proposed to Field 5-9
Vac Tanker	Fields 1-4 and 7-17

- **Fields Available for Land Application of Wastewater in an Emergency**

Legal Description	Landuse	Acres Available	Predom. Soil
Sec. 26, T15N, R20W	Grass	74.3	48

- **Holding Capacity of Ponds at Must Pumpdown Level** 2,469,903 **gallons**
  Bottom of 25-year, 24-hour storage level. Pond is to be pumped within 10 days below level.

- **Holding Capacity of Ponds at High Water Line** 3,495,464 **gallons**
  Top of 25-year, 24-hour storage level (bottom of freeboard)(Includes Concrete Pits).

- **Holding Capacity of Ponds between Freeboard and Must Pumpdown Elevation** 35,564 **gallons**
  Bottom of freeboard- Must Pumpdown Elevation.

- **Application Rates**

  The fertilizer value of wastewater in waste storage ponds is variable. Prior to land application, it is recommended to collect a representative sample from the pond and sent to a testing laboratory for analysis. If time does not permit waiting for test results, estimates of the nutrient content can be made from data previously collected at other facilities or from publications.

The land application rate should be calculated based on (1) the nutrient content of the wastewater, (2) current soil tests, (3) crop needs and (4) the water intake capacity (inches/hour) of the soil if an irrigation system is used.

For more information and/or assistance in calculating application rates, contact your local NRCS and Conservation District Office.

ATTACHMENT B

3.2.2.2 A copy of the CAFO's site-specific nutrient management plan must be maintained on site and made available to the Director upon request.

3.2.3 **Requirements relating to transfer of manure or process wastewater to other persons.** Prior to transferring manure, litter or process wastewater to other persons, Large CAFOs must provide the recipient of the manure, litter or process wastewater with the most current nutrient analysis. The analysis provided must be consistent with the requirements of 40 CFR 412. Large CAFOs must retain for five years records of the date, recipient name and address, and approximate amount of manure, litter or process wastewater transferred to another person.

3.2.4 **Annual reporting requirements for CAFOs.** The permittee must submit an annual report to the Director. The annual report all reports are due by the 31st day of January each year for the previous January – December reporting period (i.e. January 31, 2012 for Year 2011). The first report may include less than the 12 months of information and must include:

3.2.4.1 The number and type of animals, whether in open confinement or housed under roof (beef cattle, broilers, layers, swine weighing 55 pounds or more, swine weighing less than 55 pounds, mature dairy cows, dairy heifers, veal calves, sheep and lambs, horses, ducks, turkeys, other);
3.2.4.2 Estimated amount of total manure, litter and process wastewater generated by the CAFO in the previous 12 months (tons/gallons);
3.2.4.3 Estimated amount of total manure, litter and process wastewater transferred to other person by the CAFO in the previous 12 months (tons/gallons);
3.2.4.4 Total number of acres available for land application covered by the nutrient management plan developed in accordance with Part 3 of the permit;
3.2.4.5 Total number of acres under control of the CAFO that were used for land application of manure, litter and process wastewater in the previous 12 months;
3.2.4.6 Summary of all manure, litter and process wastewater discharges from the production area that have occurred in the previous 12 months, including date, time, and approximate volume;
3.2.4.7 A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner; and
3.2.4.8 The actual crop(s) planted and actual yield(s) for each field, the actual nitrogen and phosphorus content of the manure, litter, and process wastewater, the results of calculations conducted in accordance with Parts 3.2.5.1.b and 3.2.5.2.d of this section, and the amount of manure, litter, and process wastewater applied to each field during the previous 12 months; and, for any CAFO that implements a nutrient management plan that addresses rates of application in accordance with Part 3.2.5.2 of this section, the results of any soil testing for nitrogen and phosphorus taken during the preceding 12 months, the data used in calculations conducted in accordance with Part 3.2.5.2.d of this section, and the amount of any supplemental fertilizer applied during the previous 12 months.

3.2.5 **Terms of the nutrient management plan.** Any permit issued to a CAFO must require compliance with the terms of the CAFO's site-specific nutrient management plan. The terms of the nutrient management plan are the information, protocols, best management practices, and other conditions in the nutrient management plan determined by the Director to be necessary to meet the requirements of Part 3.2.1 of this section. The terms of the nutrient management plan, with respect to protocols for land application of manure, litter, or process wastewater required by Part 3.2.1.8 of this section and, as applicable, 40 CFR 412.4(c), must

include the fields available for land application; field-specific rates of application properly developed, as specified in Parts 3.2.5.1 through 3.2.5.2 of this section, to ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater; and any timing limitations identified in the nutrient management plan concerning land application on the fields available for land application. The terms must address rates of application using one of the following two approaches, unless the Director specifies that only one of these approaches may be used:

3.2.5.1 **Linear approach**. An approach that expresses rates of application as pounds of nitrogen and phosphorus, according to the following specifications:

a The terms include maximum application rates from manure, litter, and process wastewater for each year of permit coverage, for each crop identified in the nutrient management plan, in chemical forms determined to be acceptable to the Director, in pounds per acre, per year, for each field to be used for land application, and certain factors necessary to determine such rates. At a minimum, the factors that are terms must include: the outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field; the crops to be planted in each field or any other uses of a field such as pasture or fallow fields; the realistic yield goal for each crop or use identified for each field; the nitrogen and phosphorus recommendations from sources specified by the Director for each crop or use identified for each field; credits for all nitrogen in the field that will be plant available; consideration of multi-year phosphorus application; and accounting for all other additions of plant available nitrogen and phosphorus to the field. In addition, the terms include the form and source of manure, litter, and process wastewater to be land-applied; the timing and method of land application; and the methodology by which the nutrient management plan accounts for the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied.

b Large CAFOs that use this approach must calculate the maximum amount of manure, litter, and process wastewater to be land applied at least once each year using the results of the most recent representative manure, litter, and process wastewater tests for nitrogen and phosphorus taken within 12 months of the date of land application; or

3.2.5.2 **Narrative rate approach.** An approach that expresses rates of application as a narrative rate of application that results in the amount, in tons or gallons, of manure, litter, and process wastewater to be land applied, according to the following specifications:

a The terms include maximum amounts of nitrogen and phosphorus derived from all sources of nutrients, for each crop identified in the nutrient management plan, in chemical forms determined to be acceptable to the Director, in pounds per acre, for each field, and certain factors necessary to determine such amounts. At a minimum, the factors that are terms must include: the outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field; the crops to be planted in each field or any other uses such as pasture or fallow fields (including alternative crops identified in accordance with Part 3.2.5.2.b of this section); the realistic yield goal for each crop or use identified for each field; and the nitrogen and phosphorus recommendations from sources specified by the Director for each crop or use identified for each field. In addition, the terms include the methodology by which the nutrient management plan accounts for the following factors when calculating the

amounts of manure, litter, and process wastewater to be land applied: results of soil tests conducted in accordance with protocols identified in the nutrient management plan, as required by Part 3.2.1.7 of this section; credits for all nitrogen in the field that will be plant available; the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied; consideration of multi-year phosphorus application; accounting for all other additions of plant available nitrogen and phosphorus to the field; the form and source of manure, litter, and process wastewater; the timing and method of land application; and volatilization of nitrogen and mineralization of organic nitrogen.

b The terms of the nutrient management plan include alternative crops identified in the CAFO's nutrient management plan that are not in the planned crop rotation. Where a CAFO includes alternative crops in its nutrient management plan, the crops must be listed by field, in addition to the crops identified in the planned crop rotation for that field, and the nutrient management plan must include realistic crop yield goals and the nitrogen and phosphorus recommendations from sources specified by the Director for each crop. Maximum amounts of nitrogen and phosphorus from all sources of nutrients and the amounts of manure, litter, and process wastewater to be applied must be determined in accordance with the methodology described in Part 3.2.5.2.a of this section.

c For CAFOs using this approach, the following projections must be included in the nutrient management plan submitted to the Director, but are not terms of the nutrient management plan: the CAFO's planned crop rotations for each field for the period of permit coverage; the projected amount of manure, litter, or process wastewater to be applied; projected credits for all nitrogen in the field that will be plant available; consideration of multi-year phosphorus application; accounting for all other additions of plant available nitrogen and phosphorus to the field; and the predicted form, source, and method of application of manure, litter, and process wastewater for each crop. Timing of application for each field, insofar as it concerns the calculation of rates of application, is not a term of the nutrient management plan.

d CAFOs that use this approach must calculate maximum amounts of manure, litter, and process wastewater to be land applied at least once each year using the methodology required in Part 3.2.5.2.a of this section before land applying manure, litter, and process wastewater and must rely on the following data:

i a field-specific determination of soil levels of nitrogen and phosphorus, including, for nitrogen, a concurrent determination of nitrogen that will be plant available consistent with the methodology required by Part 3.2.5.2.a of this section, and for phosphorus, the results of the most recent soil test conducted in accordance with soil testing requirements approved by the Director; and

ii the results of most recent representative manure, litter, and process wastewater tests for nitrogen and phosphorus taken within 12 months of the date of land application, in order to determine the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied.

3.2.6 **Changes to a nutrient management plan**. Any permit issued to a CAFO must require the following procedures to apply when a CAFO operator makes changes to the CAFO's nutrient management plan previously submitted to the Director:

3.2.6.1 The CAFO operator must provide the Director with the most current version of the CAFO's nutrient management plan and identify changes from the previous version,

ATTACHMENT C

Comments:

Arkansas Nutrient Managemnt Planner with 2009 PI (ver 3/3/2010)

Planner:	Nathan A. Pesta, P.E.	Date:	5/25/2012
Plan Description:	Jason Henson: Fields 1-10		

Manure Distribution Summary

Units Applied by Field and Source

Field	Source				
	WSP#1 (1000 gal)	WSP#2 (1000 gal)			
H1	389.19				
H2	168.34				
H3	136.04				
H4	87.05				
H5		1,923.92			
H6		2,797.24			
H7		6,017.52			
H8		1,255.50			
H9		3,340.70			
H10	596.74				
Total Applied	1,377	15335			
Available	1,230	1531			
Deficit/Surplus	-147	-13804			

Supplemental Documentation of Inputs and Results for P Index and RUSLE Calculations

Field	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10
Soil Map Unit	42	43	48	43	48	48	48	51	50	51
Soil Name	Noark very c	Noark very c	Razort loam,	Noark very c	Soil Name C	Soil Name C	Soil Name C	Spadra loam	Soil Name C	Spadra loam
Primary Litter Source	WSP#1	WSP#1	WSP#1	WSP#1	WSP#2	WSP#2	WSP#2	WSP#2	WSP#2	WSP#1
Source Type	Liquid Biosol	Liquid Biosol	Liquid Biosol	Liquid Biosol	Liquid Manur	Liquid Manur	Liquid Manur	Liquid Manur	Liquid Manur	Liquid Biosol
WEP (lb/ton)	1.9	1.9	1.9	1.9	0.07	0.07	0.07	0.07	0.07	1.9
TP Used (lb/ton)	12.6200873	12.6200873	12.6200873	12.6200873	10.1310044	10.1310044	10.1310044	10.1310044	10.1310044	12.6200873
Litter Appl. Rate (tons/acre)	25	9.9	10	9.9	81	81	81	81	81	18
WEP rate (lb/ac)	47.5	18.81	19	18.81	5.67	5.67	5.67	5.67	5.67	34.2
TP rate (lb/ac)	315.502183	124.938865	126.200873	124.938865	820.611354	820.611354	820.611354	820.611354	820.611354	227.161572
Alum Used	No	No	No	No	No	No	No	No	No	No
Mineralization Coef	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
WEP coef	0.029	0.029	0.029	0.029	0.031	0.031	0.031	0.031	0.031	0.029
WEP Source Value	1.76610317	0.69937685	0.70644127	0.69937685	1.4389291	1.4389291	1.4389291	1.4389291	1.4389291	1.27159428
Soil Test P	110.39	95.76	55.86	66.5	86.45	101.08	236.74	61.18	69.16	91.77
Soil coef	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Soil P Source Value	0.198702	0.172368	0.100548	0.1197	0.15561	0.181944	0.426132	0.110124	0.124488	0.165186
Total P Source Value	1.96480517	0.87174485	0.80698927	0.81907685	1.5945391	1.6208731	1.8650611	1.5490531	1.5634171	1.43678028
R factor	270	270	270	270	270	270	270	270	270	270
Kf	0.43	0.43	0.37	0.43				0.37		0.37
Adj Kf For Freezing?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kf Used	0.35	0.35	0.3	0.35				0.3		0.3
Slope Gradient (%)	5.5	14	14	14	0.2	0.2	0.2	3.5	0.2	3.5
Slope Length (ft)	45	45	23	23	5	4	4	12	7	15

Comments:

Arkansas Nutrient Managemnt Planner with 2009 PI (ver 3/3/2010)

Planner:	Nathan A. Pesta, P.E.	Date:	5/25/2012
Plan Description:	Jason Henson: Fields 1-10		

Best Management Practices

Field	Diversion	Terrace	Pond	Filter Strip	Grassed Waterway	Fencing	Riparian Forest Buffer	Riparian Herbaceous Cover	Field Borderrs	Post BMP PI Value	P Index Range
H1										65	Medium
H2										80	High
H3										47	Medium
H4										75	High
H5											
H6											
H7											
H8										56	Medium
H9											
H10										52	Medium

Field Nutrient Application Planning

Per Acre Basis

Field	Nutrient Source	Application			Nutrient Recommendation (lb/ac)			Nutrients Applied (lb/ac)			Surpluses / Deficits (lb/ac)		
		PI Max	Planned		N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
H1	WSP#1	25.00	25.00	1000 gal/ac	489	57	220	188	145	146	-301	88	-75
H2	WSP#1	9.90	9.90	1000 gal/ac	489	57	220	74	57	58	-415	0	-162
H3	WSP#1	10.00	10.00	1000 gal/ac	489	57	220	75	58	58	-414	1	-162
H4	WSP#1	9.90	9.90	1000 gal/ac	489	57	220	74	57	58	-415	0	-162
H5	WSP#2	81.00	81.00	1000 gal/ac	489	57	220	489	376	379	0	319	159
H6	WSP#2	81.00	81.00	1000 gal/ac	489	57	220	489	376	379	0	319	159
H7	WSP#2	81.00	81.00	1000 gal/ac	489	57	220	489	376	379	0	319	159
H8	WSP#2	81.00	81.00	1000 gal/ac	489	57	220	489	376	379	0	319	159
H9	WSP#2	81.00	81.00	1000 gal/ac	489	57	220	489	376	379	0	319	159
H10	WSP#1	18.00	18.00	1000 gal/ac	489	57	220	135	104	105	-354	47	-115

Per Field Basis

Field	Nutrient Source	Application			Nutrient Recommendation (lbs)			Nutrients Applied (lbs)			Surpluses / Deficits (lb)		
		PI Max	Planned		N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
H1	WSP#1	389.19	389.19	1000 gal	7,613	887	3,425	2,927	2,250	2,265	-4,686	1,362	-1,160
H2	WSP#1	168.34	168.34	1000 gal	8,315	969	3,741	1,266	973	980	-7,049	4	-2,761
H3	WSP#1	136.04	136.04	1000 gal	6,653	775	2,993	1,023	786	792	-5,629	11	-2,201
H4	WSP#1	87.05	87.05	1000 gal	4,300	501	1,934	655	503	507	-3,645	2	-1,428
H5	WSP#2	1923.92	1923.92	1000 gal	11,615	1,354	5,225	11,621	8,927	9,004	6	7,573	3,778
H6	WSP#2	2797.24	2797.24	1000 gal	16,887	1,968	7,597	16,895	12,979	13,091	8	11,011	5,494
H7	WSP#2	6017.52	6017.52	1000 gal	36,328	4,235	16,344	36,346	27,921	28,162	18	23,687	11,818
H8	WSP#2	1255.50	1255.50	1000 gal	7,580	884	3,410	7,583	5,826	5,876	4	4,942	2,466
H9	WSP#2	3340.70	3340.70	1000 gal	20,168	2,351	9,074	20,178	15,501	15,634	10	13,150	6,561
H10	WSP#1	596.74	596.74	1000 gal	16,211	1,890	7,293	4,487	3,449	3,473	-11,724	1,559	-3,820
				Totals	135,669	15,814	61,037	102,981	79,115	79,784	-32,688	63,301	18,747

ATTACHMENT D

GENERAL COMMENTS	
THE GENERAL COMMENTS SECTION DOES NOT REQUIRE A RESPONSE **As a reminder, per Part 3.2.4 of your permit your annual report is due to the Department by January 31, 2014.** **Per Section B.3.c.4 of your NMP, soil samples for Nitrate-N and Phosphorus shall be taken no less than annually. This differs from Part 4.2.1.3 of your permit. Please ensure you continue to abide by the requirement of your NMP.** **At the time you indicated land application is only occurring by use of the vac tanker which coincides with your application records. Per Section M of your NMP, please ensure you only use a vac tanker on fields 1-4 and 10-17, and only use the pipeline/sprinkler system on Fields 5-9. Your NMP will need to be revised if you wish to use both practices to apply on a given field.** **A review of your application records indicated a rating of "Fair" for Field 17. When asked, you indicated the field was a "little soft" and this was noticed once you began applying and ruts from the equipment formed. However, you indicated you took appropriate action and immediately ceased application. Please see Photograph 3.** **The Holding Pond Level was below Must Pumpdown elevation. The level of Holding Pond 1 was low enough so that waste was not flowing over the spillway.** **Mortalities are promptly disposed of in the two incinerators that are on site. Please see Photograph 4.** **At the time of the investigation we did not note any violations pertaining to your application practices. You indicated you have implemented more stringent buffer and setback requirements than are documented in the permit.**	
INSPECTOR'S SIGNATURE:  **Jason Bolenbaugh**	DATE: **1/28/2014**
SUPERVISOR'S SIGNATURE: ←Click text to left to add signature **-Supervisor Name**	DATE:

ATTACHMENT E

Final Report

Land Application of Accumulated Solids From Liquid Waste Systems Demonstration Project

E.P.A. 319(h) FY 1997 Project 700

Prepared and Submitted by the
Arkansas Department of Environmental Quality
Environmental Preservation Division

September 30, 2002

During the Swine Project, the pond contents of LAWMS at five participating farms were extensively characterized to determine nutrient and solids concentrations. The results of this work demonstrated that pond contents are not uniform mixtures, but are stratified. A surficial gray water layer, with relatively low concentrations of solids and nutrients was found on top of a solids layer having a comparatively high concentration of solids and nutrients. The stratified pond contents required considerable mechanical effort during agitation in order to arrive at a homogeneous mixture that could be pumped and evenly distributed onto application sites. Figure 1 compares typical nutrient concentrations observed in samples collected at discreet intervals within maintained and non-maintained swine farm holding ponds. If LAWMS holding ponds are routinely cleaned-out (maintained) a more agronomically favorable nitrogen to phosphorus (N to P) ratio can exist in the ponds. However, if a farmer merely land applies gray water in order to maintain the required minimum freeboard levels (non-maintained), N is lost through ammonia volatilization and microbiological activity while P accumulates, resulting in a more unfavorable N to P ratio. As an example, the ratio of nitrogen and phosphorus uptake by bermuda and fescue grass is approximately 10 to 1 (NRCS Agricultural Waste Management Field Handbook)[4]. In other words, for every 10 pounds of nitrogen that a pasture of fescue assimilates, one pound of phosphorus will be utilized. When fertilizer is applied to a crop it should be done in a manner in which the requirements of the crop are met without over-applying nutrients. Manure storage ponds that are not routinely maintained result in an unbalanced N to P ratio. Years of continued solids accumulation will lead to a high concentration of nutrients, agronomically unbalanced N to P ratios and an overall loss of storage volume in LAWMS.

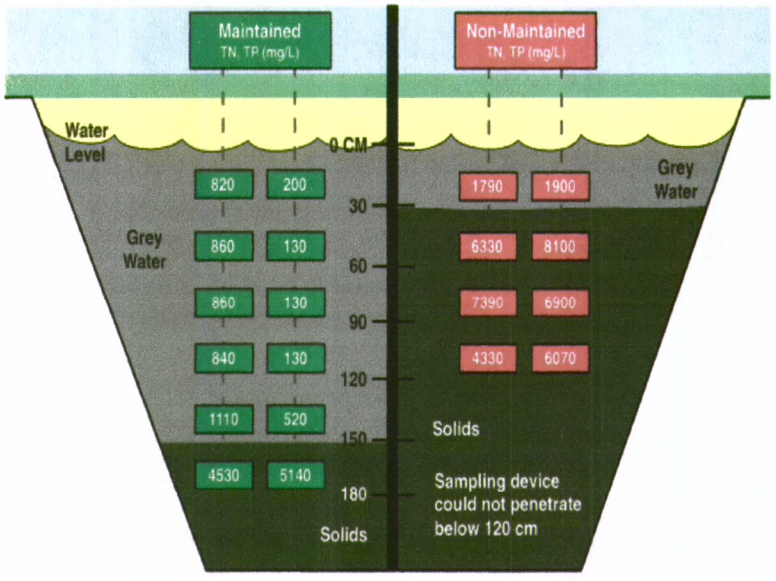


Figure 1. Typical Concentrations of Nutrients in Maintained and Non-Maintained LAWMS

A component of the Swine Project was developed to identify the effect that soil type has on nutrient losses from fields receiving liquid manure applications. In that work, swine manure slurry was land applied to test plots with identical slopes and vegetation and at the recommended N based loading rate for a Tall Fescue cover crop. The test plots were then rained on at a specified intensity and a known volume using rainfall simulation equipment. It was found that the application of waste significantly increased nutrient concentrations in storm water runoff as well as runoff volume. Depending upon soil type, 1.8 to 6.2% of total N, and 2.0 to 9.6% of total P that was land applied was lost in storm water runoff from manure fertilized test plots[5]. This work indicated that, even under controlled conditions, nutrient loss occurs through storm water runoff following the land application of manure. In order to land apply liquid manure in a way

that will result in the least amount of nutrients being transported to lakes and streams as non-point source pollution every effort must be made to control the pertinent variables. Land application variables can be best controlled by accurately estimating the nutrient load contained within storage structures and then proceeding through a thoughtful, careful planning process in which an easily followed course of action is outlined and implemented.

Another nutrient management related concern identified in the Swine Project was the build up of phosphorus in the soil, generally described by soil test phosphorous (STP), on certain application sites. STP concentrations in the soils of the most convenient fields for land application, typically, those fields immediately adjacent to the LAWMS, commonly exceeded 300 pounds per acre. This value exceeds the concentration considered by many professionals in the field of non-point source pollution to be an upper cut off level for additional applications of the nutrient. Values approaching or exceeding the upper limit of the Melich III test method are not uncommon in areas with high densities of confined animal production facilities. The high STP issue created additional difficulties when attempting to address solids and nutrient accumulation problems in LAWMS. Pastures exceeding the 300 pounds per acre concentration could not be recommended for land application of accumulated swine manure solids during the Swine Project.

Many of the problems observed during the Swine Project regarding the operation of LAWMS could be attributed to, or exacerbated by, the geographic locations of the facilities. All of the participating farms were constructed within hilly or mountainous terrain which greatly affected all aspects of manure management activities. From controlling and excluding storm water, to accessing holding ponds and land application sites located on steep hill sides with equipment, farm locations created operational challenges for farmers. However, the terrain on which the cooperating Swine Project farms were located was not unique to the Buffalo River watershed, hillsides and hilltops are frequently the locations for confined animal facilities in Arkansas. Questions were raised as to whether the accumulation of manure solids and associated nutrients observed in the Swine Project was merely a localized phenomenon or were the issues noted with LAWMS common throughout the swine industry in Arkansas.

In Arkansas, the swine production industry is concentrated in the north-western part of the state (Figure 2). Farms are typically concentrated in a region to reduce integrator expense associated with the transportation of animals and feed as well as to facilitate better oversight of the production process. Few swine facilities are located in the Arkansas delta region where manure derived nutrients could be readily utilized by grain or cotton crops. The scarcity of confined animal facilities in Eastern and Southern Arkansas may be due to the land and time requirements associated with the current agricultural economy of the "delta" region. In any event, most confined animal operations are located in a portion of the state that is often hilly or mountainous with soils that are not highly productive and cannot utilize a large mass of nutrients. The general geographic location of the industry highlights the necessity for effective manure management. As seen in Figure 2, most swine production is concentrated within a 40 mile radius of Dierks in Howard County, Russellville in Pope County and Fayetteville in Washington County. From a nutrient management perspective, it should be noted that the areas of high swine farm density overlap areas of high poultry broiler farm density.

ATTACHMENT F

UofA UNIVERSITY OF ARKANSAS
DIVISION OF AGRICULTURE

Cooperative Extension Service
Soil Analysis Report
Soil Testing And Research Laboratory
Marianna, AR 72360
http://www.uark.edu/depts/soiltest

The University of Arkansas is an equal opportunity/affirmative action institution

JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655
Date Processed:	2/17/2012		
Field ID:	7		
Acres	150		
Lime Applied in the last 4 years:	No		
Leveled in past 4 years:	No		
Irrigation:	Unknown		
County:	Pope		
Lab Number:	36728		
Sample Number:	931080		

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	178	356	Above Optimum
K	207	414	Above Optimum
Ca	1228	2456	--
Mg	154	308	--
SO4-S	14	28	--
Zn	14.5	29.0	--
Fe	218	436	--
Mn	168	336	--
Cu	3.2	6.4	--
B	0.0	0.0	--
NO3-N	12	24	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.3	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	11	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
72.8	55.7	11.6	4.8	0.7

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (207)	lb/acre						
Crop 1	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	0
Crop 2	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	0
Crop 3								

4. Crop 1 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

5. Crop 2 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

6. Crop 3 Notes:

ATTACHMENT G

Draft
Not Professionally Formatting

University of Arkansas Swine Manure Demonstration Project

Karl VanDevender Ph.D., P.E.
Extension Engineer
Cooperative Extension Service, University of Arkansas

Charles Maxwell Ph.D.
Professor, Swine Nutrition
University of Arkansas, Animal Science

Ken Coffee Ph.D.
Professor, Beef Nutrition
University of Arkansas, Animal Science

INTRODUCTION

The Arkansas Water Quality Inventory Report for 1994 lists the expansion of confined animal production as a special state concern. The report indicates that in the areas of animal production, the reduced water quality attributed to agriculture is primarily due to elevated nutrient and pathogen concentrations. The report also mentions an increased incidence of high nitrate concentration in wells and springs in areas of concentrated animal operations.

Figure 2: Runoff plots 1,2,3, &4 from right to left with the runoff collectors in the foreground.

Modern swine rearing facilities often have large numbers of animals and a relatively limited land base for manure application. Disposal of the manure in a manner that minimizes odor and optimizes nutrient utilization is an increasing concern. Manure is a valuable resource as an alternative source of fertilizer nitrogen (N), phosphorus (P), and potassium (K) in maintaining and restoring soil productivity. In fact, by improving ground cover, runoff volume and erosion may also be reduced. However, application rates greater than crop needs has been shown to result in nitrate (NO3) movement through the soil into ground water and can result in an excessive rise in soil test P levels leading to increased phosphorus runoff concerns. This can be a problem, since phosphorus is normally the limiting nutrient for eutrophication in freshwater systems. Odor and nutrient problems can both be increased by excessive nutrient buildup in lagoons/holding ponds if manure solids are allowed to accumulate over a number of years.

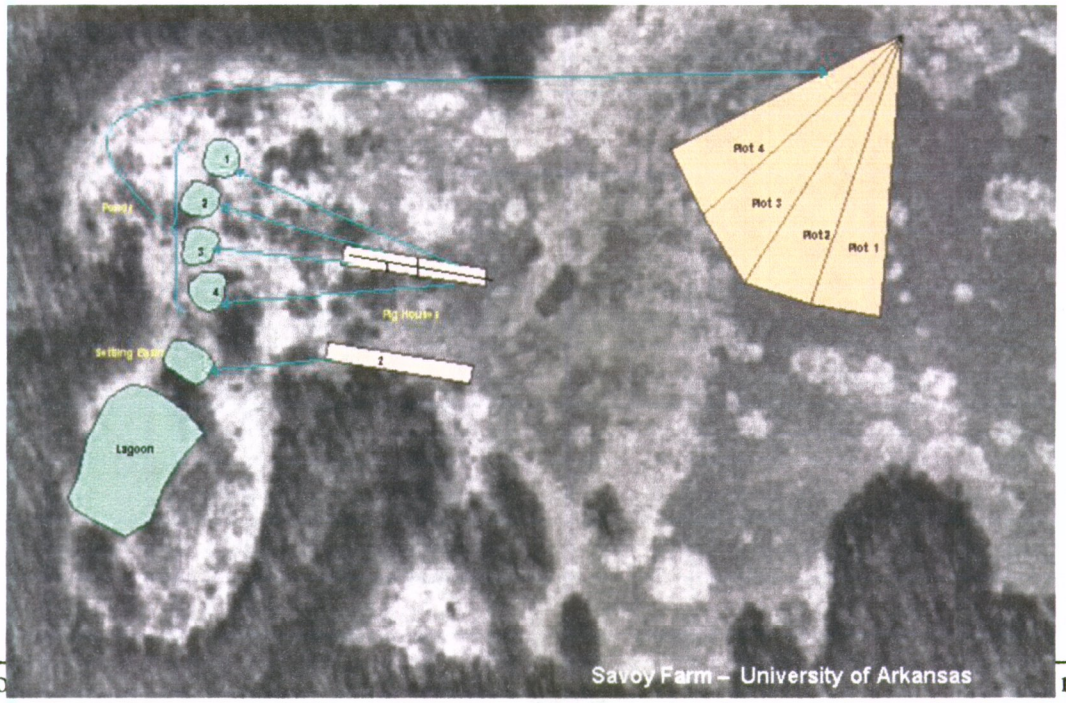
Arkansas was the twelfth highest swine producing state in the nation at the initiation of this project. Of the 2 million swine produced annually, the vast majority are raised on farms with liquid manure handling systems. On these farms, the animals are housed in total confinement facilities where the manure is handled with the addition of supplemental water. Water is typically used to flush the manure from the house into storage/treatment basins until it is land applied to supply the nutrient (nitrogen) needs of a forage crop. While this approach has the advantages of production economics, animal health, beneficial use of the manure for crops, and environmental preservation (with proper management), there are a couple points of concern.

SOIL PHOSPHORUS CONCERNS

The first concern in swine manure management is related to the phosphorus content of the manure. Typically the manure is applied based on the

receiving crop's nitrogen requirements. As a result, more phosphorus is applied than the crop will normally utilize (around five fold), thereby resulting in a phosphorus buildup in the soil. The phosphorus content of surface soil directly influences the loss of phosphorus in runoff (Daniel et al., 1994), which can reduce surface water quality. Runoff losses from manure are a particular concern in regions where confined animal operations exist in proximity to surface water bo rates to (Daniel et al., 1994). Because of this concern, some states have established subjective threshold soil phosphorus levels intended to ensure continued crop production while not producing eutrophic inducing runoff.

Figure 1: Aerial view showing the location of the swine barns (in white), manure storages (in green) and the runoff plots (in tan)



While phosphorus-based application rates would in theory reduce this risk, they would also greatly increase the required land application area, and require the purchase of commercial nitrogen and potassium fertilizers to maintain forage production. Both results present problems. On many farms, the required additional acreage is not readily available. Continued operation would require transporting the manure to more distant application sites. The additional distance to the land application sites, if available, would increase the required time to apply the manure, which would increase the difficulty of proper manure management and the likelihood of point-source discharges from the ponds. Furthermore, the additional commercial fertilizer cost would lead to under fertilization of pastureland in many cases. The low fertility condition could potentially result in a reduction in ground cover and an increase in erosion. In addition to these meet crop phosphorus needs would adversely affect economic pork production. This in turn could have significant economic impacts on the state economy. Especially since these phosphorus concerns are shared by the poultry industry.

A better approach to addressing soil phosphorus buildup concerns is to reduce the phosphorus levels in the manure. Doing so would still supply the crop's phosphorus needs, while reducing the amount of phosphorus available to potentially degrade surface water quality.

MANURE SOLIDS CONCERNS

A second point of concern is the difficulty of handling manure solids that fall from suspension

ATTACHMENT H

Plan for Pumping Waste Storage Ponds

Operator Name C&H Hog Farms **Date** 02/10/14

County Newton **Pond ID or Legal Description** Waste Storage Pond 1 & 2

- **Method Selected for Land Application of Wastewater**

  X Pipeline/Sprinkler System (Permanent): *Waste Storage Pond 2*
  _____ Big Gun Sprinkler (Temporary)
  _____ Drag Hose System
  X Tank Wagon: *Waste Storage Pond 1*
  _____ Other (Explain)

- **Pre-Arranged Source of Application Equipment (List all necessary equipment and access to it).**

Type Equip.	Obtain Where
Pump	Proposed to Field 5-9
Pipe	Proposed to Field 5-9
Sprinkler	Proposed to Field 5-9
Vac Tanker	Fields 1-4 and 7-17

- **Fields Available for Land Application of Wastewater in an Emergency**

Legal Description	Landuse	Acres Available	Predom. Soil
Sec. 26, T15N, R20W	Grass	74.3	48

- **Holding Capacity of Ponds at Must Pumpdown Level** 2,469,903 **gallons**
  Bottom of 25-year, 24-hour storage level. Pond is to be pumped within 10 days below level.

- **Holding Capacity of Ponds at High Water Line** 3,495,464 **gallons**
  Top of 25-year, 24-hour storage level (bottom of freeboard)(Includes Concrete Pits).

- **Holding Capacity of Ponds between Freeboard and Must Pumpdown Elevation** 35,564 **gallons**
  Bottom of freeboard- Must Pumpdown Elevation.

- **Application Rates**

The fertilizer value of wastewater in waste storage ponds is variable. Prior to land application, it is recommended to collect a representative sample from the pond and sent to a testing laboratory for analysis. If time does not permit waiting for test results, estimates of the nutrient content can be made from data previously collected at other facilities or from publications.

Attachment 1

LAND USE CONTRACT

I, E. G. Campbell (Landowner), agree to allow Jason Henson (Operation Owner) to land apply waste from his/her Hog Farm (Type of Operation) operation located in the ____ (1/4 Section) 1/4 of Section 26 (Section) in Township 15N (Township) and Range 20W (Range) in Newton (County of Operation) County to 74.3 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County. A description of the areas to be used as land application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Latitude	Longitude	Available Acreage*
7	NE	26	15N	20W	35.922	-93.067	74.3
and	SE						

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan and guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

In addition to these guidelines, the following requirements must also be satisfied when applying waste to my land:

JASon Henson — Operation Owner Signature
3-21-12 — Date
E.G. Campbell — Landowner Signature
3-21-12 — Date

ATTACHMENT I

C & H Hog Farm- Field 7 after heavy rain on March 16, 2014

ATTACHMENT J

Comments:

Arkansas Nutrient Managemnt Planner with 2009 PI (ver 3/3/2010)

Planner:	Nathan A. Pesta, P.E.								Date:	5/25/2012		
Plan Description:	Jason Henson: Fields 1-10											
H1	83	110	42	3	8	5	5.5	15	75	45	45	None
H2	72	96	43	8	20	14	14	15	30	20	45	None
H3	42	56	48	0	3	2	14	15	75	45	23	Occasional
H4	50	67	43	8	20	14	14	15	30	20	23	None
H5	65	86	48	#N/A	#N/A	#N/A	0.2	#N/A	#N/A	#N/A	5	#N/A
H6	76	101	48	#N/A	#N/A	#N/A	0.2	#N/A	#N/A	#N/A	4	#N/A
H7	178	237	48	#N/A	#N/A	#N/A	0.2	#N/A	#N/A	#N/A	4	#N/A
H8	46	61	51	2	5	2.5	3.5	15	75	45	12	None
H9	52	69	50	#N/A	#N/A	#N/A	0.2	#N/A	#N/A	#N/A	7	#N/A
H10	69	92	51	2	5	2.5	3.5	15	75	45	15	None

Field	Field Area (ac)	Buffer Length (ft)	Buffer Width (ft)	Appl Area (ac)	Predominate Vegetation	Percent Ground Cover	Conservation Support Practices (P)	RUSLE 1 (ton/ac)	RUSLE 2 (ton/ac)
H1	19.70	1,800	100	15.57	Grass	95-100	None in place	0.12	0.18
H2	19.30	1,000	100	17.00	Grass	95-100	None in place	0.34	6.60
H3	15.90	1,000	100	13.60	Grass	95-100	None in place	0.24	0.01
H4	10.40	700	100	8.79	Grass	95-100	None in place	0.28	5.40
H5	24.90	500	100	23.75	Grass	95-100	None in place		0.05
H6	36.60	900	100	34.53	Grass	95-100	None in place		0.05
H7	79.80	2,400	100	74.29	Grass	95-100	None in place		1.10
H8	15.50			15.50	Grass	95-100	None in place	0.06	1.30
H9	45.10	1,680	100	41.24	Grass	95-100	None in place		0.49
H10	34.30	500	100	33.15	Grass	95-100	None in place	0.06	1.30
	302			277					

Field	Pasture Use	Application Method	Application Timing	Nutrient Source	Application Rate		Pre BMP PI Value	P Index Range	Target Post BMPs PI Values
H1	Rotational Grazing	Surface Applied	March-June	WSP#1	25.00	1000 gal/ac	65	Medium	
H2	Rotational Grazing	Surface Applied	March-June	WSP#1	9.90	1000 gal/ac	80	High	
H3	Hayland	Surface Applied	March-June	WSP#1	10.00	1000 gal/ac	47	Medium	
H4	Rotational Grazing	Surface Applied	March-June	WSP#1	9.90	1000 gal/ac	75	High	
H5	Hayland	Surface Applied	March-June	WSP#2	81.00	1000 gal/ac			
H6	Hayland	Surface Applied	March-June	WSP#2	81.00	1000 gal/ac			
H7	Hayland	Surface Applied	March-June	WSP#2	81.00	1000 gal/ac			
H8	Hayland	Surface Applied	March-June	WSP#2	81.00	1000 gal/ac	56	Medium	
H9	Hayland	Surface Applied	March-June	WSP#2	81.00	1000 gal/ac			
H10	Hayland	Surface Applied	March-June	WSP#1	18.00	1000 gal/ac	52	Medium	

ATTACHMENT K

What time will you be visiting the farm

thanks

adam

Adam Willis
Newton County Extension Agent Agriculture-Staff Chair P.O. Box 433 Jasper,AR 72641 Office phone: (870)446-2240

----- Original Message -----
From: "Andrew N. Sharpley" <sharpley@uark.edu>
To: "Adam Willis (awillis@uaex.edu)" <awillis@uaex.edu>
Cc: "Rick Cartwright" <rcartwright@uaex.edu>
Sent: Tuesday, August 27, 2013 11:54:38 AM
Subject: FW: C&H Farm Update

Adam

Sorry I left you off this original email but I wanted to let you know that we are planning to visit the C&H Farm on Friday afternoon.

Andrew

From: Andrew N. Sharpley
Sent: Tuesday, August 27, 2013 10:29 AM
To: 'Karl Vandevender'; Brian Edward Haggard; 'Mike Daniels'
Cc: 'Mark J. Cochran'; 'Rick Cartwright'; Harrison Mauzy Pittman
Subject: C&H Farm Update

By way of an update on yesterday's meeting with Jason Henson, Cargill and Farm Bureau below are the main points.

1. Mark presented our role in any presence on the C&H Farm was first and foremost a research and extension one to provide sound science on nutrient fate and transport on the farm under the approved nutrient management plan.

2. I described the work plan to date and responded to questions from the group, mainly Cargill.

3. One concern centered on what Cargill felt was a large number of piezometers and lysimeters on the farm, which would themselves lead to the preferential flow of nutrients applied in slurry to Big Creek.

4. Another concern was the export of any solids that might be produced by any solid-liquid manure treatment process would violate the permitted plan and require it to be reopened and re-permitted. An outcome Cargill did not want for obvious reasons.

5. They appeared to be less concerned about in-stream monitoring because that did not directly involve the farm.

The main outcome of the meeting was to revise the plan based on what WE felt are valid concerns. Fields 5, 6, and 7 directly below the house facilities and lagoons are all off-limits and another visit to the farm is planned for this Friday to locate other fields along the bank of the Big Creek that would be suitable for our monitoring. The new sites would be included in the revised plan, which would need to be finalized by next Tuesday (September 3 rd) prior to a Legislative Committee meeting on the 5 th . A decision would be then made as to whether to move forward with this plan conducted by the Division of Agriculture, at the request of the landowner and with the approval of Cargill and leased landowners, whose property Jason is applying slurry to.

As Jason is not available on Thursday, we will be making another farm visit to pin down fields on Friday 30 th . I will be leaving at 11:00 to spend the afternoon looking at a few more fields to include in the plan. I have a rescheduled conference call at 10:00 to 11:00 that I need to complete first and as wireless signal might not be available on the drive over to Mt Judea, I cannot risk being disconnected from the call.

Brian, Mike, Karl, and Rick are any of you willing and able to visit the farm then? If not I will take photos and share with you. We just need to define which fields we can work on that will provide credible, scientifically rigorous information on nutrient flows on fields typical of those he is applying manure to. The plan we develop and submit will have to stand up to the rigorous review of our peers in the research and extension community. While we might be able to tweak it slightly, I think we obviously need a better idea of the fields we will be focusing on.

Thank you,

Andrew

Office: (479) 575-5721

ATTACHMENT L

MEMORANDUM OF AGREEMENT
BETWEEN THE
BOARD OF TRUSTEES OF THE UNIVERSITY OF ARKANSAS SYSTEM
FOR AND ON BEHALF OF THE
UNIVERSITY OF ARKANSAS SYSTEM-DIVISION OF AGRICULTURE
AND THE
ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

THIS MEMORANDUM OF AGREEMENT (hereinafter referred to as "MOA") is made and entered into between the Board of Trustees of the University of Arkansas System for and on behalf of the University of Arkansas System-Division of Agriculture (hereinafter referred to as "University") and the Arkansas Department of Environmental Quality (hereinafter referred to as "ADEQ" or the "Department").

WITNESSETH:

WHEREAS, ADEQ is an agency of the State of Arkansas vested with authority to administer environmental regulatory programs, and ADEQ's mission is to protect, enhance, and restore the natural environment for the well-being of all Arkansans; and

WHEREAS, one of the many duties of ADEQ is to issue permits for certain livestock operations, including confined animal feeding operations (hereinafter referred to as "CAFOs"); and

WHEREAS, pursuant to its statutory duties and in compliance with applicable state and federal environmental laws and regulations, ADEQ issued a general permit for CAFOs operating in the state; and

WHEREAS, the first facility permitted under the new general permit for CAFOs is C&H Hog Farm located in the Buffalo River watershed in Newton County; and

WHEREAS, the Buffalo River, designated as the nation's first national river, is unquestionably a scenic and environmental treasure and the maintenance of its natural beauty and pristine water is recognized as important to all citizens of the state; and

WHEREAS, out of concern for protecting the Buffalo River and its tributaries, the Governor has taken the extraordinary step of seeking authorization from the Legislature for $340,510.00 to conduct additional testing in areas on or near the permitted CAFO, C&H Hog Farm, in the Buffalo River watershed; and

WHEREAS, the University of Arkansas System-Division of Agriculture has professionals with expertise in soil and water monitoring and the design and implementation of best practices relevant to the compliance of farm operations to state and federal laws;

NOW, THEREFORE, in furtherance of ADEQ's mission to protect the environment and administer regulatory programs, University and ADEQ agree as follows:

I. Scope of Agreement

A. University agrees to:

1. Undertake and complete a study of the potential for water quality impacts within the Buffalo River watershed from animal wastes produced by the permitted CAFO, C&H Hog Farm, and its operations within the watershed. University shall designate individuals with professional qualifications and expertise sufficient to design and implement such study, including but not limited to best placement for monitoring wells, sampling and testing as necessary for a thorough and informed analysis. This study shall be for the review and consideration of ADEQ and other state officials. Although carried out for the use and benefit of ADEQ and to inform its ultimate performance of its regulatory functions, the study shall be funded and conducted independently of ADEQ and shall meet the requirements of an independent study conducted by professionals in the field of water quality.

2. Provide ADEQ with a Project Plan and time line for the implementation and completion of the water quality study as described herein.

3. Provide ADEQ with quarterly written reports due each quarter of each year this Agreement remains in effect, beginning with the first report due on or before January 31, 2014, the second report due on or before March 31, 2014 and continuing quarterly ending with the final report which will contain conclusions and recommendations, due on or before June 30, 2019. The quarterly reports shall be in a format approved mutually by ADEQ and University, and, at a minimum, shall include a summary of all Project Plan activities performed by University during the preceding quarter.

4. Seek additional funding from appropriate sources as needed for completion of the study in accordance with the Project Plan.

B. ADEQ agrees to:

1. Assist University with obtaining access to conduct the study if access is denied by any property owner.

2. Assist and support University's independent study as appropriate through the sharing of relevant data and information available to ADEQ.

II. Term

This Agreement shall become effective as soon as signed by both parties and shall remain in force until June 30, 2019, unless terminated earlier in accordance with other provisions herein.

III. Termination

A. This Agreement may be terminated by mutual consent of the parties, or by one party upon thirty (30) days written notice.

B. In the event the State of Arkansas fails to appropriate funds or make monies available for any fiscal year covered by the term of this Agreement, then this Agreement shall be automatically terminated on the last day of the fiscal year for which funds were appropriated or monies made available for such purposes.

IV. Amendment

Amendments to this Agreement may be proposed by either party upon written notice to the other party, and such amendments shall become effective as soon as signed by both parties hereto.

V. Notices

Any notices required hereunder shall be addressed as follows:

To ADEQ:

Teresa Marks, Director
Arkansas Dept. of Environmental Quality
5301 Northshore Dr.
North Little Rock, AR 72118-5317
Tel. (501) 682-0959
Fax (501) 682-0798

With a copy to:

Tammera Harrelson, Chief Counsel
Arkansas Dept. of Environmental Quality
5301 Northshore Dr.
North Little Rock, AR 72118-5317
Tel. (501) 682-0886
Fax (501) 682-0891

To UNIVERSITY:

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VI. Miscellaneous:

A. The officials executing this Agreement hereby represent and warrant that they have full and complete authority to act on behalf of University and ADEQ, respectively, and that the terms and provisions hereof constitute valid and enforceable obligations of each.

B. This Agreement shall be interpreted and construed in accordance with the laws of the State of Arkansas.

C. No transfer or assignment of this Agreement, or any part thereof or interest therein, shall be made unless all of the parties first approve such transfer or assignment in writing.

D. This Agreement constitutes the entire agreement between the parties. There are no understandings, agreements, or representations, oral or written, not specified within this Agreement.

BOARD OF TRUSTEES OF THE UNIVERSITY OF ARKANSAS SYSTEM FOR AND ON BEHALF OF THE UNIVERSITY OF ARKANSAS DIVISION OF AGRICULTURE

By: _____
Ann KempVice-President
for Administration

Dated this 5 day of Sept., 2013.

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

By: _____
Teresa Marks, Director

Dated this _____ day of _____, 2013.

ATTACHMENT M

Beebe: state-funded independent monitoring of hog farm doesn't need landowner permission

Posted by David Ramsey on Thu, Aug 15, 2013 at 1:48 PM

As noted on John Brummett's blog yesterday, Gov. Mike Beebe plans to proceed with a request for legislative approval to spend $250,000 in rainy day funds on testing and monitoring at the C&H Hog Farm in Mt. Judea. The facility has stirred controversy because of its proximity to a tributary of the Buffalo River and concerns about impacts on the community of Mt. Judea. Beebe said that he was hopeful that C&H — and surrounding landowners who have agreed to let C&H spray hog waste as fertilizer on their fields — would be on board. However, if approved by the Legislative Council, the state would have the legal authority, Beebe said, to proceed with the program with or without the permission of C&H or the owners of the spray fields.

"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.

Beebe said that administration officials would make a presentation on the program at the next Legislative Council meeting (set for next month). "I don't anticipate any problem," he said.

There have been murmurs that Cargill, the owner of the hogs and the farm's sole customer, has given pushback to the idea (Cargill told us they had no comment until they see the actual proposal).

The governor, who said that he has not spoken directly with Cargill, said "we don't care about that."

The Farm Bureau and a bipartisan group of legislators — including Democrats Greg Leding and Warwick Sabin and Republicans David Branscum and Kelly Linck — have been generally positive about the idea of third-party testing. C&H has as well, though any resistance from Cargill would likely give them pause.

"We are hopeful for something that all parties can agree on," Farm Bureau spokesman Steve Eddington said. "Certainly the governor has some latitude to pursue testing and monitoring. But anything that significant is

going to work best when all the appropriate parties are in agreement on the best way to accomplish it. We continue to work with the farmers at C&H to protect their interests."

The potential monitoring program would be led by Andrew Sharpley, a renowned soil and water quality expert at the University of Arkansas. Sharpley's team would in effect be deputized by the state, under the auspices and authority of ADEQ, to conduct their study. The governor said that after researching the question, his office has concluded that the state has the authority to do so "with or without landowners' permission" from either C&H or owners of the spray fields.

ADEQ Director Teresa Marks said that she has not yet had extensive discussions with the U of A researchers about the project. "We want to go ahead and let them do whatever they need to do to make sure they get a good and thorough study," she said. Marks said that if they discovered a problem linked to the farm, they could potentially recall and revise either the general permit that C&H is operating under or the specific nutrient management plan C&H developed as part of the permit (in either scenario, C&H would be given a period of time to make corrections, during which they could continue to operate under the general permit).

"If none of that works, ultimately it could all be denied," Beebe added. He said that it was important that the study focus on any possible environmental harm directly connected to the operation of the farm. "If that shows there's harm to that river then it would be my instructions that we do whatever is necessary to immediately cease that harm," he said. Beebe said it was difficult to speculate on state response because it is unknown what the potential U of A study will find, but in the case of an extreme problem: "if it was catastrophic, all immediate remedial action including but not limited to 'cease and desist' would be an option available for the state."

One point to bear in mind politically: the phrase "with or without landowners' permission" is certain to raise the hackles of folks in Newton County; there is the potential for an ugly fight if not everyone gives the okay to the testing program

ATTACHMENT N

C & H Hog Farm-Upper Left

Field 7- Center

Mt. Judea School -Bottom Right

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