ANIMAL WASTE MANAGEMENT PLAN

W. A. Saunders
Poultry Production Operation

Section 15- T20N R25E
Other Property in:
Section 11- T20N R25E
Delaware County, Oklahoma

ENTERED BY
SEP 14 2005
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Agricultural Environmental Management Services
(AEMS)

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EXHIBIT
3
Thomas Hu 3/26/09

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W.A. Saunders
Prepared August 2005
To be revised by August 2011

A. INTRODUCTION

Plants remove from the soil four to ten times as much nitrogen as phosphorus. Consequently a significant buildup of phosphorus in the soil can take place over a period of time. Much of the build up can be lost through runoff, which greatly reduces the quality of water downstream. Due to these water quality concerns, future land application of poultry litter will be based upon the phosphorus content in the soil and the amount of phosphorus in the chicken litter applied. The law requires that the Natural Resources Conservation Service (NRCS) recommendations for litter application rates be followed. NRCS recommends the application maximum of 200 lbs. of phosphorus per acre per year if the soil test shows a phosphorus index below 250. If the soil tests phosphorus index is between 250 and 400 then the rate applications are reduced by one-half. If the phosphorus index is above 400 then no litter is to be applied. If the maximum amount of litter that can be applied does not supply sufficient nitrogen for the desired production then nitrogen from other sources can be applied (ex: ammonium nitrate). About 50 lbs of nitrogen is needed to produce one ton of bermuda grass and about 60 lbs is needed to produce one ton of fescue.

B. DESCRIPTION OF OPERATION

This farm is located in an area of highly vulnerable groundwater. This waste management plan includes the production, handling, and distribution of waste and litter from five broiler houses. Three of these houses are each 40 feet wide and 400 feet long and the other two are each 40 feet wide and 300 feet long. They are located in Section 15, T.20N, R.25E., Delaware County, Oklahoma. On an average there will be 5.5 batches of chickens each year for a yearly production of 522,500 birds. Total average yearly waste and litter production is estimated, to be 500 tons. This waste is accumulated on a mixture of wood shavings and rice hulls bedding material and is completely removed each spring. Cake out is done on a regular basis and used for composting. The litter is spread on the surface of the ground when removed from the houses if conditions are right for spreading. There is not a litter storage barn available. If it should become necessary to store litter outside it will be protected from outside water and there will be no runoff from the stockpile. There are 558.5 acres in this property. About 400 acres are suitable for receiving litter (owner's estimate).

C. APPLICATION RATES

Field 1,2,3,4 and 7: Section 11, T.20N., R.25E.
Field 8: Section 15, T.20N., R.25E.
Delaware County, Oklahoma

Nutrient Content:
According to the latest (5/05) litter test, each ton of litter contains:

N-63 lbs. P_2O_5-79 lbs. K_2O-67 lbs.

Soils test results (5/05):

Field Number	NO_3	P Index	K Index
1	10 lbs	14	78
2	14 lbs	7	147
3	5 lbs	65	184
4	6 lbs	22	90
7	6 lbs	10	80
8	No soils test in 2005	Litter will not be applied here.	Litter will not be applied here.

Soils test P Index is below 250 in all fields tested. Litter can be applied at the full rate (200 lbs P_2O_5 per acre). 200 lbs. P_2O_5 divided by 79 lbs P_2O_5 / ton of litter = 2.5 ton of litter per acre per year maximum application rate. This 2.5 tons will supply enough nitrogen to produce about 2.2 tons of bermuda grass or about 1.8 tons of fescue. (Fertilizer is 70 percent effective the first year). 500 ton of litter is available divided by 2.5 tons per acre = 200 acres that can be covered that the full rate.

The application of lime at the following rates will make the fertilizer more readily available for plane use.

Field Number	Tons of ECCE Lime Per Acre
1	1.0
2	4.2
3	4.2
4	1.9
7	1.4

Do not apply litter adjacent to ponds, streams, or water wells.

Application Summary:

400 acres can receive litter at the rate of 2.5 tons per acre = 1000 tons that could be used on this property. This far exceed the liter production on this farm.

D. DEAD BIRD DISPOSAL

Birds from normal death loss are disposed of in a composter. Catastrophic losses are disposed of in a dug pit as approved by the appropriate poultry inspector. An alternate method is field composting.

E. WASTE UTILIZATION GUIDELINES

1. **All waste will be applied in accordance with all state and local laws and ordinances.**
2. **All waste applications will be timed to minimize pollution.**
3. **Any one of the following conditions will prohibit the surface application of litter:**
   a. **High velocity wind is toward a populated area.**
   b. **There is high probability of a runoff producing rainfall.**
   c. **The ground is frozen.**
   d. **Saturated conditions exist.**
   e. **The Phosphorus Index is 300 or greater in nutrient limited watersheds.**
   f. **The Phosphorus Index is 400 or greater in non-nutrient limited watersheds.**
   g. **Frequently flooded areas.**
   h. **Areas where there will be discharge from the application site.**
   i. **Severely eroding areas.**
   j. **Soils are less than 10 inches deep.**
   k. **Slopes are greater than 15% (fifteen feet rise or fall in 100 feet).**
   l. **Very stony areas.**

F. BEST MANAGEMENT PRACTICES

1. **Apply litter not to exceed amounts given in the waste management plan or a revised recommendation based on new soil and litter tests.**

2. **Obtain new soil and litter tests every year. A soil test is required only in fields when litter is to be applied.**

3. **Secure enough soil tests to adequately represent the conditions of your farm. Generally one composite sample is needed for each 40 acres where litter is to be applied.**

4. Maintain a good growth of grass at all times. Grass should not be less than 4 inches tall. This reduces runoff, erosion, and nutrient loss.

5. Spread litter during growth season of dominant plants.

6. Control weeds and brush to maintain a good stand of grass.

7. Do not apply litter within 50 to 100 feet of streams, ponds, and water wells. Buffer strips should be maintained in these areas.

8. On slopes of 8 to 15%, use one-half the normal prescribed rate of litter.

G. ENVIRONMENTAL STATEMENT

There are ponds and intermittent streams on this property that require special precautions when spreading litter (See statement F 7). There are some steep slopes (greater than 15), but they do receive litter) Slopes of 8 to 15 percent will receive litter at one half rate (1.25 tons per acre). Some areas are seasonally wet, which limits litter applications to certain times of the year. This farm is in an area of highly vulnerable groundwater.

H. ADDITIONAL INFORMATION

1. The dominant grasses are bermuda grass and fescue.

2. The owner hires cake out and clean out.

3. More land is being cleared of trees.

4. Most of the steep and/or stony areas are still in woodland.

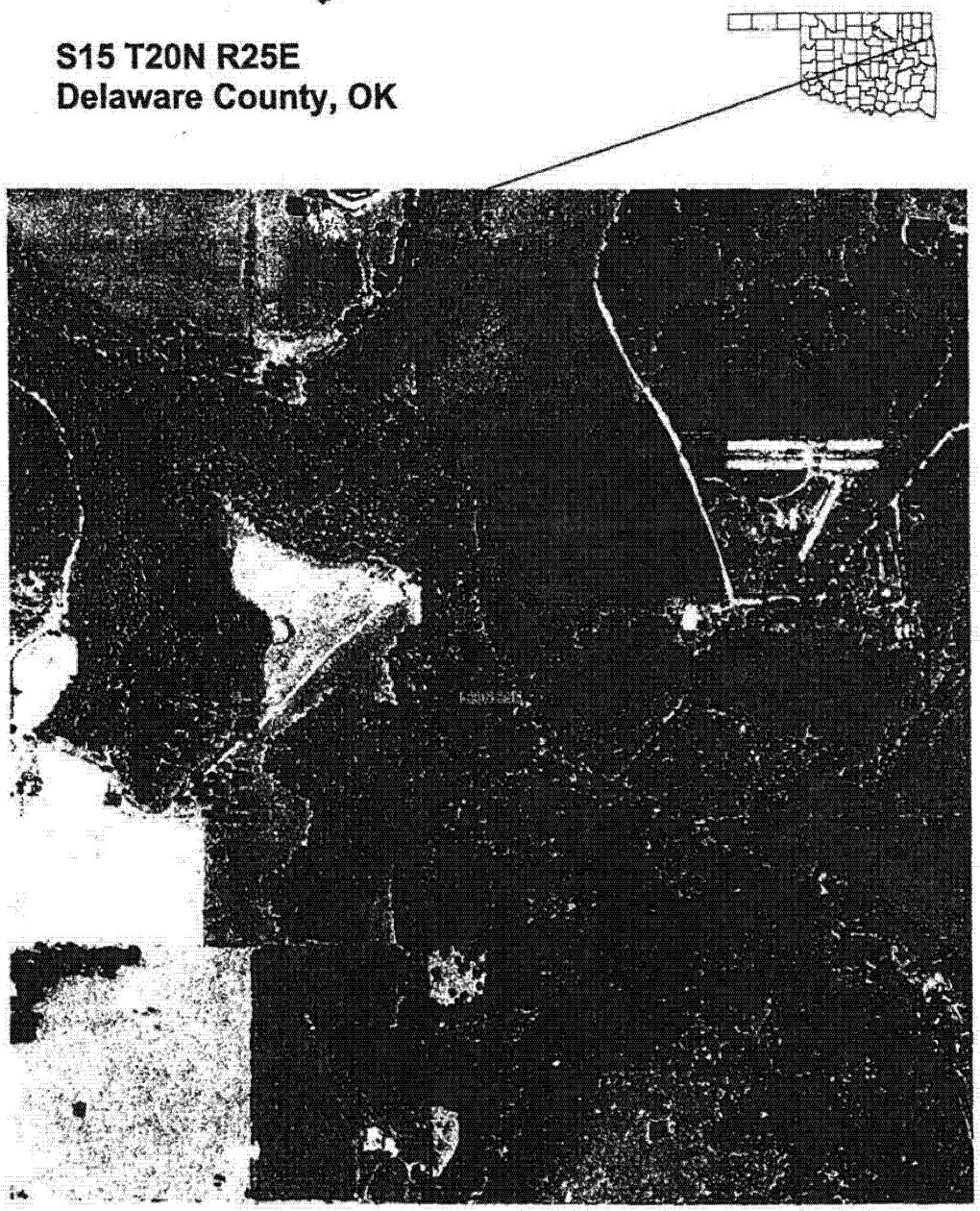
5. Keep records of amount of litter produced, date of total clean out, and where litter is applied if not sold.

4. In the event any other party takes litter from this property, they must be given a copy of a current litter test.

5. Litter and soil testing should be done about one month before time of total clean out. This will allow adequate time for test results to be returned and used in determining application rates.

6. If further assistance is needed call Ed Abernathy at (918) 647-3094.

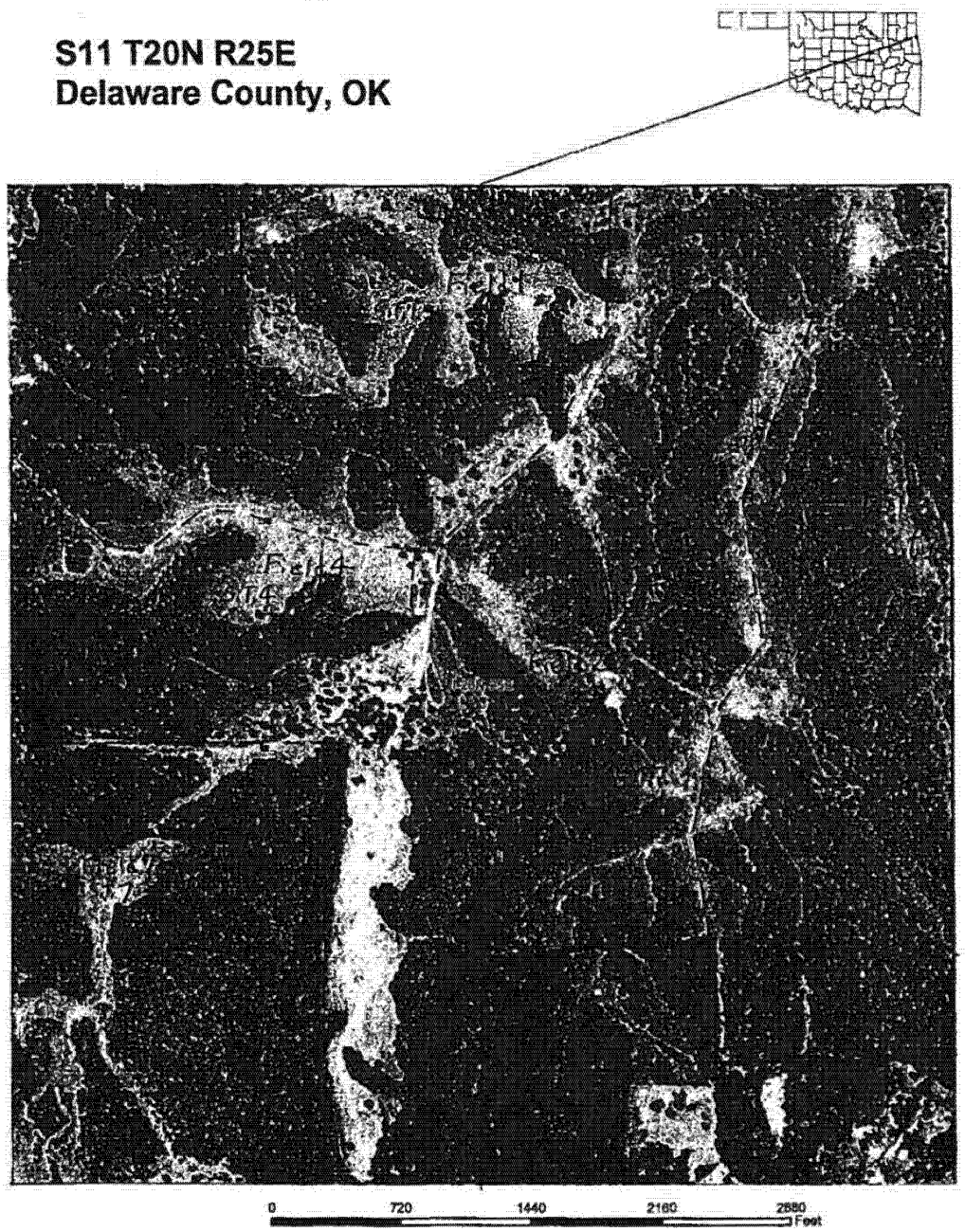
S15 T20N R25E
Delaware County, OK



0 780 1560 2340 3120 Feet

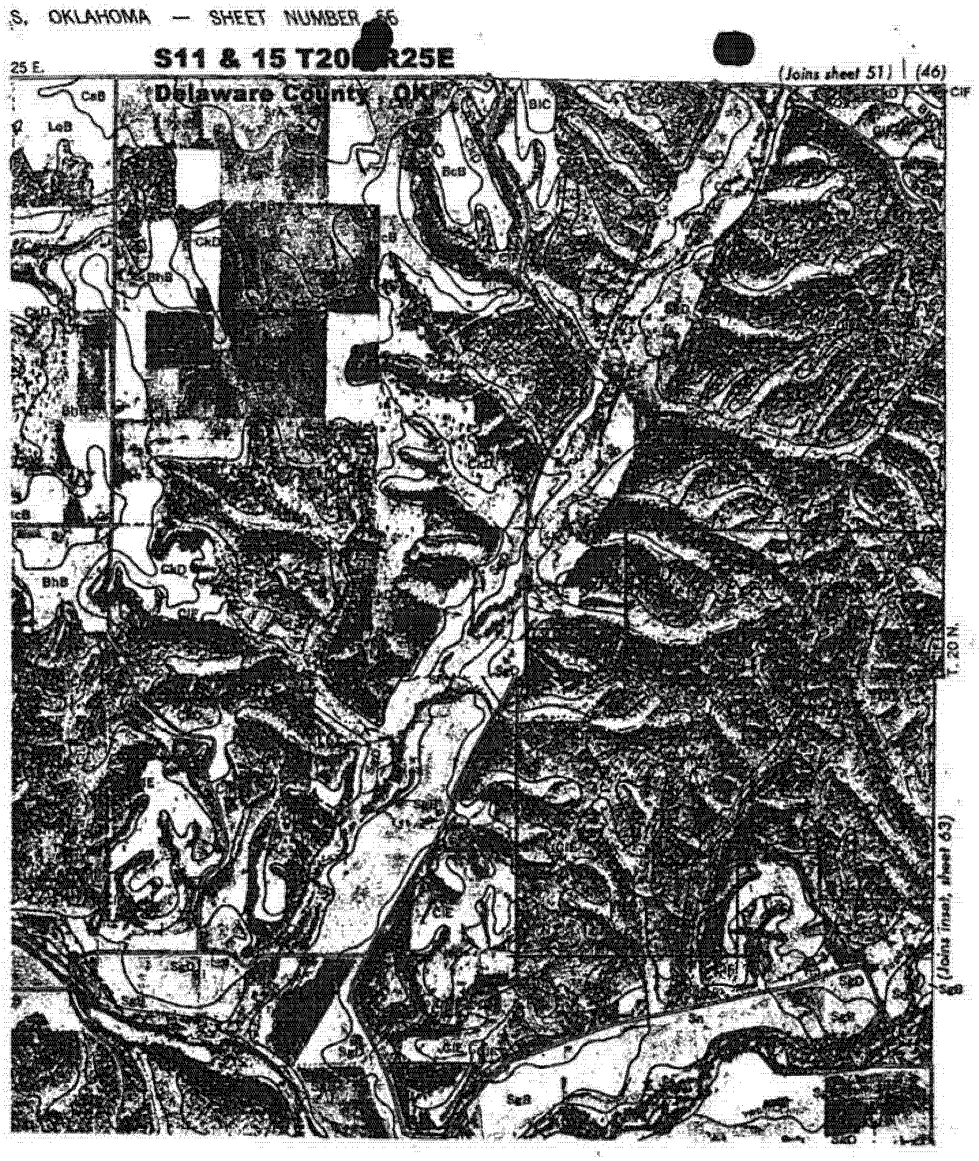
Produced by the Oklahoma Department of Agriculture Geographic Information System.

S11 T20N R25E
Delaware County, OK



Produced by the Oklahoma Department of Agriculture Geographic Information System.

S.T.= Soil Test



Map Symbol	Soil Name
CIE	Clarksville stony silt loam, 5 to 20 percent slopes
CIF	Clarksville stony silt loam, 20 to 50 percent slopes
SgD	Sallisaw gravelly Silt loam, 3 to 8 percent slopes
Sn	Staser gravel loam, (0 to 3 percent slopes)

Map Symbol	SOIL NAME AND DESCRIPTION
CIE	Clarksville stony silt loam, 5 to 20 percent slopes This is a deep, well drained to excessively drained soil with a stony, silt loam surface layer and a silty clay loam subsoil. It is low in natural fertility, organic matter content and available water capacity.
CIF	Clarksville stony silt loam, 20 to 50 percent slopes This is a deep, well drained to excessively drained soil with a stony, silt loam surface layer and a silty clay loam subsoil. It is low in natural fertility, organic matter content and available water capacity.
SgD	Sallisaw gravelly Silt loam, 3 to 8 percent slopes This is a deep well drained soil with a gravelly silt loam surface layer and a gravelly silty clay loam subsoil. It is medium in natural fertility, organic matter content, and available water capacity.
Sn	Staser gravel loam, (0 to 3 percent slopes) This is a deep well drained soil that is gravelly loam throughout. It is high in natural fertility and organic matter content. The available water capacity is low.

OKLAHOMA COOPERATIVE EXTENSION SERVICE

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Email: soils_lab@mail.pss.okstate.edu
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ANIMAL WASTE ANALYSIS REPORT

DELAWARE CTY EXT OFC
PO BOX 1020
JAY , OK 74346

Name: Al Saunders
Location:

Lab ID No: 377812
Customer Code: 21
Sample No: 40
Date Received: 5/4/2005
ReportDate 5/9/2005

TEST RESULTS FOR: Solid SOURCE: Poultry

TEST	As Received	As Received lbs/ton	Dry Basis lbs/ton
Moisture	21.9 %		
DryMatter	78.1 %		
pH	8.4		
EC	12590 µS		
Soluble Salts:	8435 ppm	16.87	21.60
Phosporus (P2O5)	3.93 %	78.7	100.7
Calcium (Ca)	2.56 %	51.1	65.5
Potassium (K2O)	3.37 %	67.3	86.2
Magnesium (Mg)	0.59 %	11.7	15.0
Sodium (Na)	0.94 %	18.8	24.0
Sulfur (S)	0.72 %	14.4	18.5
Iron (Fe)	265.3 ppm	0.53	0.68
Zinc (Zn)	456.5 ppm	0.91	1.17
Copper (Cu)	487.8 ppm	0.98	1.25
Manganese (Mn)	521.3 ppm	1.04	1.33
Total C	29.8 %	596.2	763.3
Total N	3.1 %	62.7	80.2

DELAWARE COUNTY OSU EXTENSION CTR
PO BOX 1020 - FAIR GROUNDS
JAY, OK 74346
(918) 253-4332

JASON HOLLENBACK
Extension Education Agriculture/4-H
Signature