WARO
40-40

State of North Carolina
Department of Environment and Natural Resources
Division of Water Quality

Animal Waste Management Systems
Request for Certificate of Coverage
Facility Currently Covered by an Expiring NPDES General Permit

On July 1, 2012, the North Carolina NPDES General Permits for Animal Waste Management Systems will expire. Facilities that have been issued Certificates of Coverage to operate under these NPDES General Permits must apply for renewal within 30 days of receipt of this application.

Please do not leave any question unanswered. Please make any necessary corrections to the data below.

1. Facility Number: 40-40 and Certificate of Coverage Number: NCA240040
2. Facility Name: Kenneth Dail
3. Landowner's name (same as on the Waste Management Plan): Kenneth Dail
4. Landowner's mailing address: 358 Dail Town Rd Snow Hill, N.C. 28580

   City/State: _____ Zip: _____

   Telephone Number (include area code): 252-753-5598 **E-mail:** _____
5. **Facility's physical address:** _____

   City/State: Snow Hill, N.C. **Zip:** 28580
6. County where facility is located: Greene
7. Farm Manager's name (If different than the Landowner): Jimmy A. Dail
8. Farm Manager's telephone number (include area code): 252-747-2424 Cell 252-714-0396
9. Integrator's name (if there is not an integrator write "None"): Murphy-Brown
10. Lessee's name (if there is not a lessee write "None"): Jimmy A. Dail
11. Indicate animal operation type and number:

Swine		**Cattle**		**Dry Poultry**	
Wean to Finish		Dairy Calf		Non Laying Chickens	
Wean to Feeder		Dairy Heifer		Laying Chickens	
Farrow to Finish		Milk Cow		Turkeys	
Feeder to Finish	✓ 3000	Dry Cow		Other	
Farrow to Wean		Beef Stocker Calf		Pullets	
Farrow to Feeder		Beef Feeder		Turkey Poults	
Boar/Stud		Beef Brood Cow			
Gilts		Other			
Other				**Wet Poultry**	
Horses - Horses		Sheep - Sheep		Non Laying Pullets	
Horses - Other		Sheep - Other		Layers	

Submit two (2) copies of the most recent Certified Animal Waste Management Plan (CAWMP). The CAWMP must include the following components. Some of these components may not have been required at the time the facility was certified but should be added to the CAWMP for permitting purposes:

- ✓ The Waste Utilization Plan (WUP) must include the amount of Plant Available Nitrogen (PAN) produced and utilized by the facility
- The method by which waste is applied to the disposal fields (e.g. irrigation, injection, etc.)
- ✓ A map of every field used for land application
- ✓ The soil series present on every land application field
- ✓ The crops grown on every land application field coastal berme
- ✓ The Realistic Yield Expectation (RYE) for every crop shown in the WUP
- ✓ The PAN to be applied to every land application field
- Phosphorous to be applied on every land application field with a "HIGH" PLAT rating. no high Plat
- ✓ The waste application windows for every crop utilized in the WUP
- ✓ The required NRCS Standard specifications
- ✓ A site schematic
- ✓ Emergency Action Plan
- ✓ Insect Control Checklist with chosen best management practices noted
- ✓ Odor Control Checklist with chosen best management practices noted
- ✓ Mortality Control Checklist with the selected method noted. A mass mortality plan must also be included.
- ✓ Site-Specific Conservation Practices necessary to prevent runoff of pollutants to waters of the State. All ditches surrounding b coastal.
- ✓ PLAT results including datasheets for each field.
- ✓ Lagoon/storage pond capacity documentation (design, calculations, etc.); please be sure to include any site evaluations, wetland determinations, or hazard classifications that may be applicable to your facility
- ✓ Operation and Maintenance Plan

I attest that this application has been reviewed by me and is accurate and complete to the best of my knowledge. I understand that, if all required parts of this application are not completed and that if all required supporting information and attachments are not included, this application package will be returned to me as incomplete. **Note**: In accordance with NC General Statutes 143-215.6A and 143-215.6B, any person who knowingly makes any false statement, representation, or certification in any application may be subject to civil penalties up to $25,000 per violation. (18 U.S.C. Section 1001 provides a punishment by a fine of not more than $10,000 or imprisonment of not more than 5 years, or both for a similar offense.)

Printed Name of Signing Official (Landowner, or if multiple Landowners all landowners should sign. If Landowner is a corporation, signature should be by a principal executive officer of the corporation):

Name: Elizabeth A. Dail Title: _____

Signature: Elizabeth A. Dail Date: _____

Name: _____ Title: _____

Signature: _____ Date: _____

THE COMPLETED APPLICATION SHOULD BE SENT TO THE FOLLOWING ADDRESS:

NCDENR – DWQ Animal Feeding Operations Unit
1636 Mail Service Center
Raleigh, North Carolina 27699-1636
Telephone Number: (919) 807-6300
Fax Number: (919) 807-6354

Michael F. Easley, Governor

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Coleen H. Sullins, Director
Division of Water Quality

March 28, 2008

Elizabeth A. Dail
Kenneth Dail Farm
358 Dailtown Road
Snow Hill, NC 28580

Subject: Certificate of Coverage No. NCA240040
Kenneth Dail Farm
Animal Waste Management System
Greene County

Existing COC

Dear Elizabeth A. Dail:

In accordance with your March 12, 2008 Notification of Change of Ownership, we are hereby forwarding to you this Certificate of Coverage (COC) issued to Elizabeth A. Dail, authorizing the operation of the subject animal waste management system in accordance with NPDES General Permit NCA200000.

This approval shall consist of the operation of this system including, but not limited to, the management and land application of animal waste as specified in the facility's Certified Animal Waste Management Plan (CAWMP) for the Kenneth Dail Farm, located in Greene County, with an animal capacity of no greater than the following swine annual averages:

Wean to Finish: **0**	Feeder to Finish: **3000**	Boar/Stud: **0**
Wean to Feeder: **0**	Farrow to Wean: **0**	Gilts: **0**
Farrow to Finish: **0**	Farrow to Feeder: **0**	

If this is a Farrow to Wean or Farrow to Feeder operation, there may also be one boar for each 15 sows. Where boars are unneccessary, they may be replaced by an equivalent number of sows. Any of the sows may be replaced by gilts at a rate of 4 gilts for every 3 sows

The COC shall be effective from the date of issuance until June 30, 2012 and replaces the NPDES COC issued to this facility with an expiration date of August 1, 2007. Pursuant to this COC, you are authorized and required to operate the system in conformity with the conditions and limitations as specified in the General Permit, the facility's CAWMP, and this COC. An adequate system for collecting and maintaining the required monitoring data and operational information must be established for this facility. Any increase in waste production greater than the certified design capacity or increase in number of animals authorized by this COC (as provided above) will require a modification to the CAWMP and this COC and must be completed prior to actual increase in either wastewater flow or number of animals.

Please carefully read this COC and the enclosed General Permit. This General Permit contains many new requirements than the previous NPDES General Permit. Enclosed for your convenience is a package containing the new and revised forms used for record keeping and reporting. Please pay careful attention to the record keeping and monitoring conditions in this permit. The Animal Facility Annual Certification Form must be completed and returned to the Division of Water Quality by no later than March 1st of each year.

If your Waste Utilization Plan has been developed based on site-specific information, careful evaluation of future samples is necessary. Should your records show that the current Waste Utilization Plan is inaccurate you will need to have a new Waste Utilization Plan developed.

The issuance of this COC does not excuse the Permittee from the obligation to comply with all applicable laws, rules, standards, and ordinances (local, state, and federal), nor does issuance of a COC to operate under this permit convey any property rights in either real or personal property.

Upon abandonment or depopulation for a period of four years or more, the Permittee must submit documentation to the Division demonstrating that all current NRCS standards are met prior to restocking of the facility.

Per 15A NCAC 02T .0111(c), a compliance boundary is provided for the facility and no new water supply wells shall be constructed within the compliance boundary. Per NRCS standards a 100-foot separation shall be maintained between water supply wells and any lagoon or any wetted area of a spray field.

Per 15A NCAC 02T .1306, any containment basin, such as a lagoon or waste storage structure, shall continue to be subject to the conditions and requirements of the facility's permit until closed to NRCS standards and the permit is rescinded by the Division.

Please be advised that any violation of the terms and conditions specified in this COC, the General Permit or the CAWMP may result in the revocation of this COC, or penalties in accordance with NCGS 143-215.6A through 143-215.6C, the Clean Water Act and 40 CFR 122.41 including civil penalties, criminal penalties, and injunctive relief.

If you wish to continue the activity permitted under the General Permit after the expiration date of the General Permit, an application for renewal must be filed at least 180 days prior to expiration.

This COC is not automatically transferable. A name/ownership change application must be submitted to the Division prior to a name change or change in ownership.

If any parts, requirements, or limitations contained in this COC are unacceptable, you have the right to apply for an individual NPDES Permit by contacting the staff member listed below for information on this process. Unless such a request is made within 30 days, this COC shall be final and binding.

This facility is located in a county covered by our Washington Regional Office. The Regional Office Aquifer Protection Staff may be reached at (252) 946-6481. If you need additional information concerning this COC or the General Permit, please contact the Animal Feeding Operations Unit staff at (919) 733-3221.

Sincerely,

for Coleen H. Sullins

Enclosures (General Permit NCA200000, Record Keeping and Reporting Package)

cc: (Certificate of Coverage only for all cc's)
Greene County Health Department
Greene County Soil and Water Conservation District
Washington Regional Office, Aquifer Protection Section
AFO Unit Central Files
Permit File NCA207008

WASTE UTILIZATION PLAN

North Carolina Cooperative Extension Service

Friday, April 07, 2000

Producer :	Kenneth Dail
Farm Name :	Kenneth Dail Rt. 1, Box 420-A Snow Hill,NC 28580
Telephone # :	(252) 753-5598
Type of Operation :	Feeder to Finish Swine
Number of Animals :	3000 hogs design capacity
Application Method:	Irrigation

The waste from your animal facility must be land applied at a specified rate to prevent pollution of surface and/or groundwater. The plant nutrients in the animal waste should be used to reduce the amount of commercial fertilizer required for the crops in the fields where waste is to be applied. This waste utilization plan uses nitrogen as the limiting nutrient. Waste should be analyzed before each application cycle. Annual soil tests are strongly encouraged so that all plant nutrients can be balanced for realistic yields of the crop to be grown.

Several factors are important in implementing your waste utilization plan in order to maximize the fertilizer value of the waste and to ensure that it is applied in an environmentally safe manner. Always apply waste based on the needs of the crop to be grown and the nutrient contents of the waste. Do not apply more nitrogen than the crop can utilize. Soil types are important as they have different infiltration rates, leaching potentials, cation exchange capacities, and avaialable water holding capacities. Normally waste shall not be applied to land eroding at greater than 5 tons per acre per year. With special pre-cautions, waste may be applied to land eroding at up to 10 tons per acre per year. Do not apply waste on saturated soils, when it is raining, or when the surface is frozen. Either of these conditions may result in runoff to surface waters which is not allowed under DEM regulations. Wind conditions should also be considered to avoid drift and downwind odor problems. To maximize the value of the nutrients for crop production and to reduce the potential for pollution, the waste should be applied to a growing crop or applied to bare ground not more than 30 days prior to planting. Injecting the waste or disking will conserve nutrients and reduce odor problems. This plan is based on waste application through irrigation for this is the manner in which you have chosen to apply your waste. If you choose to inject the waste in the future, you need to revise this plan. Nutrient levels for injecting waste and irrigating waste are not the same.

The estimated acres needed to apply the animal waste is based on typical nutrient content for this type of facility. Acreage requirements should be based on the waste analysis report from your waste management facility. Attached you will find information on proper sampling techniques, preparation, and transfer of waste samples to the lab for ananlysis. This waste utilization plan, if carried out, meets the requirements for compliance with 15A NCAC 2H.0217 adopted by the Environmental Management Commission.

AMOUNT OF WASTE PRODUCED PER YEAR (gallons, ft3, tons, etc.)

3000 hogs X 1.9 tons waste/hogs/year = 5700 tons

AMOUNT OF PLANT AVAILABLE NITROGEN (PAN) PRODUCED PER YEAR

3000 hogs X 2.3 lbs PAN/hogs/year = 6900 PAN/year

Applying the above amount of waste is a big job. You should plan time and have appropriate equipment to apply the waste in a timely manner.

The following acreage will be needed for waste application based on the crop to be grown, soil type and suface application.

TABLE 1 : ACRES OWNED BY PRODUCER

TRACT	FIELD	SOIL TYPE &CLASS-DETERMINING PHASE	CROP CODE	YIELD	LBS AW N/ACRE	COMM N/ACRE	ACRES	LBS AW USED	APPLIC. TIME
3156	1	RAINS	BH	4.5	225	0	2.94	661.5	APR-SEP
3156	~ 1	RAINS	SG	1	50	0	2.94	147	SEP-MAY
3156	2	GOLDSBORO 0-2%	BH	6.5	325	0	9.13	2967.25	MAR-OCT
3156	~ 2	GOLDSBORO 0-2%	SG	1	50	0	9.13	456.5	SEP-MAY
3156	3	GOLDSBORO 0-2%	BH	6.5	325	0	4.13	1342.25	APR-SEP
3156	~ 3	GOLDSBORO 0-2%	SG	1	50	0	4.13	206.5	SEP-MAY
3156	4	NORFOLK 0-2%	BH	6.1	305	0	1.26	384.3	APR-SEP
3156	~ 4	NORFOLK 0-2%	SG	1	50	0	1.26	63	SEP-MAY
3156	5	NORFOLK 0-2%	BH	6.1	305	0	3.27	997.35	APR-SEP
3156	~ 5	NORFOLK 0-2%	SG	1	50	0	3.27	163.5	SEP-MAY
							TOTALS:	**7389.16**	

~ Indicates that this field is being overseeded (i.e. interplanted) or winter annuals follow summer annuals.

* Indicates a Crop Rotation

NOTE: The applicator is cautioned that P and K may be over applied while meeting the N requirments. Beginning in 1996 the Coastal Zone Management Act will require farmers in some eastern counties of NC to have a nutrient management plan that addresses all nutrients. This plan only addresses Nitrogen.

TABLE 2 : ACRES WITH AGREEMENT OR LONG TERM LEAS

(Agreement with adjacent landowners must be attached.)
(Required only if operator does not own adequate land. See required specifications 2.)

There are no Acres Leased

~ Indicates that this field is being overseeded (i.e. interplanted) or winter annuals follow summer annuals.

* Indicates a Crop Rotation

* Acreage figures may exceed total acreage in field due to overseeding.
**Lbs AW N (animal waste nitrogen) equals total required nitrogen less any commercial nitrogen (COMM N) supplied.

The following legend explains the crop codes used in TABLES 1 and 2 above:

CROP CODE	CROP	UNITS	LBS N/UNIT
BH	HYBRID BURMUDAGRASS-HAY	TONS	50
SG	SMALL GRAIN OVERSEEDED	AC	50

TOTALS FROM TABLES 1 AND

	ACRES	LBS AW N USED
TABLE 1	20.73	7,389
TOTALS:	**20.73**	**7,389**
AMOUNT OF N PRODUCED:		**6,900**
****** BALANCE***		**-489**

***** This number must be less than or equal to 0 in order to fully utilize the animal waste N produced.**

Acres show in each of the preceeding tables are considered to be the usable acres excluding required buffers, filter strips along ditches, odd areas unable to be irrigated, and perimeter areas not receiving full application rates due to equipment limitations. Actual total acres in the fields listed may, and most likely will be, more than the acres shown in the tables.

NOTE: The Waste Utilization Plan must contain provisions for periodic land application of sludge at agronomic rates. The sludge will be nurturient rich and will require precautionary measures to prevent over application of nutrients or other elements. Your production facility will produce approximately 1110 pounds of plant available nitrogen (PAN) per year in the sludge that will need to be removed on a periodic basis. This figure is PAN when broadcasting the sludge. Please be aware that additional acres of land, as well special equipment, may be needed when you remove this sludge.

See the attached map showing the fields to be used for the utilization of waste water

APPLICATION OF WASTE BY IRRIGATION

The irrigation application rate should not exceed the intake rate of the soil at the time of irrigation such that runoff or ponding occurs. This rate is limited by initial soil moisture content, soil structure, soil texture, water droplet size, and organic solids. The application amount should not exceed the available water holding capacity of the soil at the time of irrigation nor should the plant available nitrogen applied exceed the nitrogen needs of the crop.

Your facility is designed for 180 days of temporary storage and the temporary storage must be removed on the average of once every 5.92 months. In no instance should the volume of waste being stored in your structure be within 1.7 feet of the top of the dike.

If surface irrigation is the method of land application for this plan, it is the responsiblity of the producer and irrigation designer to ensure that an irrigation system is installed to properly irrigate the acres shown in Tables 1 and 2. Failure to apply the recommended rates and amounts of Nitrogen shown in the tables may make this plan invalid.

The following table is provided as a guide for establishing application rates and amounts.

TRACT	FIELD	SOIL TYPE	CROP	APPLICATION RATE (in/hr)	APPLICATION AMT (inches)
3156	~1	RAINS	SG	0.40	*1
3156	1	RAINS	BH	0.40	*1
3156	~4, ~5	NORFOLK 0-2%	SG	0.50	*1
3156	4, 5	NORFOLK 0-2%	BH	0.50	*1
3156	~2, ~3	GOLDSBORO 0-2%	SG	0.50	*1
3156	2, 3	GOLDSBORO 0-2%	BH	0.50	*1

* This is the maximum application amount allowed for the soil assuming the amount of nitrogen allowed for the crop is not over applied. In many situations, the application amount shown cannot be applied because the nitrogen limitation. The maximum application amount shown can be applied under optimum soil conditions.

PLANS & SPECIFICATIONS

1. Animal waste shall not reach surface waters of the state by runoff, drift, manmade conveyances, direct application, or direct discharge during operation or land application. Any discharge of waste which reaches surface water is prohibited. Illegal discharges are subject to assessment of civil penalties of $10,000 per day by the Division of Water Quality for every day the discharge continues.

2. The Field Office must have documentation in the design folder that the producer either owns or has long term access to adequate land to properly dispose of waste. If the producer does not own adequate land to properly dispose of waste, he shall provide NRCS with a copy of a written agreement with a landowner who is within a reasonable proximity, allowing him/her the use of the land for waste application for the life expectancy of the production facility. It is the responsibility of the owner of the facility to secure an update of the Waste Utilization Plan when there is a change in the operation, increase in the number of animals, method of utilization, or available land.

3. Animal waste shall be applied to meet, but not exceed, the Nitrogen needs for realistic crop yields based on soil type, available moisture, historical data, climate conditions, and level of management, unless there are regulations that restrict the rate of application for other nutrients.

4. Animal waste may be applied to land that has a Resource Management System (RMS) or an Alternative Conservation System (ACS). If an ACS is used the soil loss shall be no greater than 10 tons per acre per year and appropriate filter strips will be used where runoff leaves the field. These filter strips will be in addition to "Buffers" required by DEM. (See FOTG Stantard 393 - Filter Strips and Standard 390 Interim Riparian Forest Buffers).

5. Odors can be reduced by injecting the waste or disking after waste application. Waste should not be applied when there is danger of drift from the irrigation field.

6. When animal waste is to be applied on acres subject to flooding, it will be soil incorporated on conventionally tilled cropland. When applied to conservation tilled crops or grassland, the waste may be broadcast provided the application does not occur during a season prone to flooding. (See "Weather and Climate in North Carolina" in the NRCS Technical Reference - Environment file for guidance.)

*7. Liquid waste shall be applied at rates not to exceed the soil infiltration rate such that runoff does not occur offsite or to surface waters and in a method which does not cause drift from the site during application. No ponding should occur in order to control conditions conducive to odor or flies and to provide uniformity of application.

8. Animal waste shall not be applied to saturated soils, during rainfall events, or when the surface is frozen.

9. Animal waste shall be applied on actively growing crops in such a manner that the crop is not covered with waste to a depth that would inhibit growth.

10. Waste nutrients shall not be applied in fall or winter for spring planted crops on soils with a high potential for leaching. Waste nutrient loading rates on these soils should be held to a minimum and a suitable winter cover crop planted to take up released nutrients. Waste shall not be applied more than 30 days prior to planting of a crop on bare soil.

11. Any new swine facility sited on or after October 1, 1995 shall comply with the following: the outer perimeter of the land area onto which waste is applied from a lagoon that is a

component of a swine farm shall be at least 50 feet from any residential property boundary and from any perennial stream or river (other that an irrigation ditch or canal. Animal waste other than swine waste from facilities sited on or after October 1, 1995), shall not be applied closer than 25 feet to perennial waters. (See Standard 393 - Filter Strips)

12. Animal waste shall not be applied closer than 100 feet to wells.

13. Animal Waste shall not be applied closer than 200 feet of dwellings other than those owned by the landownwer.

14. Waste shall be applied in a manner not to reach other property and public right - of ways.

15. Animal waste shall not be discharged into surface waters, drainageways, or wetlands by discharge or by over-spraying. Animal waste may be applied to prior converted croplands provided they have been approved as a land application site by a "technical specialist". Animal waste should not be applied on grassed waterways that discharge directly into water courses, except when applied at agronomic rates and the application causes no runoff or drift from the site.

*16. Domestic and industrial waste from washdown facilities, showers, toilets, sinks, etc., shall not be discharged into the animal waste management system.

*17. A protective cover of appropriate vegetation will be established on all disturbed areas (lagoon embankments, berms, pipe runs, etc.). If needed, special vegetation shall be provided for these areas and shall be fenced, as necessary, to protect the vegetation. Vegetation such as trees, shrubs, and other woody species, etc. are limited to areas where considered appropriate. Lagoon areas should be kept mowed and accessible. Lagoon berms and structures should be inspected regularly for evidence of erosion, leakage or discharge.

*18. If animal production at the facility is to be suspended or terminated, the owner is responsible for obtaining and implementing a "closure plan" which will eliminate the possibility of an illegal discharge, pollution and erosion.

*19. Waste handling structures, piping, pumps, reels, etc., should be inspected on a regular basis to prevent breakdowns, leaks, and spills. A regular maintenance checklist should be kept on site.

20. Animal waste can be used in a rotation that includes vegetables and other crops for direct human consumption. However, if animal waste is used on crops for direct human consumption, it should only be applied as a preemergence with no other applications of animal waste during the crop season.

*21. Highly visible markers shall be installed to mark the top and bottom elevations of the temporary storage (pumping volume) of all waste treatment lagoons. Pumping shall be managed to maintain the liquid level between the markers. A marker will be required to mark the maximum storage volume fpr waste storage ponds.

22. Waste shall be tested within 60 days of utilization and soil shall be tested at least annually at crop sites where waste products are applied. Nitrogen shall be the rate-determining element. Zinc and copper levels in the soils shall be monitored and alternative crop sites shall be used when these metals approach excessive levels. pH shall be adjusted

for optimum crop production amd maintained. Soil and waste analysis records shall be kept for five (5) years. Poultry dry waste application records shall be maintained for three (3) years. Waste application records for all other waste shall be maintained for five (5) years.

23. Dead animals will be disposed of in a manner that meets North Carolina Department of Agriculture regulations.

*** Liquid Systems**

NAME OF FARM: **Kenneth Dail**

OWNER / MANAGER AGREEMENT

I (we) understand and will follow and implement the specifications and the operation and maintenance precedures estalished in the approved animal waste utilization plan for the farm named above. I (we) know that any expansion to the existing design capacity of the waste treatment and/or storage system or construction of new facilities will require a new utilization plan and a new certification to be submitted to DEM before the new animals are stocked.

I (we) understand that I must own or have acces to equipment, primarily irrigation equipment, to land apply the animal waste described in this waste utilization plan. This equipment must be available at the appropriate pumping time such that no discharge occurs from the lagoon in a 25-year 1-day storm event. I also certify that the waste will be applied on the land according to this plan at the appropriate times and at rates that no runoff occurs.

NAME OF FACILITY OWNER: **Kenneth Dail**

SIGNATURE: Kenneth Dail DATE: 4-19-00

NAME OF MANAGER (if different from owner): _____

please print

SIGNATURE: _____ DATE: _____

NAME OF TECHNICAL SPECIALIST: **Mike Regans**

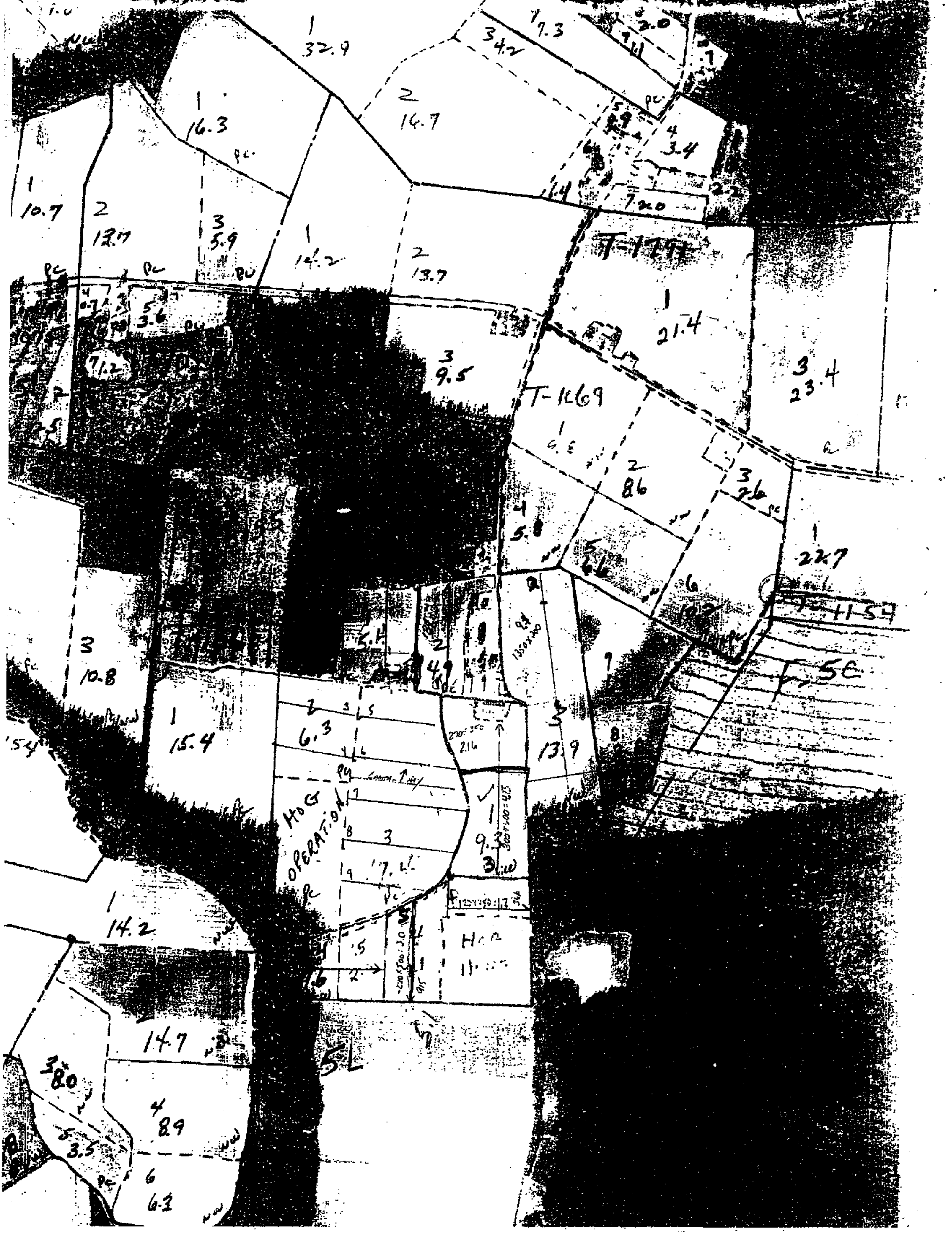
AFFILIATION: **North Carolina Cooperative Extension Service**

ADDRESS (AGENCY): **229 Kingold Blvd. Suite E.**

Snow Hill, NC 28580

(252) 747-5831

SIGNATURE: ME Regans DATE: 4/19/00



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OCTOBER 1974

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CONSERVATION PLAN MAP

Owner KENNETH DAIL **Operator** _____

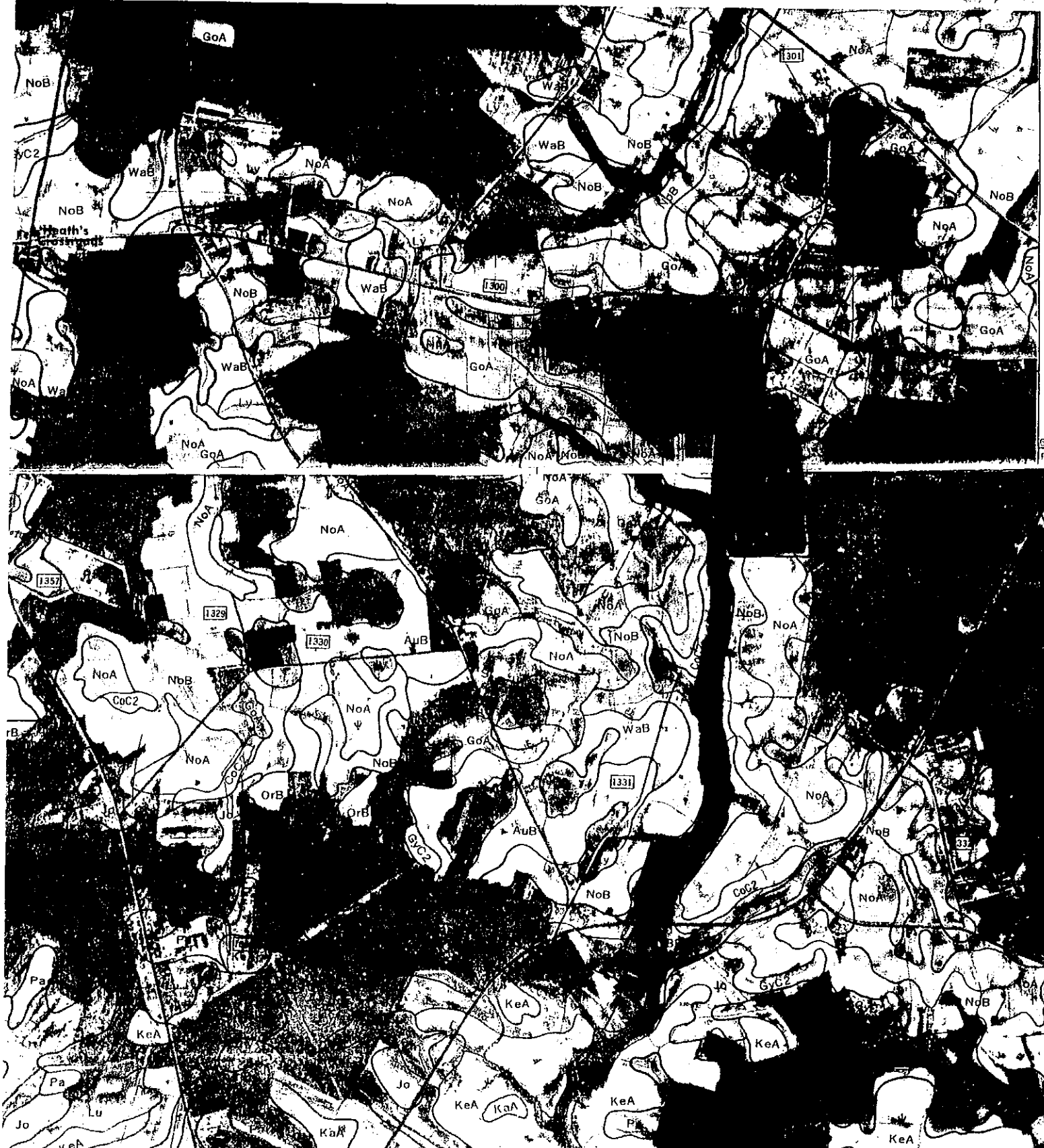
County GREENE **State** NORTH CAROLINA **Date** _____

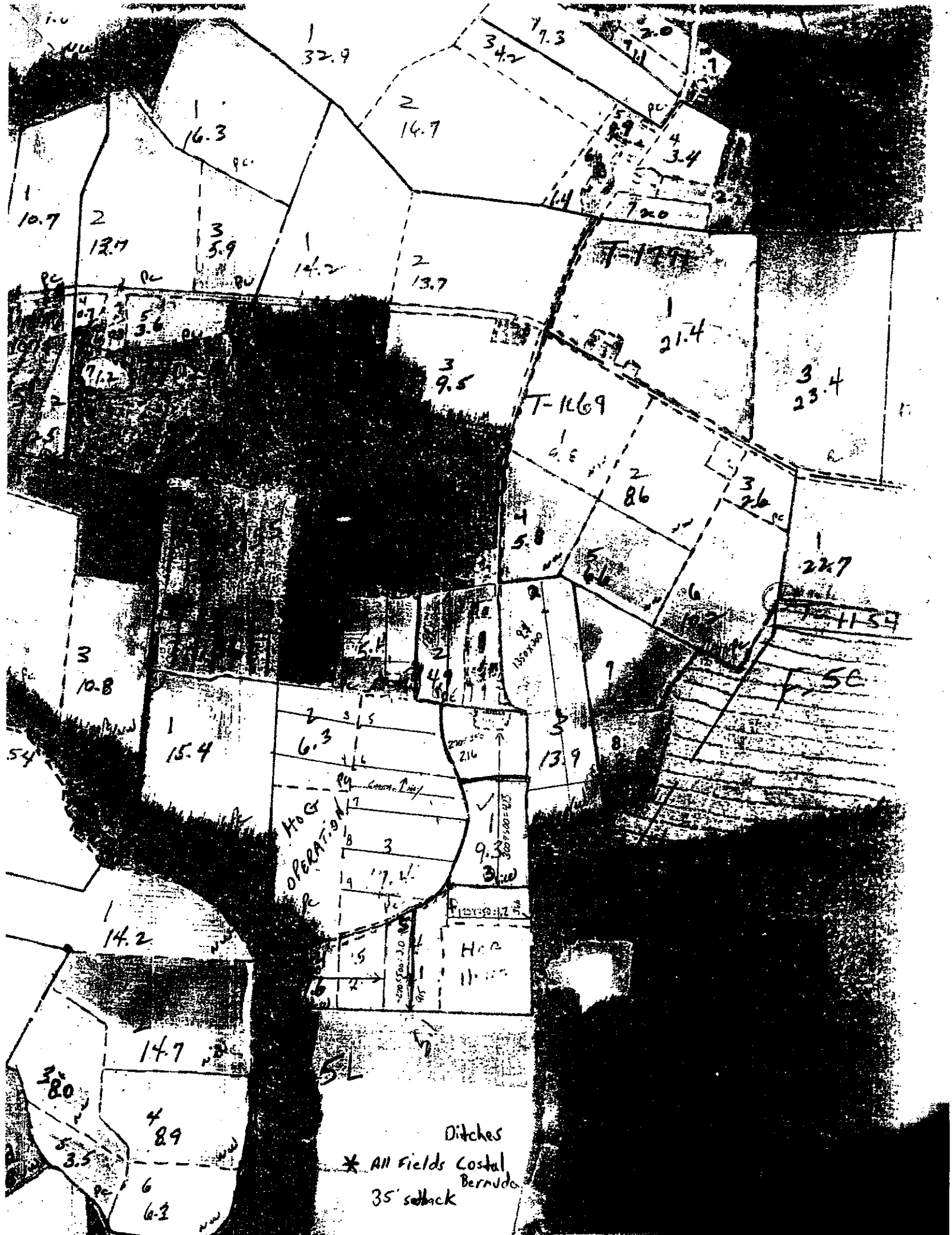
Approximate acres _____ **Approximate scale** [redacted] 1"=2400'

Cooperating with GREENE SOIL AND WATER **Conservation District**

Plan identification _____ **Photo number** _____

Assisted by _____ **USDA Soil Conservation Service**




T-1179
T-1169
T-1159
Ditches
* All Fields Costal Bermuda
35' setback

Phosphorus Loss Assessment Tool Completion

Name of Facility: Kenneth Dail Facility Number: 40-40

Owner(s) Name: _____ Phone No: _____

Mailing Address: _____

Check the appropriate box below, and sign at the bottom:

☑ **No** fields received a high or very high rating.

☐ **Yes,** the fields listed below received a high or very high rating:

Field Number	Size (Acres)	Rating (High or Very High)

Please use as many additional attachment forms (PLAT-A-10-31-03) as needed for additional fields.

By completing the above section and any additional attachments and by signing this form, the facility owner and Technical Specialist acknowledge all application fields were evaluated using the Phosphorus Loss Assessment Tool. All necessary calculations were completed to conduct the Assessment. A copy will be kept on site with the Certified Animal Waste Management Plan. Any future modifications must be approved by a technical specialist and filed with the Soil and Water Conservation District prior to implementation. Waste plans with fields having a high or very high rating will have to be modified to address phosphorus loss by the next permit cycle beginning July, 2007.

Owner Name: Kenneth Dail

Owner Signature: Kenneth Dail Date: 2/17/05

Technical Specialist Name: William Carl Owen

Technical Specialist Signature: William Carl Owen Date: 2/17/05

Affiliation: NC DENR DSWC Phone No: 252 948 3920

Submit this form to:
Attn: Keith Larick
Animal Feeding Operations Unit
NC Division of Water Quality
1636 Mail Service Center
Raleigh, NC 27699-1636

NCANAT Version: 1.00

PLAT Results For: Greene 2/17/2005 1:49:01 PM

INPUTS

Calendar Year:	2005	
County:	Greene	
Producer Identifier:		
Tract Number:	3154	
Field Number:	1	
Soil Series:	Ra: RAINS SANDY LOAM	
Crop:	Common Bermudagrass (Hay) :	
Fertilizers:	Swine-Lagoon liquid	
	Yearly Applied Amount:	4.4 ac in
	Lb P2O5:	53.4 lb
	Application Method:	All other surface applications
Soil Loss:	.04 t/ac/yr	
Receiving Slope Distance	0-9 ft	
Soil Test 0" - 4"	231	
WV_Factor (DATABASE)	1.2	
Soil Test 28" - 32"	32	
WV_Factor (DATABASE)	1.2	
Artificial Drainage System:	NO	
Hydrologic Condition:	GOOD	

OUTPUTS

PARTICULATE P	=	0
SOLUBLE P	=	5
LEACHATE P	=	11
SOURCE P	=	4
TOTAL P RATING	=	20 (LOW)

NCANAT Version: 1.00

PLAT Results For: Greene 2/17/2005 1:51:12 PM

INPUTS

Calendar Year:	2005
County:	Greene
Producer Identifier:	40.40
Tract Number:	3156
Field Number:	2
Soil Series:	GoA: GOLDSBORO LOAMY SAND, 0 TO 2 PERCENT SLOPES
Crop:	Common Bermudagrass (Hay) :
Fertilizers:	Swine-Lagoon liquid
	Yearly Applied Amount: 5.92 ac in
	Lb P2O5: 53.4 lb
	Application Method: All other surface applications
Soil Loss:	.04 t/ac/yr
Receiving Slope Distance	0-9 ft
Soil Test 0" - 4"	304
WV_Factor (DATABASE)	1.3
Soil Test 28" - 32"	9
WV_Factor (DATABASE)	1.3
Artificial Drainage System:	NO
Hydrologic Condition:	GOOD

OUTPUTS

PARTICULATE P = 0

SOLUBLE P = 2

LEACHATE P = 3

SOURCE P = 2

TOTAL P RATING = 7 (LOW)

NCANAT Version: 1.00

PLAT Results For: Greene 2/17/2005 1:56:18 PM

INPUTS

Calendar Year:	2005
County:	Greene
Producer Identifier:	40.40
Tract Number:	3156
Field Number:	3
Soil Series:	GoA: GOLDSBORO LOAMY SAND, 0 TO 2 PERCENT SLOPES
Crop:	Common Bermudagrass (Hay) :
Fertilizers:	Swine-Lagoon liquid
	Yearly Applied Amount: 5.9 ac in
	Lb P2O5: 53.4 lb
	Application Method: All other surface applications
Soil Loss:	.04 t/ac/yr
Receiving Slope Distance	0-9 ft
Soil Test 0" - 4"	360
WV_Factor (DATABASE)	1.3
Soil Test 28" - 32"	0
WV_Factor (DATABASE)	1.3
Artificial Drainage System:	NO
Hydrologic Condition:	GOOD

OUTPUTS

PARTICULATE P	=	0
SOLUBLE P	=	2
LEACHATE P	=	0
SOURCE P	=	2
TOTAL P RATING	=	4 (LOW)

NCANAT Version: 1.00

PLAT Results For: Greene 2/17/2005 1:58:16 PM

INPUTS

Calendar Year:	2005
County:	Greene
Producer Identifier:	40.40
Tract Number:	3156
Field Number:	4
Soil Series:	NoA: NORFOLK LOAMY SAND, 0 TO 2 PERCENT SLOPES
Crop:	Common Bermudagrass (Hay) :
Fertilizers:	Swine-Lagoon liquid
	Yearly Applied Amount: 5.9 ac in
	Lb P2O5: 53.4 lb
	Application Method: All other surface applications
Soil Loss:	.04 t/ac/yr
Receiving Slope Distance	0-9 ft
Soil Test 0" - 4"	360
WV_Factor (DATABASE)	1.4
Soil Test 28" - 32"	0
WV_Factor (DATABASE)	1.4
Hydrologic Condition:	GOOD

OUTPUTS

PARTICULATE P	=	0
SOLUBLE P	=	2
LEACHATE P	=	0
SOURCE P	=	2
TOTAL P RATING	=	4 (LOW)

NCANAT Version: 1.00

PLAT Results For: Greene 2/17/2005 1:59:24 PM

INPUTS

Calendar Year:	2005
County:	Greene
Producer Identifier:	40.40
Tract Number:	3156
Field Number:	5
Soil Series:	NoA: NORFOLK LOAMY SAND, 0 TO 2 PERCENT SLOPES
Crop:	Common Bermudagrass (Hay) :
Fertilizers:	Swine-Lagoon liquid
	Yearly Applied Amount: 5.9 ac in
	Lb P2O5: 53.4 lb
	Application Method: All other surface applications
Soil Loss:	.04 t/ac/yr
Receiving Slope Distance	0-9 ft
Soil Test 0" - 4"	367
WV_Factor (DATABASE)	1.4
Soil Test 28" - 32"	0
WV_Factor (DATABASE)	1.4
Hydrologic Condition:	GOOD

OUTPUTS

PARTICULATE P	=	0
SOLUBLE P	=	2
LEACHATE P	=	0
SOURCE P	=	2
TOTAL P RATING	=	4 (LOW)

North Carolina

Revised Universal Soil Loss Equation Worksheet

July, 2001

Owner/Operator: Kenneth Dail   Tract: ______   Date: 12-9-04

County: Greene   R Factor: 320   Assisted By: ______

Field	Map Unit	Kf	K Adjusted	Slope %	Slope L	Slope LS	C	EI	Cover Cd. Table 10	Ridge Ht. Table 11	Hydro. Group	Table 12 Value	Row Grade	R G/Slope % Ratio	Contour Table 13	Terrace Table 14	Strips Factor	P	Soil Loss
Existing	Ra	.20	.15	0.5	300	.09	.009	140	2		B							1	.04
Proposed																			
Field	Map Unit	Kf	K Adjusted	%	L	LS	C	EI	Cover Cd. Table 10	Ridge Ht. Table 11	Hydro. Group	Table 12 Value	Row Grade	R G/Slope % Ratio	Contour Table 13	Terrace Table 14	Strips Factor	P	Soil Loss
Existing	Go	.17	.12	0.5	500	.1	.009	140	2		B							1	.04
Proposed																			
Field	Map Unit	Kf	K Adjusted	%	L	LS	C	EI	Cover Cd. Table 10	Ridge Ht. Table 11	Hydro. Group	Table 12 Value	Row Grade	R G/Slope % Ratio	Contour Table 13	Terrace Table 14	Strips Factor	P	Soil Loss
Existing	No	.17	.12	0.5	500	.1	.009	140	2		B							1	.04
Proposed																			
Field	Map Unit	Kf	K Adjusted	%	L	LS	C	EI	Cover Cd. Table 10	Ridge Ht. Table 11	Hydro. Group	Table 12 Value	Row Grade	R G/Slope % Ratio	Contour Table 13	Terrace Table 14	Strips Factor	P	Soil Loss
Existing																			
Proposed																			
Field	Map Unit	Kf	K Adjusted	%	L	LS	C	EI	Cover Cd. Table 10	Ridge Ht. Table 11	Hydro. Group	Table 12 Value	Row Grade	R G/Slope % Ratio	Contour Table 13	Terrace Table 14	Strips Factor	P	Soil Loss
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Existing																			
Proposed																			

3450 TOPP

3450 X 135 = 465750

TEMP. STORAGE 6 MONTHS

465750 lbs × 1.35/1,000 × 180 DAYs = 113177

EXCESS RAINFALL OVER EVAP.

7/12 × 86000 = 50166

25 YEAR STORM VOLUME

7/12 × 86000 = 50166

TOTAL STORAGE NEEDED 67925

10/6 82950/395X210 TOP + 55200/345X160 BOTTOM + 273800/370 X 185 X 4 MID-SECTION = 411950 X 10 NO SLUDGE NEEDED.

EFFLUENT NEEDS.

CORN-	3450	X .015	= 52 ACRES
FESCUE-	3450	.012	= 41 ACRES
COASTAL BERMUDA	3450	.0058	= 20 ACRES

TOP OF DIKE 51.0 EXCEPT ALONG PAD SIDE

BOTTOM ~~41.0~~ 400 sf

AVE GROUND 479

AVE GROUND PAD 491

EXCAVATION & FILLS

LAGOON - AVE

PAD - AVE = 335

DIKE + AVE = 940

[redacted] STORAGE

[redacted] SLUDGE WILL

POWER LINE ON EAST

SEEDING - SPECS.

[redacted] APPLY LIME & FERTILIZE

[redacted] DEEP SMOOTH AREA AN SE

[redacted] GROUND COVER.

[redacted] 1000 lbs 5-20-10, 1000 lbs

[redacted] BROWN TOP MILLET, 40001bs

[redacted] CUT OR FILL

[redacted] = 574470 ÷ 27 = 2

37 = 291282 ÷ 27 = 10

41 = 49829 ÷ 27 = 18

USDA-SOIL CONSERVATION SERVICE
3 Professional Drive Suite B
Snow Hill, NC 28580
Phone: (919)-747-3705

UNITED STATES
DEPARTMENT OF
AGRICULTURE

OPERATOR: KENNETH DAIL

Please review the attached plan and specification carefully. Retain this plan for your use and records. It is strongly recommended that you, your contractor and Soil Conservation Service personnel are in agreement as to how the waste lagoon is to be constructed. SCS personnel will meet with all concerned parties and walk over the site to explain all flags and markings. It is important that everyone understands what is expected so that final construction meets plans and specification and the job can be certified for payment (if cost sharing is involved).

The pad dimensions and grades are the best estimate. The builder or contractor is responsible for final design and layout of the pads. SCS personnel will assist in a limited capacity, as its major concern is the proper design and construction of the waste treatment lagoon.

The actual amount of material required for pads and dam may vary from the estimates. The design will attempt to balance cuts and fills as close as possible. If additional material is required after construction is complete on the lagoon, the contractor and owner will negotiate on the price and location of borrow area.

It should be noted that certification of the lagoon will depend upon all specifications being met. Important items include length, width, depth, slopes, topsoil placement, correct elevations (top, bottom, discharge pipes), and seeding.

NOTE:
Design Requirement: 686583 cu.ft. = _____ cu.yds.

Estimate of Excavation: ~~574470~~ 518981 cu.ft. = ~~21276~~ 19222 cu.yds.

Estimate of Pad & Dike: 341111 cu.ft. = 12633 cu.yds.

Estimate of topsoil Required

1.5 : 1 Ratio

Job Class: IV 5-21-91
DATE

Designed By: DONALD M. SMITH NCCS-Tech
NAME
Checked by W. Elton Turnage

Design Approval: Billy H. Jones
NAME

6-18-91
DATE

USDA-SOIL CONSERVATION SERVICE
3 Professional Drive Suite B
Snow Hill, NC 28580
Phone: (919)-747-3705

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NOTE:
Design Requirement: 686583 cu.ft. = _____ cu.yds.

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Estimate of Pad & Dike: 341111 cu.ft. = 12633 cu.yds.

Estimate of topsoil Required

1.5 : 1 Ratio

Job Class: IV 5-21-91
DATE

Designed By: DONALD M. SMITH NCCS-Tech
NAME
Checked by W. Elton Turnage

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NAME

6-18-91
DATE

SCS-ENG-538
Rev. 5-70

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL INVESTIGATION TO DETERMINE SUITABILITY OF PROPOSED POND SITE

FARMER'S NAME Kenneth DAIL DISTRICT
DATE 5-28-91 COUNTY Greene
S. C. S. PHOTO SHEET NO. WORK UNIT

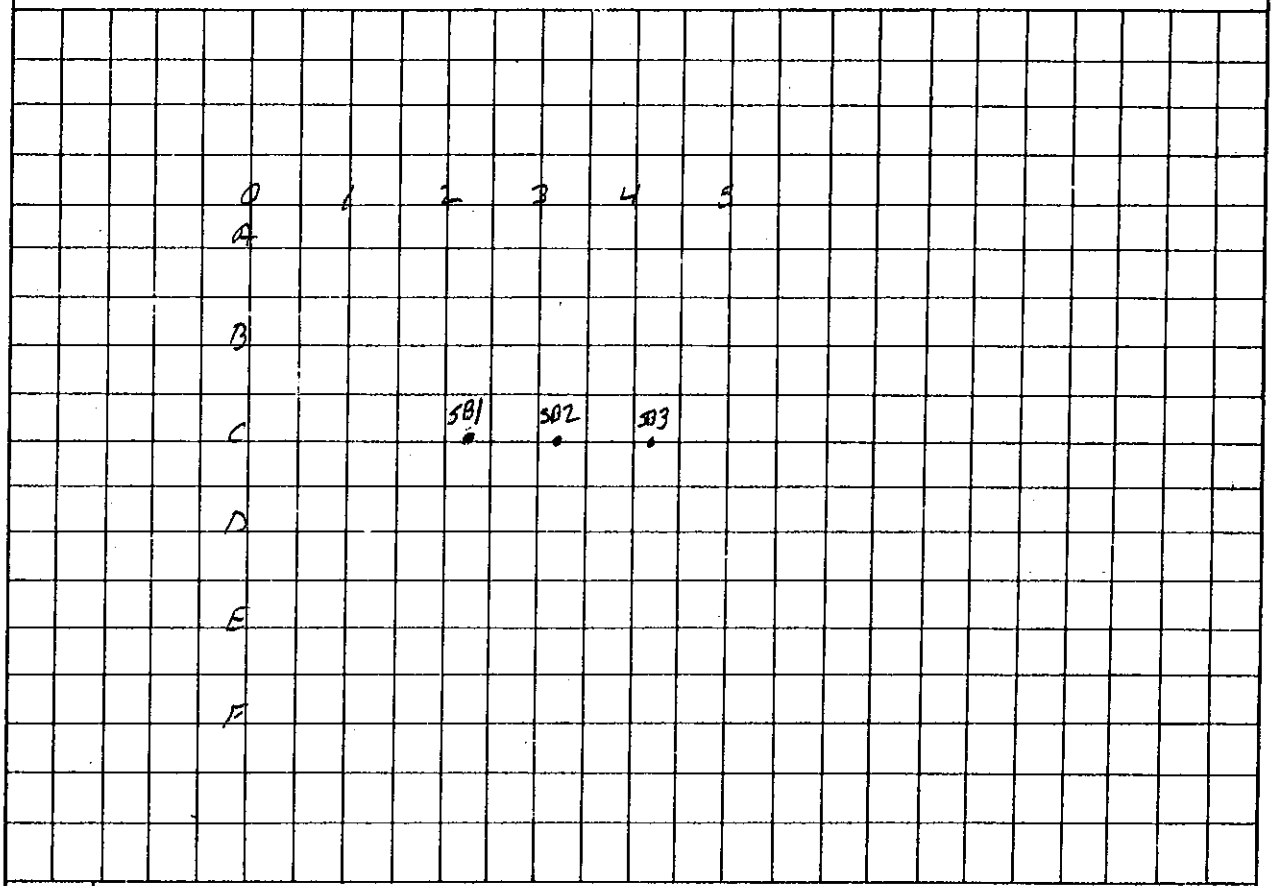
WATERSHED AREA MEASUREMENTS

CROPLAND ____ ACRES PASTURE ____ ACRES
WOODLAND ____ ACRES TOTAL ____ ACRES

POND CLASS

WORK UNIT CONSERVATIONIST

SKETCH OF PROPOSED POND SHOWING WHERE BORINGS WERE MADE (Approx. scale 1" = ____ feet)
Locate reference point on center line of dam and identify on sketch.



SHOW DEPTH SCALE

BORING NUMBER AND PROFILE

Make and list dam-site and spillway borings first - then ponded area and borrow pit borings - separate with vertical red line. (Continued on back where necessary) Show water table elevations on dam-site borings.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
0-1	SM	SM	SM																				
1-2	SC	SM	SM SC																				
2-3	SC	SM SC	SM SC																				
3-4	SC	SC	SM																				
4-5	H2O SC	H2O SC	SM																				
5-6	SC	SC	SM																				
6-7	SC	SC CH	SM SC																				
7-8	SC	SC CH	SM SC																				
8-9	SM SC	SC SM	SM SC																				
9-10	SM SC	SC SM																					
10-11	SM	SC SM																					

BORINGS MADE BY DDDD SIGNATURE & TITLE ACSP

U. S. Department of Agriculture
Soil Conservation Service

NC-ENG-34
September 1980
File Code: 210

HAZARD CLASSIFICATION DATA SHEET FOR DAMS

Landowner KENNETH DAIL County GREENE

Community or Group No._____ Conservation Plan No._____

Estimated Depth of Water to Top of Dike 11.0 Ft. Length of Flood Pool _____ Ft.

Date of Field Hazard Investigation 5-15-91.

Evaluation by reach of flood plain downstream to the point of estimated minor effect from sudden dam failure.

Reach	Length	Width	Slope	Land Use	Kind of Improvements	Est. Elev. Improvements Above Flood Plain	Est. Elevation of Breach Floodwater Above Flood Plain
	Ft.	Ft.	%			Ft.	Ft.
1							
2							
3							

Describe potential for loss of life and damage to existing or probable future downstream improvements from a sudden breach Sudden failure will NOT endanger life, or damage public transportation, facilities or other structures. Approximately 4000' to nearest road - Branch run through wooded swamp to contour road

Hazard Classification of Dam (a, b, c) (see NEM-Part 520.21)_____

Dam Classification (I, II, III, IV, V) IV

By DONALD M. SMITH NCCS-Tech Date 5-21-91
(name) (title)

Concurred By_____ Date_____
(name) (title)

NOTE: 1. Instructions on reverse side.
2. Attach additional sheets as needed.

-ANIMAL WASTE LAGOON-
OPERATION AND MAINTENANCE PLAN

KENNETH DAIL / 5-21-91
NAME DATE

This lagoon is designed for waste treatment with minimum odor control. The time required for the planned fluid level to be reached may vary due to soil conditions, flushing operations, and the amount of fresh water (rainfall) added to the system. This system is not designed for any fresh water storage therefore buildings will be flushed with recycled lagoon effluent.

Land application of waste water is recognized as an acceptable method of disposal. Methods of application by irrigation include (solid set systems, center pivot, guns, or travelers). Care needs to be taken when applying waste to prevent damage to crops or runoff from the field. The recommended maximum application rate for this soil (GoA, NoA, NoB Ly is _____ inches per hour.

THE FOLLOWING ITEMS ARE TO BE CARRIED OUT:

1: Begin pump-out of the lagoon when fluid level reaches the invert of outlet pipes. Elevation 49.3

2: Stop pump-out before fluid depth is less than 6 feet deep (this prevents the loss of favorable bacteria.) Elevation 46.0.

3: It is strongly recommended that the treatment lagoon be pre-charged to 1/2 its capacity to prevent excessive odors during start-up. Pre-charging reduces the concentration of the initial waste entering the lagoon thereby reducing odors. Solids should be covered with effluent at all times.

4: Keep vegetation on the embankment and areas adjacent to the lagoon mowed.

5: Repair any eroded areas and establish in vegetation.

6: **The Clean Water Act of 1977 prohibits the discharge of pollutants into waters of the United States.** The Division of Environmental Management (D.E.M.) - Wastewater Management Section has the responsibility for enforcing this law.

7: All surface runoff is to be diverted from the lagoon to stable outlets. (See grid map for approximate placement.)

NOTE: An analysis of the waste water can be obtained at commercial laboratories for a fee of $4 per sample at:

N.C. Department of Agriculture Plant Analysis Lab
Agronomic Division
Blue Ridge Road Center
Raleigh, NC 27611
Ph. (919) 733-2655

SPECIFICATIONS FOR CONSTRUCTION OF WASTE TREATMENT LAGOONS

CLEARING: All trees and brush shall be removed from the construction area before any excavating or fill is started. Stumps will be removed within the area of the foundation of the embankment and fill areas and all excavated areas. All stumps and roots exceeding one (1) inch in diameter shall be removed to a minimum depth of one (1) foot. Satisfactory disposition will be made of all debris. The foundation area shall be loosened thoroughly before placement of embankment material.

CUTOFF TRENCH: A cutoff trench (when specified) shall be installed as shown in the plans.

CONSTRUCTION: Construction of excavated and earthfill areas shall be performed to the neat lines and grades as planned. Deviations from this will require prior approval of the SCS. Earthfill shall not be placed in standing water and reasonable compaction of the fills shall be performed by the construction equipment or sheep-foot roller during placement. The embankment of the lagoon shall be installed using the more suitable materials. Construction of fills shall allow 10 percent for settlement. To protect against seepage, when areas of unsuitable material are encountered, they will need to be excavated a minimum of one (1) foot below grade and backfilled and compacted with a suitable material (cl, sc, ch, etc.). Refer to the soils investigation information in the plans for special considerations. Precautions should be taken during construction to prevent excessive erosion and sedimentation.

VEGETATION: All exposed embankment and other bare constructed areas shall be seeded to the planned type of vegetation as soon as possible after construction.

EMERGENCY ACTION PLAN

PHONE NUMBERS
DWQ 919-946-6481
EMERGENCY MANAGEMENT SYSTEM 919-747-2544
SWCD 919-747-3705
NRCS 919-747-3705

This plan will be implemented in the event that wastes from your operation are leaking, overflowing, or running off site. You should not wait until wastes reach surface waters or leave your property to consider that you have a problem. You should make every effort to ensure that this does not happen. This plan should be posted in an accessible location for all employees at the facility. The following are some action items you should take.

1. Stop the release of wastes. Depending on the situation, this may or may not be possible. Suggested responses to some possible problems are listed below.

A. Lagoon overflow-possible solutions are:

a. Add soil to berm to increase elevation of dam.
b. Pump wastes to fields at an acceptable rate.
c. Stop all flows to the lagoon immediately.
d. Call a pumping contractor.
e. Make sure no surface water is entering lagoon.

B: Runoff from waste application field-actions include:

a. Immediately stop waste application.
b. Create a temporary diversion to contain waste.
c. Incorporate waste to reduce runoff.
d. Evaluate and eliminate the reason(s) that caused the runoff.
e. Evaluate the application rates for the fields where runoff occurred.

C: Leakage from the waste pipes and sprinklers-action include:

a. Stop recycle pump.
b. Stop irrigation pump.
c. Close valves to eliminate further discharge.
d. Repair all leaks prior to restarting pumps.

D: Leakage from flush systems, houses, solid separators-action include:

a. Stop recycle pump.
b. Stop irrigation pump.
c. Make sure no siphon occurs.
d. Stop all flows in the house, flush systems, or solid separators.

e. Repair all leaks prior to restarting pumps.

E: Leakage from base or sidewall of lagoon. Often this is seepage as opposed to flowing leaks- possible action:

a. Dig a small sump or ditch away from the embankment to catch all seepage, put in a submersible pump, and pump back to lagoon.
b. If holes are caused by burrowing animals, trap or remove animals and fill holes and compact with a clay type soil.
c. Have a professional evaluate the condition of the side walls and lagoon bottom as soon as possible.

2. Assess the extent of the spill and note any obvious damages.

a. Did the waste reach any surface waters?
b. Approximately how much was released and for what duration?
c. Any damage noted, such as employee injury, fish kills, or property damage?
d. Did the spill leave the property?
e. Does the spill have the potential to reach surface waters?
f. Could a future rain event cause the spill to reach surface waters?
g. Are potable water wells in danger (either on or off of the property)?
h. How much reached surface waters?

3: Contact appropriate agencies.

a. During normal business hours, call your DWQ (Division of Water Quality) regional office; 919-946-6481. After hours, emergency number: 919-733-3942. Your phone call should include: your name, facility, telephone number, the details of the incident from item 2 above, the exact location of the facility, the location or direction of movement of the spill, weather and wind conditions. The corrective measures that have been under taken, and the seriousness of the situation.
b. If spill leaves property or enters surface waters, call local EMS Phone number 919-747-2544
c. Instruct EMS to contact local Health Department.
d. Contact CES 919-747-5831 , local SWCD office 919-747-3705 and local NRCS office for advice/technical assistance phone number

4: If none of the above works call 911 or the Sheriff's Department and explain your problem to them and ask that person to contact the proper agencies for you.

5: Contact the contractor of your choice to begin repair of problem to minimize off-site damage.

a. Contractors Name:_____
b. Contractors Address:_____
c. Contractors Phone:_____

6: Contact the technical specialist who certified the lagoon (NRCS, Consulting Engineer, etc.)

a. Name: Deirdre A. DeBruhl
b. Phone: 919-747-3705

7: Implement procedures as advised by DWQ and technical assistance agencies to rectify the damage, repair the system, and reassess the waste management plan to keep problems with release of wastes from happening again.

Kenneth Dail

Insect Control Checklist for Animal Operations

Source	Cause	BMPs to Control Insects	Site Specific Practices
		Liquid Systems	
Flush Gutters	• Accumulation of solids	☑ Flush system is designed and operated sufficiently to remove accumulated solids from gutters as designed. ☑ Remove bridging of accumulated solids at discharge	
Lagoons and Pits	• Crusted Solids	☑ Maintain lagoons, settling basins and pits where pest breeding is apparent to minimize the crusting of solids to a depth of no more than 6 - 8 inches over more than 30% of surface.	
Excessive Vegetative Growth	• Decaying vegetation	☑ Maintain vegetative control along banks of lagoons and other impoundments to prevent accumulation of decaying vegetative matter along water's edge on impoundment's perimeter.	
		Dry Systems	
Feeders	• Feed Spillage	☑ Design, operate and maintain feed systems (e.g., bunkers and troughs) to minimize the accumulation of decaying wastage. ☐ Clean up spillage on a routine basis (e.g., 7 - 10 day interval during summer; 15-30 day interval during winter).	
Feed Storage	• Accumulations of feed residues	☐ Reduce moisture accumulation within and around immediate perimeter of feed storage areas by insuring drainage away from site and/or providing adequate containment (e.g., covered bin for brewer's grain and similar high moisture grain products). ☐ Inspect for and remove or break up accumulated solids in filter strips around feed storage as needed.	

Kenneth Dail

Swine Farm Waste Management Odor Control Checklist

Source	Cause	BMPs to Minimize Odor	Site Specific Practices
Farmstead	• Swine production	☑ Vegetative or wooded buffers; ☐ Recommended best management practices; ☑ Good judgment and common sense	
Animal body surfaces	• Dirty manure-covered animals	☑ Dry floors	
Floor surfaces	• Wet manure-covered floors	☐ Slotted floors; ☐ Waterers located over slotted floors; ☐ Feeders at high end of solid floors; ☐ Scrape manure buildup from floors; ☐ Underfloor ventilation for drying	
Manure collection pits	• Urine; • Partial microbial decomposition	☑ Frequent manure removal by flush, pit recharge, or scrape; ☐ Underfloor ventilation	
Ventilation exhaust fans	• Volatile gases; Dust	☐ Fan maintenance; ☑ Efficient air movement	
Indoor surfaces	• Dust	☑ Washdown between groups of animals; ☐ Feed additives; ☐ Feeder covers; ☐ Feed delivery downspout extenders to feeder covers	
Flush tanks	• Agitation of recycled lagoon liquid while tanks are filling	☐ Flush tank covers; ☐ Extend fill lines to near bottom of tanks with anti-siphon vents	
Flush alleys	• Agitation during wastewater conveyance	☐ Underfloor flush with underfloor ventilation	
Pit recharge points	• Agitation of recycled lagoon liquid while pits are filling	☐ Extend recharge lines to near bottom of pits with anti-siphon vents	
Lift stations	• Agitation during sump tank filling and drawdown	☐ Sump tank covers	
Outside drain collection or junction boxes	• Agitation during wastewater conveyance	☐ Box covers	

Source	Cause	BMPs to Minimize Odor	Site Specific Practices
End of drainpipes at lagoon	• Agitation during wastewater conveyance	☐ Extend discharge point of pipes underneath lagoon liquid level	
Lagoon surfaces	• Volatile gas emissions; • Biological mixing; • Agitation	☑ Proper lagoon liquid capacity; ☐ Correct lagoon startup procedures; ☐ Minimum surface area-to-volume ratio; ☐ Minimum agitation when pumping; ☐ Mechanical aeration; ☐ Proven biological additives	
Irrigation sprinkler nozzles	• High pressure agitation; • Wind drift	☑ Irrigate on dry days with little or no wind; ☑ Minimum recommended operating pressure; ☑ Pump intake near lagoon liquid surface; ☐ Pump from second-stage lagoon	
Storage tank or basin surface	• Partial microbial decomposition; • Mixing while filling; • Agitation when emptying	☐ Bottom or midlevel loading; ☐ Tank covers; ☐ Basin surface mats of solids; ☐ Proven biological additives or oxidants	
Settling basin surface	• Partial microbial decomposition; • Mixing while filling; • Agitation when emptying	☐ Extend drainpipe outlets underneath liquid level; ☐ Remove settled solids regularly	
Manure, slurry or sludge spreader outlets	• Agitation when spreading; • Volatile gas emissions	☐ Soil injection of slurry/sludges; ☐ Wash residual manure from spreader after use; ☐ Proven biological additives or oxidants	
Uncovered manure, slurry or sludge on field surfaces	• Volatile gas emissions while drying	☐ Soil injection of slurry/sludges ☐ Soil incorporation within 48 hrs.; ☐ Spread in thin uniform layers for rapid drying; ☐ Proven biological additives or oxidants	
Dead animals	• Carcass decomposition	☐ Proper disposition of carcasses	
Dead animal disposal pits	• Carcass decomposition	☐ Complete covering of carcasses in burial pits; ☑ Proper location/construction of disposal pits	
Incinerators	• Incomplete combustion	☐ Secondary stack burners	

Source	Cause	BMPs to Minimize Odor	Site Specific Practices
Standing water around facilities	• Improper drainage; • Microbial decomposition of organic matter	☑ Grade and landscape such that water drains away from facilities	
Manure tracked onto public roads from farm access	• Poorly maintained access roads	☑ Farm access road maintenance	

Additional Information :	Available From :
Swine Manure Management ; 0200 Rule/BMP Packet	NCSU, County Extension Center
Swine Production Farm Potential Odor Sources and Remedies ; EBAE Fact Sheet	NCSU - BAE
Swine Production Facility Manure Management: Pit Recharge - Lagoon Treatment ; EBAE 128-88	NCSU - BAE
Swine Production Facility Manure Management: Underfloor Flush - Lagoon Treatment ; EBAE 129-88	NCSU - BAE
Lagoon Design and Management for Livestock Manure Treatment and Storage ; EBAE 103-83	NCSU - BAE
Calibration of Manure and Wastewater Application Equipment ; EBAE Fact Sheet	NCSU - BAE
Controlling Odors from Swine Buildings ; PIH-33	NCSU - Swine Extension
Environmental Assurance Program ; NPPC Manual	NC Pork Producers Assoc
Options for Managing Odor ; a report from the Swine Odor Task Force	NCSU Agri Communications
Nuisance Concerns in Animal Manure Management: Odors and Flies ; PRO107, 1995 Conference Proceedings	Florida Cooperative Extension

Kenneth Dail

Mortality Management Methods

(check which method(s) are being implemented)

- ☐ Burial three feet beneath the surface of the ground within 24 hours after knowledge of the death. The burial must be at least 300 feet from any flowing stream or public body of water.
- ☑ Rendering at a rendering plant licensed under G.S. 106-168.7
- ☐ Complete incineration
- ☐ In the case of dead poultry only, placing in a disposal pit of a size and design approved by the Department of Agriculture
- ☐ Any method which in the professional opinion of the State Veterinarian would make possible the salvage of part of a dead animal's value without endangering human or animal health. (Written approval of the State Veterinarian must be attached)

December 18, 1996