ALAMANCE COUNTY BOARD OF HEALTH

Minutes

Regular Meeting of the Board of Health

October 18, 2016

The Alamance County Board of Health met at 6:30 p.m. on Tuesday, October 18, 2016, in the Professional Board Room of the Human Services Center located at 319-B North Graham-Hopedale Road, Burlington, North Carolina.

The following board members were present: Chair Dr. Karin Minter, Vice Chair Dr. Annette Wilson, Dr. William Porfilio, Dr. Robby Osborn, Ms. Kathy Colville, Ms. Norma Thompson, Mr. Kent Tapscott, Mr. Kevin Bengel, Mr. Michael Venable and Commissioner Bob Byrd.

The following staff members were present: Ms. Stacie Saunders, Ms. Gayle Shoffner, Mr. Carl Carroll, Ms. Kelly Mendenhall, Ms. Arlinda Ellison, Mr. Zach Fisher, and Ms. Ariana Lawrence. The following new staff members were present: Matthew Futch, Ibraheem Ackall, Delanor Dickerson, Rita Nickey, Sarah Austin, and Karla Ragland.

I. Call to Order and Introductions

Board of Health Chair, Dr. Karin Minter called the meeting to order at 6:28 p.m. Ms. Ariana Lawrence introduced the new staff members.

II. Approval of the Agenda

A motion was made by Mr. Kent Tapscott to approve the agenda. The motion was seconded by Ms. Kathy Colville and approved unanimously by the board.

III. Approval of the Consent Agenda

A.	June 21, 2016 Board of Health Minutes – Chair
B.	August 16, 2016 Board of Health Minutes- Chair
C.	Environmental Health Committee Minutes- EHC Chair
D.	Personnel Report- Ms. Stacie Saunders

A motion was made by Dr. Robby Osborn to approve the consent agenda. The motion was seconded by Mr. Kent Tapscott and approved unanimously by the board.

IV. Budget Revisions FY 16/17

BUDGET ACCOUNT CODE	DESCRIPTION	TRIAL BALANCE	STATE BUDGET	COUNTY BUDGET
REVISION #	**1**		DEPT. NAME:	HEALTH
STATE BUDGET:			TRANSFER:	
			AMENDMENT:	X
Expenditures:				
New Account		$		$
TBD	Impact Alamance Grant	40,000.00		40,000.00
Revenue:				
New Account		$		$
TBD	Impact Alamance Grant	40,000.00		40,000.00
Explanation:	The Alamance County Children's Dental Health Center was allocated $40,000.00 by Impact Alamance. The Dental Clinic will purchase dental equipment to use in the bay area. These funds do not require any local match or expenditure of any local funds.			

BUDGET ACCOUNT CODE	DESCRIPTION	TRIAL BALANCE	STATE BUDGET	COUNTY BUDGET
REVISION #	**2**		DEPT. NAME:	HEALTH
STATE BUDGET:			TRANSFER:	
			AMENDMENT:	X
Expenditures:				
		$		$
10-5110-220	COMPUTER SUPPLIES	940.89		940.89
	MEDICAL/SCIENTIFIC	$		$
110-5110-239	SUPPLIES	1,847.00		1,847.00
	SMALL	$		$
110-5110-241	TOOLS/EQUIPTMENT	260.00		260.00
Revenue:				
	ENVIRONMENTAL	$		$
310-3511-319	HEALTH	3,047.89		3,047.89

Explanation:	The Alamance County Health Department was allocated $3,045.92 by the N. C. Department of Public Health to reimburse local agencies for the cost of inspections completed 06/01/2016 – 09/30/2016 as part of the Summer Food Service Program (SFSP). These are entirely state funds and do not require any local match or expenditure of any local funds. Environmental Health Specialists conducted thirty four inspections of Summer Food Service Facilities.

A motion was made by Dr. William Porfilio to approve budget amendment #1. The motion was seconded by Dr. Karin Minter and approved unanimously by the board.
A motion was made by Ms. Kathy Colville to approve budget amendment #2. The motion was seconded by Mr. Kent Tapscott and approved unanimously by the board.

V. Child Care Health Consultant Program Presentation:

Ms. Kelly Mendenhall works at the Health Department as a Child Care Health Consultant. She provided the board with an overview of the CCHC program and her various roles at the health department. Commissioner Byrd thanked Ms. Mendenhall for the great work she is doing and for helping add positivity to a child's life.

VI. Environmental Health Update

Mr. Carroll reported on changes made to the 2016 Compendium on Rabies by the National Association of State Public Health Veterinarians Compendium of Animal Rabies Prevention and Control Committee. The changes are related to how dogs, cats, and ferrets are handled after an exposure to a rabid animal. Prior to the changes the National Rabies Compendium stated that if an animal was not up to date on its rabies vaccine it should be quarantined for six months or euthanized and North Carolina rabies laws are based on the Compendium.

Since 1997 in Alamance County, about 200 dogs and cats that were not currently vaccinated for rabies had an exposure to a rabid animal. Of those 200, the owners of 10 of them decided on quarantine for six months and the others were euthanized.

Mr. Carroll gave an example of a dog in Alamance County that had been previously vaccinated by was not current on its rabies vaccine and was exposed to a rabid animal. The owners decided to quarantine her for six months. The owners attended a Board of Health meeting and provided very detailed information on some completed studies and about other states allowing lesser control measures such as titers for previously vaccinated dogs and some also allowed home quarantined.

More studies have now been completed and those studies along with other information that states have been collecting about dogs and cats that were exposed to rabies has resulted in the changes to the Compendium. However, the North Carolina Legislature did not make changes to current state law to address the changes in the Compendium before they adjourned this year.

The North Carolina Public Health Veterinarians have sent health departments information about

how a board of health could adopt the new compendium as a rule to be used in lieu of current practice. Mr. Carroll summarized the new changes to the rabies compendium, see chart below.

Table 1. 2016 Rabies Compendium Changes for Postexposure Management of Dogs and Cats by Vaccination Status: A Comparison to § 130A-197 and Projected Fiscal Impact to Pet Owners

Rabies Vaccination Status of Dog or Cat	Current G.S. 130A-197 Control measures	2016 Compendium Control measures	2016 Compendium Financial Impact
1. Currently Vaccinated	Provide booster dose of rabies vaccine within five days of exposure ($25.00)	Immediate veterinary care with rabies booster dose within 96 hours of exposure ($25.00+). Owner observation 45 days.	Equal to existing standard
2. Unvaccinated (Has never been vaccinated against rabies)	A.) Euthanasia ($150.00) or B.) Immediate vaccination against rabies and place in six month quarantine ($25.00 + $3600.00)	A.) Euthanasia ($150.00) or B.) Immediate veterinary care with rabies vaccination within 96 hours of exposure and place in four month quarantine ($25.00+ $2400.00)	A.) Equal to existing standard B.) $1200.00 less expensive
3. Overdue with Appropriate Documentation of prior rabies vaccination (at least one prior valid rabies vaccination certificate)	A.) Euthanasia ($150.00), or B.) Immediate rabies vaccination and place in six month quarantine ($25.00 + $3600.00)	A.) NA B.) Immediate veterinary care with rabies booster dose within 96 hours of exposure, keep under owner observation for 45 days ($25.00+)	A.) ~ $125.00 less expensive than existing standard (does not include emotional cost of pet loss). B.) $3600.00 less expensive
4. Overdue with NO Documentation of prior rabies vaccination	A.) Euthanasia ($150.00), or B.) Immediate vaccination against rabies and place in six month quarantine ($25.00 + $3600.00)	A.) Euthanasia ($150.00), or B.) Immediate veterinary care with rabies vaccination within 96 hours of exposure and place in four month quarantine ($25.00+ $2400.00), or C.) Immediate veterinary care and Prospective serologic monitoring ($420.00) 1) IF evidence of prior vaccination then keep under owner observation for 45 days 2) IF NO evidence of prior vaccination then manage as unvaccinated (category 2. euthanize or 4 month quarantine)	A.) Equal to existing standard B.) $1200.00 less expensive C.) $554.00 more expensive includes additional cost for strict quarantine until lab evidence finalized. Note this may obviate the need for either A or B above and, while a new expense, is considerably less expensive than either A or B above

Note: All costs are approximate. Table is not meant to be all inclusive of all recommendations and costs but addresses the common situations with the most fiscal impact.
*Consult Communicable Disease Branch (919-733-3419) for specific guidance. Recommendations may be subject to change.

Mr. Carroll explained that this topic was discussed at length at the Environmental Health Committee meeting in September. The committee discussed if it was appropriate for the board to use their rule making authority to adopt a Board of Health rule versus utilizing the health director's statutory authority. Ms. Saunders discussed that the new compendium rules are on the 2017 legislation docket, so if passed this would become the new rule. Ms. Saunders explained that the committee discussed the option of amending the existing Rabies Policy that still will allow for the health director to operate under the NCGS 130A-197 but will also include the new guidance from the National Rabies Compendium. Ms. Colville discussed that the consensus from the Environmental Health Committee was not in favor of a Board of Health rule, but the policy with the new guidance listed would be really clear and easier for the public to understand if they requested the health department's policy on rabies. Mr. Tapscott said that it could help with the

public reporting these incidences because the potential for an extreme financial hardship would be less. He also stated that this is an opportunity for the board to educate the public and for the public to know that the board is compassionate. Ms. Colville and Mr. Tapscott suggested to pass the policy and do a press release explaining the changes. Mr. Carroll suggested that he get in touch with the owner of the dog used as an example previously and let them know about these changes, and also let him know that he left an impact on the board of health. Board members were agreeable to this.

A motion was made by Mr. Kent Tapscott for the health director and staff to amend the current rabies policy to include the new rabies compendium guidance. This draft policy will be presented to the board at a future meeting. The motion was seconded by Dr. Annette Wilson and approved unanimously by the board.

Mr. Carroll also discussed the Regulatory Reform Act of 2015, an Engineered Option Permit (EOP) temporary rule became effective on July 1, 2016. This legislation allows a homeowner/business owner to have a licensed engineer and a licensed soil scientist evaluate, design and install an onsite wastewater system with no oversight by the health department. With this option, the health department's only responsibility after the engineer designs the wastewater system, the engineer will come to the health department with all of the information and environmental health is only to check off that all of the paperwork has been completed. After the wastewater system is installed, environmental health staff have to attend a post construction conference to observe. If the wastewater system fails, the owner will be referred back to the engineer and the health department is not liable. Included in the law is a rule that allows the local health department to assess a fee for the EOP of no more than 30% of the current fees for these services, which is what will be done.
Mr. Carroll shared that after Hurricane Matthew, four Environmental Health staff deployed to Beaufort County to help Environmental Health staff in that county get food service facilities opened up properly.

VII. Personal Health Update

Ms. Gayle Shoffner shared that the TB coordinator has been busy with cases. In the last two weeks the TB coordinator has ruled out three suspect TB cases, currently following two active TB cases, and has closed two active cases from last Spring.
Ms. Shoffner reported that the health department has tested 16 patients for Zika, and only one has come back with a preliminary positive IgM and a negative PCR test. This individual is still required to be in the Zika registry for pregnant women.
Ms. Shoffner reported that the Influenza Policy that was approved by the board of health last year has been shared with staff. So far this year staff have given 576 doses, 248 doses were given at the County Employee wellness fair, 25 to EMS, and 74 doses to health department employees. County manager Craig Honeycutt allowed two hour bonus time for any county employee who received the flu vaccine.
Ms. Shoffner shared that Ms. Janice Tilley volunteered to help in Carthage after Hurricane Matthew.

VIII. Health Director's Report

Ms. Saunders shared that the Board of Commissioners and County Manager will recognize the staff that deployed to help after Hurricane Matthew at the November 21 Board of Commissioners meeting.
Ms. Saunders announced that the ARMC Medical Director contract has been signed by all parties at this time. Dr. Ginette Archinal will be acting as interim Medical Director. Monday-Thursday she is remotely supervising mid-level providers and Fridays she is in the office and clinic. Dr. Taormina will be rolling

off as Medical Director effective November 1. Ms. Saunders announced that soon there will be a posting for an Advanced Practice Provider for up to 40 hours per week.
Ms. Saunders reported that the state released funds for a minority diabetes prevention program on a regional basis. This is an evidence based program for education, screening and life coaching for pre-diabetics. This is a regional approach in which Alamance is in tier 2 and region 5 and we are eligible for $215,000 for our region. Alamance has been asked to be the lead for the region because of our central location and for our history of great grant management. There will be a regional coordinator and lifestyle coaches included in this budget. A letter of intent is due October 21.
Ms. Saunders discussed the Performance Based Budgeting new matrix for distribution of money. If we have not reached our fund balance, 25% of the money that is saved in that program will go to the fund balance. Also taken off the top of that money will be bonuses for county employees and 5% will go into the county manager's line item for small departments to apply for opportunities. The allocated balance will then be given to departments. FY 14/15 bonuses from the PMPBB program were given to eligible staff in October in the amount of $500.
Ms. Saunders shared that the health department is becoming more trauma informed, and is undergoing some physical changes to the environment. Walls will be painted and decluttered, new lobby furniture, the information booth will be redesigned to be more open and welcoming, and digital signs will be installed.
Ms. Saunders discussed that the Leadership Academy applications have been sent to supervisors for them to apply to the program. Management team will be providing the instruction based on their expertise.
Mr. Zach Fisher spoke about an opioid forum he and Ms. Saunders attended. At this forum a community based response to addiction problems was discussed and how different agencies and groups could work together to impact the problem. Ms. Saunders shared that the health department is interested in adopting a standing order for Naloxone in the future.
Ms. Saunders talked about upcoming events. Ms. Saunders will present at County government 101 session on October 25. All board of health members will be sent a save the date for Alamance Achieves launch November 29 at 4pm. Tracey Grayzer and Ms. Saunders will be presenting at the state health directors conference about collective impact. Collen Bridger, health director in Orange County, Steven Smith, health director in Henderson County, and Ms. Saunders will be writing an article about Medicaid reform for the North Carolina Medical Journal.

IX. Old Business

A. ACHD Strategic Planning Approval

Ms. Saunders discussed the strategic plan at length at the August Board of Health meeting. Board of Health members were emailed the full document for review. Board members stated that it was very well written and it's a great strategic plan.

A motion was made by Commissioner Byrd to approve the Strategic Plan as presented. The motion was seconded by Dr. Porfilio and approved unanimously by the board.

X. New Business

A. New Fee Request: Gardasil Vaccine

This replaces 90649 (Gardasil 4) which Medicaid reimbursed at $135.73 and our standard fee was $149.00. The actual cost of the new Gardasil (Gardasil 9) based on our last invoice was $187.68 per dose. Surrounding counties were polled and a CVS pharmacy to compare the cost of the vaccine. Based on that, we are proposing a standard fee of $200.00.

B. National Voter Registration Act WIC Policy

Ms. Saunders presented the new National Voter Registration Act WIC Policy.

A motion was made by Mr. Kevin Bengel to approve the policy as presented. The motion was seconded by Ms. Kathy Colville and approved unanimously by the board.

C & D: Nominating Committee for Election of 2017 Officers and Awards Committee for 2016 Award Recipients

Dr. Minter appointed the Environmental Health Committee to act as the Nominating Committee for 2017 Officers.

Dr. Minter appointed the Personal Health Committee to act as the Awards Committee for 2016 Award Recipients.

A motion was made by Commissioner Byrd to approve the appointment of these committees. The motion was seconded by Dr. Annette Wilson and approved unanimously by the board.

XI. Adjournment

With no other business discussed the meeting was adjourned at 8:18pm.

ALAMANCE COUNTY BOARD OF HEALTH

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Dr. Karin Minter, Chair

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Ms. Stacie Turpin Saunders, Secretary

Alamance County Board of Health

Environmental Health Committee

The Environmental Health Committee met on Tuesday, September 20, 2016 at 12:00 pm in the Environmental Health Board Room located at 209 N. Graham Hopedale Road, Burlington, North Carolina.

The following committee members were present: Mr. Kevin Bengel, Ms. Kathy Colville, Dr. Annette Wilson.

The following staff members were present: Mr. Carl Carroll, Ms. Terri Craver, Ms. Stacie Saunders, Ms. Arlinda Ellison and Ms. Ariana Lawrence.

Call to Order

Mr. Kevin Bengel called the meeting to order at 12:04 pm.

Environmental Health Update

Mr. Carroll did not have any Environmental Health updates.

Rabies Prevention and Control

Mr. Carl Carroll reviewed the NCGS 130A-197. Infected animals to be destroyed; protection of vaccinated animals. Mr. Carroll reported that since 1997, there have been 139 documented cases of rabies, 160 dogs and cats have been euthanized due to being exposed to a suspected or known rabid animal, and there have been 9 dogs and 1 cat quarantined for 6 months. There has been new guidance to come out in regards to rabies (*see attachment 1 for full report*). Mr. Carroll went through a chart that the state provided that compares the current rules vs the 2016 Compendium control measures. Mr. Carroll explained that the health director already has the authority to quarantine *up to* 6 months. The state is recommending a Board of Health rule, but so far there have not been any counties to adopt a BOH rule. Mr. Carroll explained that the statute that allows for board of health rules to be created (§ 130A-39. Powers and duties of a local board of health), it talks about the board of health rule being more stringent than the state law. Ms. Saunders explained that depending on how one interprets the statute, a Board of Health rule including the new Compendium Control measures could seem less stringent than the statute. The committee members discussed the use of titers to tell if an animal was protected against rabies. Dr. Wilson explained that there are two parts to the immune system; cell mediated immunity and humoral which is responsible for making the antibodies. The titer could show that antibodies are there from the humoral system, but if the cell mediated system is not working properly, the animal is not protected.

Ms. Colville stated Board of Health rules should be used sparingly, but she is supportive of the department developing a policy that outlines the department's management of rabies with referring back to the general statute. Mr. Carroll will plan to discuss this rabies topic at the full board meeting in October.

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Note: All costs are approximate. Table is not meant to be all inclusive of all recommendations and costs but addresses the common situations with the most fiscal impact.
*Consult Communicable Disease Branch (919-733-3419) for specific guidance. Recommendations may be subject to change.

Engineered Option Permit

Ms. Terri Craver reported that as a result of Session Law 2015-286 (HB765): Regulatory Reform Act of 2015, an Engineered Option Permit (EOP) temporary rule became effective on July 1, 2016. (*See attachment 2 for full report*) Ms. Craver shared that prior to July 1, if an individual wanted to build a house they would have to come to the health department to get a permit for the septic system. Out of the session, they passed the Engineer Option Permit, which bypasses the health department. An engineer has on staff or a contracted licensed soil scientist to do the soil work and the engineer will design the septic system. The septic system is installed and the engineer will sign off that it was done correctly. With this option, the health department's only responsibility after the engineer designs the septic system, the engineer will come to the health department with all of the information and environmental health is only to check off that all of the paperwork has been completed. After the septic

system is installed, environmental health staff have to attend a post construction conference to observe. If the septic system fails, the owner will be referred back to the engineer and the health department is not liable. Ms. Craver stated that the state has only received ten Engineer Option Permits, and this is not something typical homeowners are doing. Included in the law is a rule that allows the local health department to assess a fee for the EOP that is up to 30% of the departments charges.

Health Director's Update
Ms. Saunders did not have any updates.

Other
No other business was discussed.

Adjournment
With no further discussion, the meeting adjourned at 1:25 pm.

Respectfully submitted,
Ariana Lawrence
Clerk to the Board of Health

Coates' Canons Blog: Rabies Prevention and Control: Integrating Recent Research into North Carolina's Legal Framework

By Aimee Wall

Article: http://canons.sog.unc.edu/rabies-prevention-control-integrating-recent-research-north-carolinas-legal-framework/

This entry was posted on July 25, 2016 and is filed under Administration, Animal Control, Animal Law, Boards Of Public Health, Public Health, Rabies Control

Your dog, Duke, is outside in the yard and has an unexpected encounter with a raccoon. The raccoon bit Duke and there is a small break in the skin on his leg. At this point, the public health system's rabies prevention and control laws and programs are set in motion. This post briefly walks through the legal framework for responding to suspected rabies exposures, including issues such as booster shots, euthanasia, and confinement. It also addresses a recent development in the public health veterinary research community that may result in local health directors authorizing shorter confinement observation and quarantine periods in certain circumstances. Read on to find out what will happen to Duke.

Required vaccination

The cornerstone of the rabies law is the requirement that dogs, cats, and ferrets four months and older must be currently vaccinated against rabies. G.S. 130A-185. Dogs are required to wear rabies tags at all times and may be impounded if they are found at-large without a tag. G.S. 130A-192. State law also requires cats and ferrets to wear tags, but a local government may adopt an ordinance exempting them from this requirement. If an animal owner fails to comply with these requirements, the owner may be charged with a Class 1 misdemeanor or the local health director may seek an injunction. G.S. 130A-18; G.S. 130A-25. In our story, let's assume that Duke is 8 years old. He was first vaccinated when he was 12 weeks old and then received a booster one year later, consistent with the recommended schedule for puppies. Since then, the schedule slipped a little bit. He received a three-year vaccine when he was about 4.5 years old but hasn't received any since that time. Therefore, he is about 6 months late on his vaccination.

Exposed?

After Duke's run-in with the raccoon, you should notify the local health director or animal services department about the potential exposure. [Note: the rest of this post will refer to the health director as the decision-maker because that is how the law is written but some health directors have delegated these duties to animal services officials in other departments, which is authorized pursuant to G.S. 130A-6.]

The health director will evaluate the facts of the situation and determine whether Duke has been "exposed to the saliva or nervous tissue of a proven rabid animal or animal reasonably suspected of having rabies that is not available for laboratory diagnosis." G.S. 130A-197. Let's consider two alternative versions of our story:

- **Version 1**: Assume Duke attacked the raccoon and killed it. Because the raccoon's body is available, the health director will likely send its head to the laboratory for rabies testing. If the test comes back negative, Duke will not be considered to have been exposed to rabies. If it comes back positive, unsatisfactory, indeterminate, or "test not performed," Duke will likely be considered exposed.
- **Version 2**: Assume the raccoon ran away after biting Duke. Because the prevalence of rabies in raccoons is high, the health director will almost certainly conclude that Duke was exposed.

Sometimes these situations are not so clear cut. The health director will need to evaluate all of the facts of the particular situation and decide whether he or she "reasonably suspects" that there has been an exposure. In making this determination, the director will rely on guidance from the state Division of Public Health Communicable Disease Branch and the U.S. Centers for Disease Control, and may consult with the state's public health veterinary team. Let's assume for

the purpose of our story that the health director concluded that Duke was exposed to rabies.

Exposed!

Once you learn that Duke was exposed to rabies, the public health or animal services officials will outline your options for managing his exposure. The law offers a couple of options:

- Animal currently vaccinated: If the animal (1) has a current vaccination that was administered more than 28 days prior to the exposure and (2) is given a booster dose of rabies vaccine within 5 days of the exposure, it is not necessary to destroy or quarantine the animal. Recently revised guidance from the National Association of State Public Health Veterinarians (NASPHV) recommends that owners obtain a booster shot for the dog or cat within four days and monitor it for 45 days after an exposure to watch for signs of illness.
- Animal never vaccinated or vaccination is overdue: If the animal has never been vaccinated or was vaccinated before but follow-up vaccinations are overdue (e.g., Duke), the owner has two options – euthanasia or quarantine. Pursuant to the statute, the health director can order quarantine "at a facility approved by the local health director for a period up to six months, and under reasonable conditions imposed by the local health director." The quarantine is intended to keep the exposed animal away from people and other animals for the duration of the incubation period for the rabies virus.

The guidance from NASPHV, which was published in March 2016, provides new information about how public health officials should manage exposures for dogs, cats, and ferrets that have never been vaccinated or who are overdue for a vaccination. If the guidance is followed, public health practice in the state regarding postexposure management will change significantly and animals may be quarantined for much shorter periods of time.

Quarantine vs. Observation

Until recently, the research strongly suggested the need for euthanasia or a six-month quarantine for animals that were never vaccinated as well as those that were overdue for their vaccinations. As a result, many health directors currently require 6 month quarantines. Because the law states that the quarantine be at "a facility" approved by the health director, many require that the animal be housed at the shelter or a veterinary hospital. The cost of impounding an animal for this extended period of time can be high and, as a result, some owners elect to euthanize the animal instead. Some health directors allow some or all of the quarantine period to be completed in the home, subject to certain restrictions and continuing oversight.

The revised NASPHV guidance recommends a complex approach that differentiates between animals that have never been vaccinated and those that are overdue. This change in course is based on research indicating that an animal that is overdue for a vaccination is likely to mount a robust immune response if a booster is provided. The new NASPHV recommendations are as follows:

- Dogs, cats, and ferrets that have never been vaccinated should be euthanized immediately or placed in strict quarantine for 4 months (dogs and cats) or 6 months (ferrets). The quarantine should be in an enclosure that precludes direct contact with people or other animals. If quarantined, the animal should be vaccinated within 96 hours of exposure. If the vaccination is delayed, public health officials should consider extending the quarantine period.
- A dog or cat that has documentation showing it was vaccinated at least once previously should receive a booster vaccination within 96 hours of exposure. In addition, the owner should keep the animal under his or her control and observe it for 45 days for signs of illness. If the booster is delayed, public health officials should consider increasing the observation period. Note that the guidance does *not* recommend quarantine for these animals.
- If an owner states that the dog or cat has had a rabies vaccination in the past but does not have the documentation to prove it, the guidance offers two options: (1) follow the quarantine approach for described above for animals that have never been vaccinated or (2) consider allowing blood testing to evaluate whether there is evidence a robust immune response upon booster vaccination.
- A ferret that has a lapsed vaccination should be "evaluated on a case-by-case basis" to determine the appropriate management.

With these revised guidelines now available from a respected national organization of public health veterinarians, many

have asked whether local health directors should change the way they are handling quarantines. In our story, such a change in practice could have a pretty dramatic impact on Duke. Without a change, Duke would be quarantined either at a facility or at home for a period up to 6 months. If the new guidance is followed, Duke (with documentation and a timely booster) could be allowed to go home. But is there legal authority for the health director to change course and follow the new guidance?

Authority

State law allows the health director to exercise discretion when imposing quarantine on an exposed animal. The law provides that quarantine may be "for a period up to six months, and under reasonable conditions imposed by the local health director." G.S. 130A-197. Arguably, the flexibility afforded by this language provides the director with the authority to make judgment calls about different types of animals and situations. Health directors have been relying on this flexibility for many years to adapt the quarantine policies applicable in their jurisdictions.

The NC Division of Public Health (Division) recently sent all local health directors a memorandum recommending that local boards of health adopt a rule that requires local health directors to follow the NASPHV guidance. (Note that the term "local board of health" includes a county board of health, a district board of health, a consolidated human services board, a public health authority board, or a board of county commissioners that has assumed the powers and duties of a board of health.) The memorandum included a model board of health rule for the health departments and their governing boards to consider. The model rule adopts by reference the NASPHV guidance and states that the guidance must be treated as the required control measures for management of rabies exposures in dogs and cats. This formulation is not unusual in the field of communicable disease law, as other statutes and regulations adopt by reference standards or guidance issued by a variety of public health agencies and organizations. (Jill Moore discusses the incorporation by reference of communicable disease control measures here)

Boards of health clearly have the authority to adopt such a rule. These boards "have the responsibility to protect and promote the public health" and "have the authority to adopt rules necessary for that purpose." G.S. 130A-39(a). They are also specifically authorized to adopt by reference standards adopted by "a generally recognized association," which would include NASPHV. G.S. 130A-39(f). This type of rule would also be in line with the five requirements outlined by the Court of Appeals in a 1996 decision related to local board of health rules related to smoking. The Court explained:

> "a board of health acts within its rule making powers when it enacts a regulation which (1) is related to the promotion or protection of health, (2) is reasonable in light of the health risk addressed, (3) is not violative of any law or constitutional provision, (4) is not discriminatory, and (5) does not make distinctions based upon policy concerns traditionally reserved for legislative bodies."

City of Roanoke Rapids v. Peedin, 124 N.C. App. 578 (1996). A board of health rule that incorporates by reference recommendations from a nationally recognized public health association and does not make any modifications or policy changes to those recommendations would appear to be well within their rulemaking authority.

What would be the benefit of adopting such a rule?

1. **Clear direction**: A rule would provide public health and animal services officials with clear direction for management of these exposure incidents and relieves some of the pressure involved with exercising discretion based on the minimalist "up to six months" statutory language. The health director will still need to exercise some discretion in these situations but the roadmap provided by the new guidance will become the starting point for all of the director's decisions.
2. **Uniformity of practice**: If all or most of the local boards of health adopt such a rule, there will likely be more uniformity in public health practice across the state. This could be perceived as a benefit for both the public and the government actors involved.
3. **Enforceability**: The rule has the force of law. Members of the public often push back against these quarantine orders and they struggle with the ambiguity of the current state law. It may be easier for a health director to obtain compliance with an order or pursue enforcement of an order if it is supported not only by the NASPHV guidance but also a rule adopted by the governing board of the public health agency. Board of health rules are enforceable both criminally and civilly.
4. **County-wide applicability**: If the policy goal is uniformity in the county, it would be more appropriate to adopt a

board of health rule rather than an ordinance adopted by the board of county commissioners. By definition, a board of health rule applies throughout the county whereas a county ordinance applies only in the unincorporated areas of the county (unless a municipality elects to be governed by the county ordinance).

A potential drawback to adopting such a rule is that the health director will have less flexibility when making decisions related to many postexposure management situations. Some health directors or communities may prefer to allow the health director to exercise more discretion.

Conclusion

It is likely that local officials have the authority under current state law to follow the NASPHV guidance because health directors can order quarantine for "*up to* six months" and impose "reasonable conditions" on the quarantined animal. Orange County Animal Services, for example, adopted a policy recently that implements the NASPHV guidance relying entirely on the discretion afforded by the state law. Following up on the Division's recent guidance, other local public health governing boards may, however, want to consider supplementing the state law by adopting a board of health rule that specifically adopts the guidance by reference.

Circling back to our buddy, Duke, let's recap the two very different potential outcomes of this policy decision. Depending on which approach the health director takes, Duke could face either (1) a quarantine of up to six months or (2) a booster shot and a ride home. Governing boards, public health and animal services professionals, and others in the community are faced with an important decision that can have a significant impact on the public's health, pets and their owners, as well as the public officials charged with enforcing the rabies laws. I expect to see this area of the law and public health practice evolve in the coming months and years.

Links

- ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-185.pdf
- ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-192.pdf
- ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-18.pdf
- ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-25.pdf
- ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-6.pdf
- ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-197.pdf
- epi.publichealth.nc.gov/cd/rabies/control.html
- www.cdc.gov/rabies/index.html
- www.nasphv.org/Documents/NASPHVRabiesCompendium.pdf
- avmajournals.avma.org/doi/pdf/10.2460/javma.246.2.205
- www.sog.unc.edu/sites/www.sog.unc.edu/files/LBOH%20Rabies%20Rule%20memorandum.pdf
- www.sog.unc.edu/resources/microsites/north-carolina-public-health-law/communicable-disease-control-measures-generally
- ncleg.net/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-39.pdf
- law.justia.com/cases/north-carolina/court-of-appeals/1996/coa95-461-1.html
- www.sog.unc.edu/sites/www.sog.unc.edu/files/Orange%20Rabies%20Exposure%20Guidelines.pdf

Public Health
HEALTH AND HUMAN SERVICES

RICHARD O. BRAJER
Secretary

DANIEL STALEY
Director, Division of Public Health

July 25, 2016

To: North Carolina Local Health Directors

From: Carl Williams, DVM, DACVPM, State Public Health Veterinarian
Marilyn Goss Haskell, DVM, MPH, Deputy State Public Health Veterinarian

Subject: **2016 NASPHV Rabies Compendium: Proposed Model Board of Health Rule**

The intent of this memo is to facilitate local health department adoption and implementation of the new national guidance for postexposure management of dogs and cats published March 1, 2016 by the National Association of Public Health Veterinarians (NASPHV) in the Compendium of Animal Rabies Prevention and Control, 2016 (http://www.nasphv.org/Documents/NASPHVRabiesCompendium.pdf).

The North Carolina Division of Public Health (DPH) proposed legislation for the 2016 short session of the General Assembly that would have amended G.S.130A-197 to adopt by reference the postexposure management control measures for dogs and cats in the 2016 NASPHV rabies compendium. Unfortunately the legislative proposal was never introduced as a bill during the 2016 short session.

In lieu of an amendment to the statute, and to ensure the force and effect of law in the adoption of the new control measures, we recommend that the local board of health, or the entity that is acting as the board of health, adopt the model Board of Health rule below. Pursuant to G.S. 130A-39, a local board of health may, in its rules, adopt by reference any code, standard, rule or regulation which has been adopted by any agency of this State, another state, any agency of the United States or by a generally recognized association. Copies of any material adopted by reference shall be filed with the rules.

Model Rule for Postexposure Management of Dogs and Cats
Recommended by the NC Division off Public Health

This model rule for rabies postexposure management of dogs and cats implements and particularizes the authority given to the local health director in G.S. 130A-197 to effectively and efficiently protect the public's health utilizing the most current science. Accordingly, the _____ Board of Health adopts the recommendations and guidelines for rabies postexposure management of dogs and cats specified by the National Association of State Public Health Veterinarians in the 2016 edition of the Compendium of Animal Rabies Prevention and Control (Part I.B.5: Postexposure Management). These provisions of the Compendium shall be the required control measures pursuant to G.S. 130A-197.

Adoption of the 2016 Rabies Compendium postexposure management control measures for dogs and cats as a Board of Health rule would provide the legal authority for local health directors to implement the new rabies control measures and would align North Carolina's control measures with current national recommendations and guidance.

The new control measures would likely result in fewer dogs and cats euthanized, shorter quarantine periods (4 months rather than 6 months) and allow for more 45-day owner (at-home) observations for lapsed animals with appropriate documentation. These changes represent significant emotional and (estimated) financial benefits to animal owners (Table 1). If managed and monitored carefully by local health departments, these control measures will maintain the safety of public health in North Carolina.

Thank you for your time and attention to this important public health issue. If you have any questions please contact the Communicable Disease Branch at 919-733-3419.

Table 1. 2016 Rabies Compendium Changes for Postexposure Management of Dogs and Cats by Vaccination Status: A Comparison to § 130A-197 and Projected Fiscal Impact to Pet Owners

Rabies Vaccination Status of Dog or Cat	Current G.S. 130A-197 Control measures	2016 Compendium Control measures	2016 Compendium Financial Impact
1. Currently Vaccinated	Provide booster dose of rabies vaccine within five days of exposure ($25.00)	Immediate veterinary care with rabies booster dose within 96 hours of exposure ($25.00+). Owner observation 45 days.	Equal to existing standard
2. Unvaccinated (Has never been vaccinated against rabies)	A.) Euthanasia ($150.00) or B.) Immediate vaccination against rabies and place in six month quarantine ($25.00 + $3600.00)	A.) Euthanasia ($150.00) or B.) Immediate veterinary care with rabies vaccination within 96 hours of exposure and place in four month quarantine ($25.00+ $2400.00)	A.) Equal to existing standard B.) $1200.00 less expensive
3. Overdue with Appropriate Documentation of prior rabies vaccination (at least one prior valid rabies vaccination certificate)	A.) Euthanasia ($150.00), or B.) Immediate rabies vaccination and place in six month quarantine ($25.00 + $3600.00)	A.) NA B.) Immediate veterinary care with rabies booster dose within 96 hours of exposure, keep under owner observation for 45 days ($25.00+)	A.) ~ $125.00 less expensive than existing standard (does not include emotional cost of pet loss). B.) $3600.00 less expensive
4. Overdue with NO Documentation of prior rabies vaccination	A.) Euthanasia ($150.00), or B.) Immediate vaccination against rabies and place in six month quarantine ($25.00 + $3600.00)	A.) Euthanasia ($150.00), or B.) Immediate veterinary care with rabies vaccination within 96 hours of exposure and place in four month quarantine ($25.00+ $2400.00), or C.) Immediate veterinary care and Prospective serologic monitoring ($420.00) 1) IF evidence of prior vaccination then keep under owner observation for 45 days 2) IF NO evidence of prior vaccination then manage as unvaccinated (category 2. euthanize or 4 month quarantine)	A.) Equal to existing standard B.) $1200.00 less expensive C.) $554.00 more expensive includes additional cost for strict quarantine until lab evidence finalized. Note this may obviate the need for either A or B above and, while a new expense, is considerably less expensive than either A or B above

Note: All costs are approximate. Table is not meant to be all inclusive of all recommendations and costs but addresses the common situations with the most fiscal impact.
*Consult Communicable Disease Branch (919-733-3419) for specific guidance. Recommendations may be subject to change.

Compendium of Animal Rabies Prevention and Control, 2016

National Association of State Public Health Veterinarians Compendium of Animal Rabies Prevention and Control Committee

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Endorsed by the AVMA, American Public Health Association, Association of Public Health Laboratories, Council of State and Territorial Epidemiologists, and National Animal Care and Control Association.

This article has not undergone peer review.

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Rabies is a fatal viral zoonosis and serious public health problem.[1] All mammals are believed to be susceptible to the disease, and for the purposes of this document, use of the term animal refers to mammals. The disease is an acute, progressive encephalitis caused by viruses in the genus *Lyssavirus*.[2] Rabies virus is the most important lyssavirus globally. In the United States, multiple rabies virus variants are maintained in wild mammalian reservoir populations such as raccoons, skunks, foxes, and bats. Although the United States has been declared free from transmission of canine rabies virus variants, there is always a risk of reintroduction of these variants.[3-7]

The rabies virus is usually transmitted from animal to animal through bites. The incubation period is highly variable. In domestic animals, it is generally 3 to 12 weeks, but can range from several days to months, rarely exceeding 6 months.[8] Rabies is communicable during the period of salivary shedding of rabies virus. Experimental and historic evidence documents that dogs, cats, and ferrets shed the virus for a few days prior to the onset of clinical signs and during illness. Clinical signs of rabies are variable and include inappetance, dysphagia, cranial nerve deficits, abnormal behavior, ataxia, paralysis, altered vocalization, and seizures. Progression to death is rapid. There are currently no known effective rabies antiviral drugs.

The recommendations in this compendium serve as a basis for animal rabies prevention and control programs throughout the United States and facilitate standardization of procedures among jurisdictions, thereby contributing to an effective national rabies control program. The compendium is reviewed and revised as necessary, with the most current version replacing all previous versions. These recommendations do not supersede state and local laws or requirements. Principles of rabies prevention and control are detailed in Part I, and recommendations for parenteral vaccination procedures are presented in Part II. All animal rabies vaccines licensed by the USDA and marketed in the United States are listed and described in Appendix 1, and contact information for manufacturers of these vaccines is provided in Appendix 2.

Modifications of note in this updated version of the compendium, compared with the previous version,[9] include clarification of language, explicit en-

couragement of an interdisciplinary approach to rabies control, a recommendation to collect and report at the national level additional data elements on rabid domestic animals, changes to the recommended management of dogs and cats exposed to rabies that are either unvaccinated or overdue for booster vaccination, reduction of the recommended 6-month quarantine period for certain species, and updates to the list of marketed animal rabies vaccines.

Part I. Rabies Prevention and Control

A. Principles of rabies prevention and control

1. Case definition. An animal is determined to be rabid after diagnosis by a qualified laboratory as specified (*see* Part I.A. 10. Rabies diagnosis).The national case definition for animal rabies requires laboratory confirmation on the basis of either a positive result for the direct fluorescent antibody test (preferably performed on CNS tissue) or isolation of rabies virus in cell culture or a laboratory animal.[10]

2. Rabies virus exposure. Rabies is transmitted when the virus is introduced into bite wounds, into open cuts in skin, or onto mucous membranes from saliva or other potentially infectious material such as neural tissue.[11] Questions regarding possible exposures should be directed promptly to state or local public health authorities.

3. Interdisciplinary approach. Clear and consistent communication and coordination among relevant animal and human health partners across and within all jurisdictions (including international, national, state, and local) is necessary to most effectively prevent and control rabies. As is the case for the prevention of many zoonotic and emerging infections, rabies prevention requires the cooperation of animal control, law enforcement, and natural resource personnel; veterinarians; diagnosticians; public health professionals; physicians; animal and pet owners; and others. An integrated program must include provisions to promptly respond to situations; humanely restrain, capture, and euthanize animals; administer quarantine, confinement, and observation periods; and prepare samples for submission to a testing laboratory.

4. Awareness and education. Essential components of rabies prevention and control include ongoing public education, responsible pet ownership, routine veterinary care and vaccination, and professional continuing education. Most animal and human exposures to rabies can be prevented by raising awareness concerning rabies transmission routes, the importance of avoiding contact with wildlife, and the need for appropriate veterinary care. Prompt recognition and reporting of possible exposures to medical and veterinary professionals and local public health authorities are critical.

5. Human rabies prevention. Rabies in humans can be prevented by eliminating exposures to rabid animals or by providing exposed persons prompt postexposure prophylaxis consisting of local treatment of wounds in combination with appropriate administration of human rabies immune globulin and vaccine. An exposure assessment should occur before rabies postexposure prophylaxis is initiated and should include discussion between medical providers and public health officials. The rationale for recommending preexposure prophylaxis and details of both preexposure and postexposure prophylaxis administration can be found in the current recommendations of the Advisory Committee on Immunization Practices.[11,12] These recommendations, along with information concerning the current local and regional epidemiology of animal rabies and the availability of human rabies biologics, are available from state health departments.

6. Domestic animal vaccination. Multiple vaccines are licensed for use in domestic animal species. Vaccines available include inactivated and modified-live virus vectored products, products for IM and SC administration, products with durations of immunity for periods of 1 to 3 years, and products with various minimum ages of vaccination. Recommended vaccination procedures are specified in Part II of this compendium; animal rabies vaccines licensed by the USDA and marketed in the United States are specified in Appendix 1. Local governments should initiate and maintain effective programs to ensure vaccination of all dogs, cats, and ferrets and to remove stray and unwanted animals. Such procedures have reduced laboratory-confirmed cases of rabies among dogs in the United States from 6,949 cases in 1947 to 89 cases in 2013.[3] Because more rabies cases are reported annually involving cats (247 in 2013) than dogs, vaccination of cats should be required.[3] Animal shelters and animal control authorities should establish policies to ensure that adopted animals are vaccinated against rabies.

An important tool to optimize public and animal health and enhance domestic animal rabies control is routine or emergency implementation of low-cost or free clinics for rabies vaccination. To facilitate implementation, jurisdictions should work with veterinary medical licensing boards, veterinary associations, the local veterinary community, animal control officials, and animal welfare organizations.

7. Rabies in vaccinated animals. Rabies is rare in vaccinated animals.[13–15] If rabies is suspected in a vaccinated animal, it should be reported to public health officials, the vaccine manufacturer, and the USDA APHIS Center for Veterinary Biologics

(www.aphis.usda.gov; search for "adverse event reporting"). The laboratory diagnosis should be confirmed and the virus variant characterized by the CDC's rabies reference laboratory. A thorough epidemiologic investigation including documentation of the animal's vaccination history and potential rabies exposures should be conducted.

8. Rabies in wildlife. It is difficult to control rabies among wildlife reservoir species.[16] Vaccination of free-ranging wildlife or point infection control is useful in some situations,[17] but the success of such procedures depends on the circumstances surrounding each rabies outbreak (See Part I. C. Prevention and control methods related to wildlife). Because of the risk of rabies in wild animals (especially raccoons, skunks, coyotes, foxes, and bats), the AVMA, American Public Health Association, Council of State and Territorial Epidemiologists, National Animal Care and Control Association, and National Association of State Public Health Veterinarians strongly recommend the enactment and enforcement of state laws prohibiting the importation, distribution, translocation, and private ownership of wild animals.

9. Rabies surveillance. Laboratory-based rabies surveillance and variant typing are essential components of rabies prevention and control programs. A comprehensive surveillance program should not be limited to testing only those animals that have potentially exposed people or domestic animals to rabies. Accurate and timely information and reporting are necessary to guide decisions regarding postexposure prophylaxis in potentially exposed humans, determine appropriate management of potentially exposed animals, aid in the discovery of emerging variants, describe the epidemiology of the disease, and assess the effectiveness of vaccination programs for domestic animals and wildlife. Every animal submitted for rabies testing should be reported to the CDC to evaluate surveillance trends. Public health authorities should implement electronic laboratory reporting and notification systems.[18] Information reported on every animal submitted for rabies testing should include species, point location, vaccination status, rabies virus variant (if rabid), and human or domestic animal exposures. To enhance the ability to make evidence-based recommendations from national surveillance data, additional data should be collected and reported on all rabid domestic animals. In this regard, essential data elements include age, sex, neuter status, ownership status, quarantine dates (if any), date of onset of any clinical signs, and complete vaccination history. Rabid animals with a history of importation into the United States within the past 60 days are immediately notifiable by state health departments to the CDC; for all indigenous cases, standard notification protocols should be followed.[19]

10. Rabies diagnosis.

a) The direct fluorescent antibody test is the gold standard for rabies diagnosis. The test should be performed in accordance with the established national standardized protocol (www.cdc.gov/rabies/pdf/rabiesdfaspv2.pdf) by a qualified laboratory that has been designated by the local or state health department.[20,21] Animals submitted for rabies testing should be euthanized[22,23] in such a way as to maintain the integrity of the brain so that the laboratory can recognize anatomic structures. Except in the case of very small animals, such as bats, only the head or entire brain (including brainstem) should be submitted to the laboratory. To facilitate prompt laboratory testing, submitted specimens should be stored and shipped under refrigeration without delay. The need to thaw frozen specimens will delay testing. Chemical fixation of tissues should be avoided to prevent significant testing delays and because such fixation might preclude reliable testing. Questions about testing of fixed tissues should be directed to the local rabies laboratory or public health department.

b) Rabies testing should be available outside of normal business hours at the discretion of public health officials to expedite exposure management decisions.[20] When confirmatory testing is needed by state health departments (eg, in the event of inconclusive results, unusual species, or mass exposures), the CDC rabies laboratory can provide additional testing and results within 24 hours of sample receipt.[24]

c) Professional associations such as the Association of Public Health Laboratories should advocate for, distribute, and promote the development of guidelines for routinely assessing testing practices within rabies laboratories to ensure maintenance of quality and safety.

d) A direct rapid immunohistochemical test (referred to as dRIT) is being used by trained field personnel in surveillance programs for specimens not involved in human or domestic animal exposures.[25–28] All positive direct rapid immunohistochemical test results need to be confirmed by means of direct fluorescent antibody testing at a qualified laboratory.

e) Currently, there are no commercially available, USDA-licensed rapid test kits for rabies diagnosis. Unlicensed tests should not be used owing to the following concerns: sensitivity and specificity of these tests are not known, the tests have not been validated against current standard methods, the excretion of virus in the saliva is intermittent and the amount varies over time, any unlicensed test result would

need to be confirmed by validated methods such as direct fluorescent antibody testing on brain tissue, and the interpretation of results from unlicensed tests may place exposed animals and persons at risk.

11. Rabies serology. Some jurisdictions require evidence of vaccination and rabies virus antibodies for animal importation purposes. Rabies virus antibody titers are indicative of a response to vaccine or infection. Titers do not directly correlate with protection because other immunologic factors also play a role in preventing rabies and our abilities to measure and interpret those other factors are not well-developed. Therefore, evidence of circulating rabies virus antibodies in animals should not be used as a substitute for current vaccination in managing rabies exposures or determining the need for booster vaccination.[29–32]

12. Rabies research. Information derived from well-designed studies is essential for the development of evidence-based recommendations. Data are needed in several areas, including viral shedding periods for domestic livestock and lagomorphs, potential shedding of virus in milk, the earliest age at which rabies vaccination is effective, protective effect of maternal antibody, duration of immunity, postexposure prophylaxis protocols for domestic animals, models for treatment of clinical rabies, extralabel vaccine use in domestic animals and wildlife rabies reservoir species, host-pathogen adaptations and dynamics, and the ecology of wildlife rabies reservoir species, especially in relation to the use of oral rabies vaccines.

B. Prevention and control methods in domestic and confined animals

1. Preexposure vaccination and management. Adherence to a regular rabies vaccination schedule is critical to protect animals against recognized and unrecognized rabies exposures. Parenteral animal rabies vaccines should be administered only by or under the direct supervision of a licensed veterinarian on premises. Rabies vaccines may be administered under the supervision of a licensed veterinarian to animals held in animal shelters before release.[33,34] The veterinarian signing a rabies vaccination certificate must ensure that the person who administered the vaccine is identified on the certificate and has been appropriately trained in vaccine storage, handling, and administration and in the management of adverse events. This ensures that a qualified and responsible person can be held accountable for properly vaccinating the animal.

Within 28 days after initial vaccination, a peak rabies virus antibody titer is expected, and the animal can be considered immunized.[31,35–37] Regardless of the age of the animal at initial vaccination, a booster vaccination should be administered 1 year later (*see* Part II and Appendix 1). An animal is currently vaccinated and is considered immunized immediately after any booster vaccination.[38,39]

a) Booster vaccination. Following the initial vaccination, booster vaccinations should be given in a manner consistent with the manufacturer's label. If a previously vaccinated animal is overdue for any booster vaccination, including the first booster vaccination due 1 year after initial vaccination, it should be given a booster vaccination. Immediately after this booster vaccination, the animal is considered currently vaccinated and should be placed on a booster vaccination schedule consistent with the label of the vaccine used. There are no laboratory or epidemiological data to support the annual or biennial administration of 3-year vaccines after completion of the initial vaccine series (ie, the initial vaccination and 1-year booster vaccination).

b) Dogs, cats, and ferrets. All dogs, cats, and ferrets should be vaccinated against rabies and revaccinated in accordance with recommendations in this compendium (Appendix 1).

c) Livestock. All horses should be vaccinated against rabies.[40] Livestock, including species for which licensed vaccines are not available, that have frequent contact with humans (eg, in petting zoos, fairs, and other public exhibitions) should be vaccinated against rabies.[41,42] Consideration should also be given to vaccinating livestock that are particularly valuable.

d) Captive wild animals and wild animal hybrids (the offspring of wild animals crossbred to domestic animals).

(1) Wild animals and wild animal hybrids should not be kept as pets.[43,44] No parenteral rabies vaccines are licensed for use in wild animals or wild animal hybrids.[45]

(2) Animals that are farmed (eg, for food, fur, or fiber) or maintained in exhibits or zoological parks and that are not completely excluded from all contact with rabies vectors can become infected.[46] Moreover, wild animals might be incubating rabies when initially captured. Therefore, wild-caught animals susceptible to rabies should be quarantined for a minimum of 6 months.

(3) Employees who work with animals in exhibits or zoological parks should receive preexposure rabies vaccination. The use of preexposure or postexposure rabies vaccination for handlers who work with animals at such facilities might reduce the need for euthanasia of captive animals that expose handlers. Carnivores and bats should be housed in a manner

that precludes direct contact with the public.[41,42] Consideration may be given to vaccinating animals that are particularly valuable (*see* Part II. D. Vaccination of wildlife and wild animal hybrids).

2. Stray animals. Stray dogs, cats, and ferrets should be removed from the community, and mechanisms should be put in place to facilitate voluntary surrender of animals to prevent abandonment. Local health departments and animal control officials can enforce the removal of strays more effectively if owned animals are required to have identification and be confined or kept on leash. Strays should be impounded for at least 3 business days to determine whether human exposure has occurred and to give owners sufficient time to reclaim animals.

Stray and feral cats serve as a significant source of rabies exposure risk.[47] If communities allow maintenance of feral cat colonies despite this risk, they should safeguard the health of the cats and the communities in which they reside by requiring that cats receive initial rabies vaccinations and appropriately scheduled booster vaccinations.

3. Importation and interstate movement of animals.

a) Areas with dog-to-dog rabies transmission. Canine rabies virus variants have been eliminated from the United States[3,7]; however, rabid dogs and a rabid cat have been introduced into the continental United States from areas with dog-to-dog rabies transmission.[4–6,48,49] The movement of dogs for the purposes of adoption or sale from areas with dog-to-dog rabies transmission increases the risk of introducing canine-transmitted rabies to areas where it does not currently exist, and this practice should be prohibited.

b) International importation. Current federal regulations are insufficient to prevent the introduction of rabid animals into the United States and must be strengthened and appropriately enforced.[4–6,48,49] The CDC and USDA APHIS have regulatory authority over the importation of dogs and cats into the United States.[6] Importers of dogs must comply with rabies vaccination requirements.[50,51] These regulations require that dogs from rabies-endemic countries be currently vaccinated against rabies prior to importation. The appropriate health official of the state of destination should be notified by the appropriate federal authorities within 72 hours of the arrival of any unvaccinated imported dog required to be placed in confinement (as defined by the CDC[52]) under these regulations. Failure of the owner to comply with these confinement requirements should be promptly reported to the CDC's Division of Global Migration and Quarantine (CDCAnimalImports@cdc.gov).

All imported dogs and cats are also subject to state and local laws governing rabies and should be currently vaccinated against rabies with USDA-licensed products in accordance with this compendium. Failure of the owner to comply with state or local requirements should be referred to the appropriate state or local official.

c) Interstate movement (including commonwealths and territories). Before interstate movement occurs, dogs, cats, ferrets, and horses should be currently vaccinated against rabies in accordance with this compendium. Animals in transit should be accompanied by a current, valid rabies vaccination certificate such as Form 51 from the National Association of State Public Health Veterinarians.[53] When an interstate health certificate or certificate of veterinary inspection is required, it should contain the same rabies vaccination information as Form 51.

4. Adjunct procedures. Methods or procedures that enhance rabies control include the following[54]:

a) Identification. Dogs, cats, and ferrets should be identified (eg, metal or plastic tags or microchips) to allow for verification of rabies vaccination status.

b) Licensure. Registration or licensure of all dogs, cats, and ferrets is an integral component of an effective rabies control program. A fee is frequently charged for such licensure, and revenues collected are used to maintain rabies or animal control activities. Evidence of current vaccination should be an essential prerequisite to licensure.

c) Canvassing. House-to-house canvassing by animal control officials facilitates enforcement of vaccination and licensure requirements.

d) Citations. Citations are legal summonses issued to owners for violations, including the failure to vaccinate or license their animals. The authority for officers to issue citations should be an integral part of animal control programs.

e) Animal control. All local jurisdictions should incorporate training and continuing education of personnel regarding stray-animal control, leash laws, animal bite prevention, and rabies prevention and control into their programs.

f) Public education. All local jurisdictions should incorporate education covering responsible pet ownership, bite prevention, and appropriate veterinary care into their programs.

5. Postexposure management. This section refers to any animal exposed (*see* Part I. A. 2. Rabies virus exposure) to a confirmed or suspected rabid animal. Wild mammalian carnivores, skunks, and bats that are not available or suitable for testing should be regarded as rabid. The rationale for

observation, confinement, or strict quarantine periods of exposed animals despite previous vaccination is based in part on the potential for overwhelming viral challenge, incomplete vaccine efficacy, improper vaccine administration, variable host immunocompetence, and immune-mediated death (ie, early death phenomenon).[13,55–57]

a) Dogs, cats, and ferrets. Any illness in an exposed animal should be reported immediately to the local health department. If signs suggestive of rabies develop (eg, paralysis or seizures), the animal should be euthanized, and the head or entire brain (including brainstem) should be submitted for testing (*see* Part I.A. 10. Rabies diagnosis).

(1) Dogs, cats, and ferrets that are current on rabies vaccination should immediately receive veterinary medical care for assessment, wound cleansing, and booster vaccination. The animal should be kept under the owner's control and observed for 45 days.

(2) Dogs, cats, and ferrets that have never been vaccinated should be euthanized immediately. There are currently no USDA-licensed biologics for postexposure prophylaxis of previously unvaccinated domestic animals, and there is evidence that the use of vaccine alone will not reliably prevent the disease in these animals.[58] If the owner is unwilling to have the animal euthanized, the animal should be placed in strict quarantine for 4 (dogs and cats) or 6 (ferrets) months. Strict quarantine in this context refers to confinement in an enclosure that precludes direct contact with people and other animals. A rabies vaccine should be administered at the time of entry into quarantine to bring the animal up to current rabies vaccination status. Administration of vaccine should be done as soon as possible. It is recommended that the period from exposure to vaccination not exceed 96 hours.[59,60] If vaccination is delayed, public health officials may consider increasing the quarantine period for dogs and cats from 4 to 6 months, taking into consideration factors such as the severity of exposure, the length of delay in vaccination, current health status, and local rabies epidemiology.

(3) Dogs and cats that are overdue for a booster vaccination and that have appropriate documentation of having received a USDA-licensed rabies vaccine at least once previously should immediately receive veterinary medical care for assessment, wound cleansing, and booster vaccination. The animal should be kept under the owner's control and observed for 45 days.[39] If booster vaccination is delayed, public health officials may consider increasing the observation period for the animal, taking into consideration factors such as the severity of exposure, the length of delay in booster vaccination, current health status, and local rabies epidemiology.

(4) Dogs and cats that are overdue for a booster vaccination and without appropriate documentation of having received a USDA-licensed rabies vaccine at least once previously should immediately receive veterinary medical care for assessment, wound cleansing, and consultation with local public health authorities.

(a) The animal can be treated as unvaccinated, immediately given a booster vaccination, and placed in strict quarantine (*see* Part I. B. 5. a) (2)).

(b) Alternatively, prior to booster vaccination, the attending veterinarian may request guidance from the local public health authorities in the possible use of prospective serologic monitoring. Such monitoring would entail collecting paired blood samples to document prior vaccination by providing evidence of an anamnestic response to booster vaccination. If an adequate anamnestic response is documented, the animal can be considered to be overdue for booster vaccination (*see* Part I. B. 5. a) (3)) and observed for 45 days.[39] If there is inadequate evidence of an anamnestic response, the animal is considered to have never been vaccinated and should be placed in strict quarantine (*see* Part I. B. 5. a) (2)).

(5) Ferrets that are overdue for a booster vaccination should be evaluated on a case-by-case basis, taking into consideration factors such as the severity of exposure, time elapsed since last vaccination, number of previous vaccinations, current health status, and local rabies epidemiology, to determine need for euthanasia or immediate booster vaccination followed by observation or strict quarantine.

b) Livestock. All species of livestock are susceptible to rabies; cattle and horses are the most frequently reported infected species.[3] Any illness in an exposed animal should be reported immediately to the local health department and animal health officials. If signs suggestive of rabies develop, the animal should be euthanized, and the head or entire brain

(including brainstem) should be submitted for testing (*see* Part I.A. 10. Rabies diagnosis).

(1) Livestock that have never been vaccinated should be euthanized immediately. Animals that are not euthanized should be confined and observed on a case-by-case basis for 6 months.

(2) Livestock that are current on rabies vaccination with a USDA-licensed vaccine approved for that species should be given a booster vaccination immediately and observed for 45 days.

(3) Livestock overdue for a booster vaccination should be evaluated on a case-by-case basis, taking into consideration factors such as severity of exposure, time elapsed since last vaccination, number of previous vaccinations, current health status, and local rabies epidemiology, to determine need for euthanasia or immediate booster vaccination followed by observation or strict quarantine.

(4) Multiple rabid animals in a herd and herbivore-to-herbivore transmission of rabies are uncommon.[61] Therefore, restricting the rest of the herd if a single animal has been exposed to or infected with rabies is usually not necessary.

(5) Rabies virus is widely distributed in the tissues of rabid animals.[62–64] Tissues and products from a rabid animal should not be used for human or animal consumption[65,66] or transplantation.[67] However, pasteurization and cooking will inactivate rabies virus.[68] Therefore, inadvertently drinking pasteurized milk or eating thoroughly cooked animal products does not constitute a rabies exposure.

(6) Handling and consumption of uncooked tissues from exposed animals might carry a risk for rabies transmission.[69] Persons handling exposed animals, carcasses, and tissues should use appropriate barrier precautions.[69,70] State and local public health authorities, state meat inspectors, and the USDA Food Safety and Inspection Service should be notified if exposures occur in animals intended for commercial use. Animals should not be presented for slaughter in a USDA-regulated establishment if such animals originate from a quarantine area and have not been approved for release by the proper authority. If an exposed animal is to be custom slaughtered or home slaughtered for consumption, it should be slaughtered immediately after exposure, and all tissues should be cooked thoroughly.

c) Other animals. Other mammals exposed to a rabid animal should be euthanized immediately. Animals maintained in USDA-licensed research facilities or accredited zoological parks should be evaluated on a case-by-case basis in consultation with public health authorities. Management options may include quarantine, observation, or administration of rabies biologics.

6. Management of animals that bite humans.

a) Dogs, cats, and ferrets. Rabies virus is excreted in the saliva of infected dogs, cats, and ferrets during illness and for only a few days before the onset of clinical signs or death.[71–73] Regardless of rabies vaccination status, a healthy dog, cat, or ferret that exposes a person should be confined and observed daily for 10 days from the time of the exposure[74]; administration of rabies vaccine to the animal is not recommended during the observation period to avoid confusing signs of rabies with rare adverse vaccine reactions.[15] Any illness in the animal should be reported immediately to the local health department. Such animals should be evaluated by a veterinarian at the first sign of illness during confinement. If signs suggestive of rabies develop, the animal should be euthanized, and the head or entire brain (including brainstem) should be submitted for testing (*see* Part I.A. 10. Rabies diagnosis). Any stray or unwanted dog, cat, or ferret that exposes a person may be euthanized immediately, and the head or entire brain (including brainstem) should be submitted for testing (*see* Part I.A. 10. Rabies diagnosis).

b) Other animals. Other animals that might have exposed a person to rabies should be reported immediately to the local health department. Management of animals other than dogs, cats, and ferrets depends on the species, the circumstances of the exposure, the epidemiology of rabies in the area, the exposing animal's history and current health status, and the animal's potential for exposure to rabies. The shedding period for rabies virus is undetermined for most species. Previous vaccination of these animals might not preclude the necessity for euthanasia and testing.

7. Outbreak prevention and control. The emergence of new rabies virus variants or the introduction of nonindigenous viruses poses a significant risk to humans, domestic animals, and wildlife.[75–82] A rapid and comprehensive response involves coordination of multiple agencies (*see* Part I.A. 3. Interdisciplinary approach) to accomplish the following outcomes[83]:

- Characterize the virus at the national reference laboratory.
- Identify and control the source of the introduction.

- Enhance laboratory-based surveillance in wild and domestic animals.
- Increase animal rabies vaccination rates.
- Restrict the movement of animals.
- Evaluate the need for wildlife intervention activities (eg, point infection control, trap-vaccinate-release programs, and oral rabies vaccination programs).
- Provide public and professional outreach and education.

8. Disaster response. Animals might be displaced during and after man-made or natural disasters and require emergency sheltering.[84–86] Animal rabies vaccination and exposure histories are often not available for displaced animals, and disaster response can create situations where animal caretakers might lack appropriate training or preexposure vaccination. In such situations, it is critical to implement and coordinate rabies prevention and control measures to reduce the risk of rabies transmission and the need for human postexposure prophylaxis. Such measures include the following actions:

- Coordinate relief efforts of individuals and organizations with the local emergency operations center before deployment.
- Examine each animal at a triage site for possible bite injuries or signs of rabies.
- Isolate animals exhibiting signs of rabies pending evaluation by a veterinarian.
- Ensure that all animals have a unique identifier.
- Administer a rabies vaccine to all dogs, cats, and ferrets unless reliable proof of current vaccination exists.
- Adopt minimum standards for animal caretakers as feasible, including use of personal protective equipment, completion of the preexposure rabies vaccination series prior to deployment, and provision of appropriate training.[87]
- Maintain documentation of animal disposition and location (eg, returned to owner, died or euthanized, adopted, or relocated to another shelter with address of new location).
- Provide facilities to confine and observe animals involved in exposures (*see* Part I. B. 6. Management of animals that bite humans).
- Report human exposures to appropriate public health authorities (*see* Part I. A. 2. Rabies virus exposure).

C. Prevention and control methods related to wildlife

The public should be warned not to handle or feed wild mammals. Wild mammals and wild animal hybrids that expose persons, pets, or livestock should be considered for euthanasia and rabies testing. A person exposed by any wild mammal should immediately wash the wound thoroughly and report the incident to a health-care provider who, in consultation with public health authorities, can evaluate the need for postexposure prophylaxis.[11,12]

Translocating infected wildlife has contributed to the spread of rabies,[75–80,88] and animals that appear healthy can still be rabid. Therefore, translocation (ie, moving live animals from their point of capture and releasing them) of known rabies reservoir species should be prohibited.[89] Whereas state-regulated wildlife rehabilitators and nuisance-wildlife control operators should play a role in a comprehensive rabies control program, minimum standards for these persons who handle wild mammals should include rabies preexposure vaccination, specific rabies prevention and control training, and ongoing continuing education.

1. Carnivores. The use of oral rabies vaccines for mass vaccination of free-ranging wildlife should be considered in selected situations, with the approval of appropriate state and local agencies.[16,90] There have been documented successes using oral rabies vaccines to control rabies in wildlife in North America.[90–93] The currently licensed vaccinia-vectored oral rabies vaccine is labeled for use in raccoons and coyotes. Research to improve existing oral rabies vaccine and baits and to develop and test novel products to determine safety and efficacy must be encouraged. The distribution of oral rabies vaccines should be based on scientific assessments of the target species and followed by timely and appropriate analysis of surveillance data, with results provided to all stakeholders. In addition, parenteral vaccination (trap-vaccinate-release) of wildlife rabies reservoir species may be integrated into coordinated oral rabies vaccine programs to enhance their effectiveness. Continuous and persistent programs for trapping or poisoning wildlife are not effective in reducing populations of wildlife rabies reservoir species on a statewide basis. However, limited population control in high-contact areas (eg, picnic grounds, camps, and suburban areas) might be indicated for the removal of selected high-risk species of wildlife. State agriculture, public health, and wildlife agencies should be consulted for planning, coordination, and evaluation of vaccination or point infection control programs.[16]

2. Bats. From the 1950s to today, indigenous rabid bats have been reported from every state except Hawaii and have caused rabies in at least 54 humans in the United States.[94–103] Bats should be excluded, using appropriate methods, from houses, public buildings, and adjacent structures to prevent direct association with humans.[104,105] Such structures should then be made bat-proof by sealing entrances used by bats. Controlling rabies in bats through programs designed to reduce bat populations is neither feasible nor desirable.

Part II. Recommendations for Parenteral Rabies Vaccination Procedures

A. Vaccine administration

All animal rabies vaccines should be restricted to use by or under the direct supervision of a veterinar-

ian,[106] except as recommended otherwise (*see* Part I. B. 1. Preexposure vaccination and management).

B. Vaccine selection

All vaccines licensed by the USDA and marketed in the United States at the time of publication of this compendium are listed (Appendix 1). Newly approved vaccines and changes in label specifications made subsequent to publication should be considered as part of this list. Any of the listed vaccines can be used for revaccination, even if the product is not the same as the one previously administered. Vaccines used in state and local rabies control programs should have at least a 3-year duration of immunity. This constitutes the most effective method of increasing the proportion of immunized dogs and cats in any population.[107]

C. Adverse events

Currently, no epidemiological association exists between any particular licensed vaccine product and adverse events.[15,34,108–110] Although rare, adverse events such as vomiting, injection site swelling, lethargy, hypersensitivity, and the occurrence of rabies despite previous vaccination of an animal have been reported. Adverse events should be reported to the vaccine manufacturer and to USDA APHIS's Center for Veterinary Biologics (www.aphis.usda.gov; search for "adverse event reporting"). Although ill animals may not have a full immunologic response to vaccination, there is no evidence to suggest that adverse events are more likely to occur with rabies vaccination of ill than healthy animals. A veterinarian choosing to temporarily delay vaccinating an animal with an acute illness or condition should ensure that the animal is vaccinated as soon as possible. Animals with a previous history of anaphylaxis can be medically managed and observed after vaccination.[56] Severe adverse events related to rabies vaccination are extremely rare in animals. Decisions concerning rabies vaccination of animals with well-documented severe adverse events to rabies vaccine must be made within the context of a valid veterinarian-client-patient relationship. Due consideration should be given to the attendant risks and benefits of not vaccinating, including regulatory noncompliance. Animals not currently vaccinated that experience a rabies exposure are at greater risk for infection and death and also put their owners and the community at risk.

D. Vaccination of wildlife and wild animal hybrids

The safety and efficacy of parenteral rabies vaccines in wildlife and wild animal hybrids have not been established, and no rabies vaccines are currently licensed for use in these animals. Thus, any use of rabies vaccines in these animals is considered extralabel use. Zoos or research institutions may establish vaccination programs in an attempt to protect valuable animals, but these should not replace appropriate public health activities that protect humans (*see* Part I. B. 1. d) (3)).

E. Accidental human exposure to rabies vaccines

Human exposure to parenteral animal rabies vaccines listed in Appendix 1 does not constitute a risk for rabies virus infection. Human exposure to vaccinia-vectored oral rabies vaccines should be reported to state health officials.[111,112]

F. Rabies certificates

All agencies and veterinarians should use Form 51, the rabies vaccination certificate recommended by the National Association of State Public Health Veterinarians,[53] or should use an equivalent. The form must be completed in full and signed by the administering or supervising veterinarian. Computer-generated forms containing the same information are also acceptable.

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Appendix 1

Rabies vaccines licensed and marketed in the United States, 2016.

Product name	Produced by	Marketed by	For use in	Dose	Age at primary vaccination*	Booster vaccination	Route of inoculation
Monovalent (inactivated)							
RABVAC 1	Boehringer Ingelheim Vetmedica Inc License No. 124	Boehringer Ingelheim Vetmedica Inc	Dogs and cats	1 mL	3 mo	Annually	IM or SC
RABVAC 3	Boehringer Ingelheim Vetmedica Inc License No. 124	Boehringer Ingelheim Vetmedica Inc	Dogs and cats	1 mL	3 mo	1 year later and triennially	IM or SC
			Horses	2 mL	3 mo	Annually	IM
EQUI-RAB with Havlogen	Merck Animal Health License No. 165A	Merck Animal Health	Horses	1 mL	4 mo	Annually	IM
DEFENSOR 1	Zoetis License No. 190	Zoetis	Dogs	1 mL	3 mo	Annually	IM or SC
			Cats	1 mL	3 mo	Annually	SC
DEFENSOR 3	Zoetis License No. 190	Zoetis	Dogs	1 mL	3 mo	1 year later and triennially	IM or SC
			Cats	1 mL	3 mo	1 year later and triennially	SC
			Sheep and cattle	2 mL	3 mo	Annually	IM
NOBIVAC: 1-Rabies	Zoetis License No. 190	Merck Animal Health	Dogs	1 mL	3 mo	Annually	IM or SC
			Cats	1 mL	3 mo	Annually	SC
NOBIVAC: 3-Rabies and 3-Rabies CA	Zoetis License No. 190	Merck Animal Health	Dogs	1 mL	3 mo	1 year later and triennially	IM or SC
			Cats	1 mL	3 mo	1 year later and triennially	SC
			Sheep and cattle	2 mL	3 mo	Annually	IM
IMRAB 1	Merial Inc License No. 298	Merial Inc	Dogs and cats	1 mL	3 mo	Annually	SC
IMRAB 1 TF	Merial Inc License No. 298	Merial Inc	Dogs and cats	1 mL	3 mo	Annually	SC
IMRAB 3	Merial Inc License No. 298	Merial Inc	Dogs and cats	1 mL	3 mo	1 year later and triennially	IM or SC
			Sheep	2 mL	3 mo	1 year later and triennially	IM or SC
			Cattle and horses	2 mL	3 mo	Annually	IM or SC
			Ferrets	1 mL	3 mo	Annually	SC
IMRAB 3 TF	Merial Inc License No. 298	Merial Inc	Dogs and cats	1 mL	3 mo	1 year later and triennially	IM or SC
			Ferrets	1 mL	3 mo	Annually	SC
IMRAB Large Animal	Merial Inc License No. 298	Merial Inc	Dogs and cats	1 mL	3 mo	1 year later and triennially	IM or SC
			Cattle and horses	2 mL	3 mo	Annually	IM or SC
			Sheep	2 mL	3 mo	1 year later and triennially	IM or SC
Monovalent (rabies glycoprotein; live canary pox vector)							
PUREVAX Feline Rabies	Merial Inc License No. 298	Merial Inc	Cats	1 mL	3 mo	Annually	SC
PUREVAX Feline Rabies 3YR	Merial Inc License No. 298	Merial Inc	Cats	1 mL	3 mo	1 year later and triennially	SC
Combination (inactivated)							
Equine POTOMAVAC + IMRAB	Merial Inc License No. 298	Merial Inc	Horses	1 mL	3 mo	Annually	IM
Combination (rabies glycoprotein; live canary pox vector)							
PUREVAX Feline 3/Rabies	Merial Inc License No. 298	Merial Inc	Cats	1 mL	8 wk	Every 3 to 4 wk until 3 mo and annually	SC
					3 mo	3 to 4 wk later and annually	SC
PUREVAX Feline 4/Rabies	Merial Inc License No. 298	Merial Inc	Cats	1 mL	8 wk	Every 3 to 4 wk until 3 mo and annually	SC
					3 mo	3 to 4 wk later and annually	SC
Oral (rabies glycoprotein; live vaccinia vector)†							
RABORAL V-RG	Merial Inc License No. 298	Merial Inc	Raccoons and coyotes	NA	NA	As determined by local authorities	Oral

*One month = 28 days. †Oral rabies vaccines are restricted for use in federal and state rabies control programs.
NA = Not applicable.
Information is provided by the vaccine manufacturers and USDA APHIS's Center for Veterinary Biologics and is subject to change.

Appendix 2

Rabies vaccine manufacturer contact information

Manufacturer	Phone No.	URL
Boehringer Ingelheim Vetmedica Inc	800–638–2226	www.bi-vetmedica.com
Merck Animal Health Inc	800–521–5767	www.merck-animal-health-usa.com
Merial Inc	888–637–4251	us.merial.com
Zoetis	800–366–5288	www.zoetis.com

ENGINEERED OPTION PERMIT EXPLAINATION

As a result of Session Law 2015-286 (HB765): Regulatory Reform Act of 2015, an Engineered Option Permit (EOP) temporary rule became effective on July 1, 2016.

Included in the law is a rule that allows the local health department to charge a fee for the EOP that is up to 30% of the cumulative total of the fees the department has established for an Improvement Permit, Construction Authorization, and Operating Permit.

The exact wording in the law is as follows: G.S. 130A-336.1(n) "Fees. – The local health department may assess a fee for the engineered option permit of up to thirty percent (30%) of the cumulative total of the fees the department has established to obtain an improvement permit, an authorization to construct, and an operations permit for wastewater systems under its jurisdiction. The fee shall only be used by the department in support of its work pursuant to this section to conduct site inspections; support the department's staff participation at post-construction conference meetings; and archive the engineered permit with the county register of deeds or other recordation of the wastewater system as required."

There are many unknowns about how much staff time will be involved in completion of the tasks required by the law and rules. In fact, the NC Division of Public Health continues to provide updated information on how to implement the rules. At this time, we believe it is best to use the fees already established by the Board of Health at 30% of the cumulative total as allowed by the law.

Included is an excerpt from the temporary rule that outlines the county's responsibilities as related to the EOP system.

(k) LOCAL HEALTH DEPARTMENT RESPONSIBILITIES: The local health department is responsible for the following activities related to the EOP system:

(1) Perform a completeness review of the Notice of Intent to Construct to verify inclusion of information required by this Rule and indicate written verification of completeness determination;

(2) Attend the post-construction conference to observe location of system components and start-up conditions;

(3) Provide written confirmation of Authorization to Operate upon receipt of complete information required by this Rule;

(4) File all EOP documentation consistent with current permit filing procedures at the local health department;

(5) Submit a copy of the final Notice of Intent common form and written confirmation of Authorization to Operate to the Department;

(6) Review the performance and operation reports submitted in accordance with Table V(b) of Rule .1961 of this Section;

(7) Perform on-site compliance inspections of the wastewater system in accordance with Table V(a) of Rule .1961 of this Section;

(8) Investigate EOP system complaints;

(9) Issue a notice of violation for systems determined to be malfunctioning in accordance with Rule.1961 (a) of this Section. The LHD shall direct the owner to contact the design professional engineer, project licensed soil scientist, licensed geologist, and contractor, as appropriate, for determination of the reason of the malfunction and development of a Notice of Intent to Construct for repairs; and

(10) Require an owner receiving a notice of violation to pump and haul sewage in accordance with Rule .1961(m) of this Section."

Public Health
HEALTH AND HUMAN SERVICES

RICHARD O. BRAJER
Secretary

DANIEL STALEY
Director, Division of Public Health

COMMON FORM FOR ENGINEERED OPTION PERMIT

See Instructions for Use in Appendix A

Except for* "Date received", *this Section to be completed by the Professional Engineer licensed in accordance with G.S. 89C

LHD USE ONLY: Initial submittal of this NOI received: _____ by _____
Date *Initials*

PART 1: Notice of Intent to Construct (NOI)

1. Facility Owner's name: (Owner, Company Name, Utility, Partnership, Individual, etc.): _____
_____
Mailing address: _____ City: _____ State: _____ Zip: _____
Telephone number: _____ E-mail Address: _____
2. Professional Engineer (PE) name: _____ License number:_____
Mailing address:_____ City: _____ State: _____ Zip: _____
Telephone number: _____ E-mail Address: _____
3. Licensed Soil Scientist (LSS) name: _____ License number:_____
Mailing address:_____ City: _____ State: _____ Zip: _____
Telephone number: _____ E-mail Address: _____
4. Licensed Geologist (LG) (if applicable) name: _____ License Number: _____
Mailing address: _____ City: _____ State: _____ Zip: _____
Telephone number: _____ E-mail Address: _____
5. On-site Wastewater Contractor name: _____ License number:_____
Mailing address: _____City: _____ State: _____ Zip: _____
Telephone number: _____ E-mail Address: _____
6. Proof of Errors and Omissions Insurance for the following persons is attached that includes the name of the insurer, name of the insured and the effective dates of coverage:
☐ PE ☐ LSS ☐ LG ☐ On-site Wastewater Contractor
7. Property location (physical address, tax parcel identification number or subdivision lot, block number of the property to be permitted): _____
County Name: _____

8. Type of facility: ☐ Place of residence No. Bedrooms: _____ No. Occupants:_____
   ☐ Place of business Basis for flow calculation:_____
   ☐ Place of public assembly Basis for flow calculation:_____

9. Factors that would affect the wastewater load: _____
   _____

10. Type and location of wastewater system: _____
    _____

11. Design wastewater flow: _____ gpd *(For flow >3,000gpd, duplicate plans shall be sent to the State.)*

    Design wastewater strength: ☐ domestic ☐ high strength ☐ industrial process *(Duplicate plans shall be sent to the State.)*

12. A plat as defined in G.S. 130A 334(7a) is attached: ☐ Yes ☐ No

13. Owner meets requirements of ownership or control of the system per 15A NCAC 18A .1938(j): ☐ Yes ☐ No

14. Easement or encroachment agreement required per 15A NCAC 18A .1938(j): ☐ Yes ☐ No

    If yes, documentation filed in _____County Register of Deeds in Deed book _____ Page _____

15. Multi-party agreements required, as applicable, pursuant to 15A NCAC 18A .1937(h): ☐ Yes ☐ No

    If yes, agreements filed in _____County Register of Deeds in Deed book _____ Page _____

16. Location of proposed or existing wells (drinking water, irrigation, geothermal, groundwater monitoring, sampling, etc.) and any potable and non-potable water conveyance lines is indicated on attached plans and complies with 15A NCAC 18A .1950: ☐ Yes ☐ No

17. Soils and site evaluation signed and sealed by either a LSS or LG is attached: ☐ Yes ☐ No

18. Proposed landscape, site, drainage, or soil modifications are attached: ☐ Yes ☐ NA

Attestation by Professional Engineer licensed in North Carolina pursuant to G.S. 89C

I, _____hereby attest that the information required to be included with this
Registered Professional Engineer (Print Name)
Notice of Intent to Construct is accurate and complete to the best of my knowledge and that the proposed system shall meet all applicable federal, State, and local laws, regulations, rules and ordinances in accordance with G.S. 130A-336-.1(e)(6).

_____ _____
Signature of Licensed Professional Engineer *Date*

This section for Owner use to either designate PE as their legal representative or to self-submit the NOI.

Designation of Registered Professional Engineer as legal representative of Owner for this Notice of Intent:

I, _____ hereby designate _____
Print Name of Owner *Print Name of Registered Professional Engineer*

as my legal representative for purposes of this Notice of Intent pursuant to G.S. 130A-336.1.

_____ _____
Signature of Owner *Date*

Owner self-submittal of NOI

I, _____ hereby submit this NOI prepared by _____
Print Name of Owner *Print Name of Licensed PE*

pursuant to G.S. 130A-336.1.

_____ _____
Signature of Owner *Date*

NOTE:
The Department, the Department's authorized agents or local health departments shall have no liability for wastewater systems designed, constructed and installed pursuant to an Engineered Option Permit. [(NC General Statute 130A-336.1(f)]

The submittal of this **Notice of Intent to Construct** *grants right of entry to the Local Health Department and the State to the referenced property.*

This section for Local Health Department use only.

PART 2: ***LHD Completeness Review of the Notice of Intent to Construct***

"(c) Completeness Review for Notice of Intent to Construct. – The local health department shall determine whether a notice of intent to construct, as required pursuant subsection (b) of this section, is complete within 15 business days after the local health department receives the notice of intent to construct. A determination of completeness means that the notice of intent to construct includes all of the required components. If the local health department determines that the notice of intent to construct is incomplete, the department shall notify the owner or the professional engineer of the components needed to complete the notice. The owner or professional engineer may submit additional information to the department to cure the deficiencies in the notice. The local health department shall make a final determination as to whether the notice of intent to construct is complete within 10 business days after the department receives the additional information from the owner or professional engineer. If the department fails to act within any time period set out in this subsection, the owner or professional engineer may treat the failure to act as a determination of completeness."

The review for completeness of this Notice of Intent was conducted in accordance with G.S. 130A-336.1(c). This NOI is determined to be:

☐ INCOMPLETE (If box is checked, Information in this section is required.)

Based upon review of information submitted by the PE in Part 1, the following items are missing: _____
_____

Copies of this form listing missing items were sent to the design PE and the Owner on _____
Date

via _____ with directions to re-submit missing items using Page 5 of this form.
Email, FAX, USPS, hand-delivered

☐ COMPLETE (If box is checked, information in this section is required.)

Based upon review of information submitted by the PE in Part 1 of this form, this NOI is deemed COMPLETE.

Copies of this signed form were sent to the design PE and the Owner on _____ via _____.
Date *Email, FAX, USPS, hand-delivered*

A copy of this NOI and tracking information was sent to the State on_____ via _____.
Date *Email, FAX, USPS, hand*

_____ _____ _____
Print Name of Authorized Agent of the LHD *Signature of Authorized Agent of the LHD* *Date*

Re-submittal of NOI with missing items included

This Section is for use by PE to submit items noted as missing during LHD Completeness Review above.

LHD USE ONLY: This NOI resubmittal received: _____ by _____
Date *Initials*

Item # from initial NOI	Resubmittal description

Attestation by Professional Engineer licensed in North Carolina pursuant to G.S. 89C

I, _____hereby attest that the information re-submitted for this Notice of
Licensed Professional Engineer (Print Name)

Intent to Construct is accurate and complete to the best of my knowledge and that the proposed system shall meet all applicable federal, State, and local laws, regulations, rules and ordinances in accordance with G.S. 130A-336-.1(e)(6).

_____ _____
Signature of Licensed Professional Engineer *Date*

The section below is for Local Health Department use after submittal of items noted as missing above.

LHD Follow-up Completeness Review of Notice of Intent to Construct

This follow-up review for completeness of this Notice and Intent was conducted in accordance with G.S. 130A-336.1(c). This NOI is determined to be:

☐ INCOMPLETE
Based upon review of information submitted by the PE in the RESUBMITTAL above, this Notice of Intent remains INCOMPETE because the following items from Part 1 of this form remain missing: _____

Copies of this signed form were sent to the design PE and the Owner on _____via_____.
Date *Email, FAX, USPS, hand*

☐ COMPLETE
Based upon review of information submitted by the PE in the RESUBMITTAL above in addition to information provided in Part 1 of this form, this NOI is deemed complete.

Copies of this signed form were sent to the PE and the Owner on _____via _____.
Date *Email, FAX, USPS, Hand*

A complete copy of this form with tracking information was sent to the State: _____via _____.
Date *Email, FAX, USPS, hand*

_____ _____ _____
Print name of authorized Agent of the LHD *Signature of authorized Agent of the LHD* *Date*

PART 3: Authorization to Operate (ATO)

Except for date received, the Section below is to be completed by the Owner or by the PE designated to act as their legal representative for the EOP.

LHD USE ONLY: Initial submittal of request for ATO received: _____ by _____
Date *Initials*

The following items are included in this submittal for an Authorization to Operate under an EOP:

1. Signed and sealed copy of the Engineer's report that includes:
   a. Signed and sealed evaluation of soil conditions and site features ☐ Yes ☐ No
   b. Drawings, specifications, plans ☐ Yes ☐ No
   c. Reports on special inspections and final inspection ☐ Yes ☐ No
   d. Management Program manual ☐ Yes ☐ No
   e. On-site Wastewater Contractor's signed statement ☐ Yes ☐ No
   f. Signed and sealed statement pursuant to 15A NCAC 18A .1938(h) ☐ Yes ☐ No
2. Fee (as applicable) ☐ Yes ☐ No
3. Notarized letter documenting Owner's acceptance of the system from the PE ☐ Yes ☐ No

Attestation by the Owner or the PE for Authorization to Operate

I, _____ hereby attest that all items indicated above have been provided to the
Print name of Owner or Professional Engineer

_____County LHD and the proposed system shall meet all applicable federal, State, and local laws, regulations, rules and ordinances in accordance with G.S. 130A-336-.1(e)(6).

_____ _____
Signature of Owner or Professional Engineer *Date*

This section for LHD Use Only.

LHD Review of required information for the ATO

☐ INCOMPLETE

Based upon review of information submitted by the Owner or PE in the Section above, the following items are missing from the information required for an Authorization to Operate for an EOP: _____.

Copies of this signed form were sent to the design PE and the Owner on _____via _____.
Date *Email, FAX, USPS, hand*

☐ COMPLETE

Based upon review of information submitted by the Owner or PE in the Section above, this Authorization to Operate is hereby issued in accordance with G.S. 130A-336.1(m).

A copy of this complete NOI/ATO with tracking information was sent to the State on _____via _____.
Date *Email, FAX, USPS, hand*

_____ _____ _____
Print Name of Authorized Agent of the LHD *Signature of Authorized Agent of the LHD* *Date*

NOTE: *The Department, the Department's authorized agents or local health departments shall have no liability for wastewater systems designed, constructed and installed pursuant to an Engineered Option Permit. [(NC General Statute 130A-336.1(f)]*

STATE OF NC ENGINEERED OPTION PERMIT
APPENDIX A: INSTRUCTIONS FOR USE OF THE COMMON FORM

GENERAL INFORMATION

This State form is required for submittal of documentation of an Engineered Option Permit (EOP) pursuant to NC General Statute 130A-336.1.

Three separate actions are addressed in this form:

1. Notice of Intent to Construct (NOI) (and resubmittal of missing information)
2. Local Health Department (LHD) Completeness Review of the NOI as submitted by the PE and written confirmation of same

Review of information submitted by the PE for Authorization to Operate (ATO) and written confirmation of sameG.S. 130A-336.1 states that:

"*The Department, the Department's authorized agents or local health departments shall have no liability for wastewater systems designed, constructed and installed pursuant to an Engineered Option Permit."*

The registered professional engineer (PE) is fully responsible for the siting, design, construction of the system as well as for development of an appropriate management plan. Thus, the PE or Owner attests that the information required by Statute and Rule has been provided. LHD review is limited to a review of information provided by the PE on the form.

PART 1: Notice of Intent to Construct (NOI)

Content (as submitted by the Registered PE) for the NOI

The PE completes Part 1 of the form through item 17, and signs and dates it to confirm that the information provided meets the requirements of 130A-336.1 and 15A NCAC 18A .1971.

Form received by LHD

The form may be submitted to the LHD by either the Owner or the PE, provided the Owner designates the PE as their legal representative. The LHD enters the date that the initial NOI is received. The LHD enters the reference number for the EOP at the top of each page.

The LHD verifies that the PE attested to the content submitted by signing and dating as appropriate. If not signed by the PE, the NOI is INCOMPLETE.

Designation of PE as Owner's Representative

If the Owner wishes, they may designate the PE to act as their legal representative for purposes of the EOP. The Owner may use this part of the form for the purpose of designation. Other means of such designation are acceptable provided that the documentation clearly indicates the same information shown in this section and the Owner signs and dates the documentation.

PART 2: LHD Completeness Review of the Notice of Intent

This section is designed for the LHD to document receipt of the required items. The LHD has no liability for the site evaluation, design plans and specifications and the construction of the system. Thus, the completeness review is based upon information that the PE provides and attests to, not on the basis of any other review of the submitted items.

Items 1 through 5: The LHD verifies that the PE provided contact information for the Owner as well as for professionals who will participate in the design, permitting, installation and inspection process. Without contact information for a PE, licensed soil scientist (LSS) and an Onsite System Contractor (at a minimum), the NOI is INCOMPLETE.

Item 6 through 17: LHD verifies that the PE:

6. Stated on the form that "proof of errors and omissions or other liability Insurance" is attached for each professional and that the submitted information includes the name of the insurer, the name of the insured individual and the effective dates of coverage. *[Note that, at a minimum, the PE must check boxes for "PE", "LSS" and "Onsite Wastewater Contractor" and attach Proof of Insurance in accordance with G.S. 130A-336.1(b)(3)].*
7. Provided a physical location of the property. If a 911 address is not yet assigned, other identifying information must be provided such as a PIN or Subdivision name/Phase or Section/Lot number.
8. Provided a facility description (e.g., "Single family residence", "Office space" or "Dog kennel") and the basis for the flow projection required in Number 11. Note that for residences, Number of occupants is required. For businesses and places of public assembly, the PE must indicate the specific basis for flow projection (Number of seats, occupancy load, etc.).
9. The PE shall describe any factors that "would affect the wastewater load" on the form.
10. Designated a System Type (per Rule.1961) and rough system location ("Right rear of property as viewed from the road" or similar**).**
11. Stated the projected wastewater flow and the projected wastewater strength. *(Duplicate plans for EOPs addressing flows greater than 3,000 gpd or industrial process wastewater (IPWW) are required to be sent to the state by the PE or owner.)*
12. Stated that a Plat as defined in 130A-334 (7a) is included in the submittal.
13. Stated that the Owner owns or controls the property on which the system is located [15A NCAC 18A .1938(j)].
14. Indicated whether easements or encroachment agreements are required, and if YES, lists the County, Deed book and Page number where they are recorded. *
15. Indicated whether multi-party agreements are required, and if YES, lists the County, Deed book and Page number where they are recorded. *
16. Stated that any proposed setbacks to all water supplies and appurtenances are compliant with 15A NCAC 18A .1950.
17. Stated that a soils and site evaluation signed and sealed by either a LSS or Licensed Geologist (LG), as applicable is attached.
18. Stated whether or not plans for proposed landscape, site, drainage or soil modifications are included.

**Must be recorded at this stage so the Owner can apply for building permits once the NOI is determined to be complete.*

Documentation of Completeness Review

The LHD must complete the initial review and respond to the PE and Owner within 15 business days of receipt of the initial submittal. If the LHD fails to respond, the Owner or PE may treat the failure to act as a determination of completeness.

- The LHD verifies that the PE signed and dated this section to attest to the integrity of the information.
- If the PE is acting on the owner's behalf for ANY part of this process, the LHD verifies that the Owner signed the section for designation of the PE as their legal representative.
- INCOMPLETE: Check this box if appropriate.
  - LHD enters the item number(s) in the space provided.
  - LHD indicates the date and method by which notification was conveyed to the Owner and the PE.

  The Owner or PE may re-submit missing information using Page 5 of the common form.
- COMPLETE – Check this box if appropriate.
  - LHD indicates that notification was sent to the Owner and PE. *The LHD retains the original document.*
- LHD shall note the date a copy of the final NOI and tracking documentation is sent to the Department as required.

Follow-up: LHD Completeness Review of resubmitted information

The LHD must review and respond within 10 days of re-submittal of missing information. If the LHD fails to respond, the owner or PE may treat the failure to act as a determination of completeness.

- The LHD enters the date the resubmitted information is received and verifies that the PE signed and dated this section to attest to the nature of the resubmitted information.
- Proceed as described in the previous section depending upon whether the NOI is INCOMPLETE or COMPLETE.

PART 3: Authorization to Operate (ATO)

Documentation required for the ATO and attestation by the PE

When construction of the system is complete, the owner (or the PE, if designated as the Owners legal representative) shall submit documentation to the LHD as required in 130A-336.1(l) and as further specified in 130A-336.1(k) and 15A NCAC 18A .1938(h).

- The LHD enters the date the information was received.
- The Owner or PE indicates on this form what information they have submitted to the LHD by indicating YES or NO next to each required item.
- The Owner or PE signs and dates this section to attest that the listed information is attached.
- The LHD verifies that the Owner or the PE signed this section attesting to the integrity of the information.

LHD Review of information submitted by the Owner or PE

The LHD shall respond to the PE and Owner within 15 days of receipt the information for the ATO. Again, the LHD shall not conduct a qualitative review of submitted information but will simply document that the PE or Owner attests that the information required by Statute and Rule has been provided.

- INCOMPLETE: Check this box if any of the boxes in this section are checked "No".
    - LHD enters the item number(s) in the space provided.
    - LHD indicates the date and method by which notification was conveyed to the Owner and the PE.
    - The Owner or PE may re-submit missing information.
- COMPLETE – Check this box if appropriate.
    - The LHD indicates that notification was sent to the Owner and PE. *The LHD retains the original document.*
    - LHD notes when and how a copy of the complete NOI, ATO and tracking documentation is sent to the Department as required.

Appendix B: Tracking information

The LHD completes out this form for each NOI/ATO submitted to their offices. The LHD updates this information and re-sends it throughout the process as appropriate. The Department will use this data to draft required legislative reports on implementation of the EOP.

Tracking information for Engineered Option Permits (Required)

County	
LHD Reference Number	
Permitting backlog as of date of NOI submittal (# days)	
Number of days to process the NOI (# days)	
Number of days to process re-submitted NOI (# days or "NA")	
Facility type	
Domestic, High Strength or IPWW	
Design Daily Flow	
Residential or Commercial	
Date of Post-construction conference	
Date Authorization to Operate issued	
Fee charged for EOP	
Is fee sufficient to cover LHD costs?	
Date LHD notified of EOP malfunction	
Date LHD notified of Owner complaint	

§ 130A-336.1. Alternative process for wastewater system approvals.

(a) Engineered Option Permit Authorized. - A professional engineer licensed under Chapter 89C of the General Statutes may, at the direction of the owner of a proposed wastewater system who wishes to utilize the engineered option permit, prepare signed and sealed drawings, specifications, plans, and reports for the design, construction, operation, and maintenance of the wastewater system in accordance with this section and rules adopted thereunder.

(b) Notice of Intent to Construct. - Prior to commencing or assisting in the construction, siting, or relocation of a wastewater system, the owner of a proposed wastewater system who wishes to utilize the engineered option permit, or a professional engineer authorized as the legal representative of the owner, shall submit to the local health department with jurisdiction over the location of the proposed wastewater system a notice of intent to construct a wastewater system utilizing the engineered permit option. The Department shall develop a common form for use as the notice of intent to construct that includes all of the following:

(1) The owner's name, address, e-mail address, and telephone number.

(2) The professional engineer's name, license number, address, e-mail address, and telephone number.

(3) For the professional engineer, the licensed soil scientist, the licensed geologist, and any on-site wastewater contractors, proof of errors and omissions insurance coverage or other appropriate liability insurance.

(4) A description of the facility the proposed site is to serve and any factors that would affect the wastewater load.

(5) The type of proposed wastewater system and its location.

(6) The design wastewater flow and characteristics.

(7) Any proposed landscape, site, drainage, or soil modifications.

(8) A soil evaluation that is conducted and signed and sealed by a either a licensed soil scientist or licensed geologist.

(9) A plat, as defined in G.S. 130A-334(7a).

(c) Completeness Review for Notice of Intent to Construct. - The local health department shall determine whether a notice of intent to construct, as required pursuant subsection (b) of this section, is complete within 15 business days after the local health department receives the notice of intent to construct. A determination of completeness means that the notice of intent to construct includes all of the required components. If the local health department determines that the notice of intent to construct is incomplete, the department shall notify the owner or the professional engineer of the components needed to complete the notice. The owner or professional engineer may submit additional information to the department to cure the deficiencies in the notice. The local health department shall make a final determination as to whether the notice of intent to construct is complete within 10 business days after the department receives the additional information from the owner or professional

engineer. If the department fails to act within any time period set out in this subsection, the owner or professional engineer may treat the failure to act as a determination of completeness.

(d) Submission of Notice of Intent to Construct to Department for Certain Systems. - Prior to commencing in the construction, siting, or relocation of a wastewater system designed (i) for the collection, treatment, and disposal of industrial process wastewater or (ii) to treat greater than 3,000 gallons per day, the owner of a proposed wastewater system who wishes to utilize the engineered option permit, or a professional engineer authorized as the legal representative of the owner, shall provide to the Department a duplicate copy of the notice of intent to construct submitted to the local health department required pursuant to subsection (b) of this section.

vii

(e) Site Design, Construction, and Activities.

(1) The professional engineer designing the proposed wastewater system shall use recognized principles and practices of engineering and applicable rules of the Commission in the calculations and design of the wastewater system. The investigations and findings of the professional engineer shall include, at a minimum, the information required in rules adopted by the Commission pursuant to G.S. 130A-335(e). The professional engineer may, at the engineer's discretion, employ pretreatment technologies not yet approved in this State.

(2) Notwithstanding G.S. 130A-335(a1), the owner of the proposed wastewater system shall employ either a licensed soil scientist or a geologist, licensed pursuant to Chapter 89E of the General Statutes and who has applicable professional experience, to evaluate soil conditions and site features.

(3) The professional engineer designing the proposed wastewater system:

a. Shall be responsible for the engineer's scope of work, including all aspects of the design and any drawings, specifications, plans, or reports that are signed and sealed by the professional engineer.

b. Shall prepare a signed and sealed statement of special inspections that includes the following items:

1. The materials, systems, components, and work subject to special inspection or testing.

2. The type and extent of each special inspection and each test.

3. The frequency of each type of special inspection. For purposes of this sub-sub-subdivision, frequency of special inspections shall be required on either a continuous or periodic basis. Continuous special inspections mean the full-time observation of work requiring special inspection by an approved special inspector who is present in the area where the work is performed. Periodic special inspections mean the part-time or intermittent observation of work requiring a special inspection by an approved special inspector who is present in the area where the work is or has been performed and at the completion of the work.

c. May assist the owner of the proposed wastewater system with the selection of an on-site wastewater system contractor certified pursuant to Article 5 of Chapter 90A of the General Statutes.

(4) An on-site wastewater system contractor, licensed pursuant to Article 5 of Chapter 90A of the General Statutes, who is employed by the owner of the wastewater system, shall:

a. Be responsible for all aspects of the construction and installation of the wastewater system or components of the wastewater system, including adherence to the design, specifications, and any special inspections that are prepared, signed, and sealed by the professional engineer in accordance with all the applicable provisions of this section.

b. Submit a signed and dated statement of responsibility to the owner of the wastewater system, prior to the commencement of work, that contains acknowledgement and awareness of the requirements in the professional engineer's statement of special inspections.

(5) Where the professional engineer's designs, plans, and specifications call for the installation of a conventional wastewater system, such designs, plans, and specifications shall allow for the installation of an accepted system in lieu of a conventional system in accordance with the accepted system approval.

(6) In addition to the requirements of this section, the owner, the professional engineer designing the proposed wastewater system, and any on-site wastewater system contractors employed to construct or install the wastewater system shall comply with applicable federal, State, and local laws, regulations, rules, and ordinances.

(f) No Public Liability. - The Department, the Department's authorized agents, or local health departments shall have no liability for wastewater systems designed, constructed, and installed pursuant to a engineered option permit.

(g) Inspections, Construction Observations, and Reports. -

(1) Site visits. - The local health department may, at any time, conduct a site visit of the wastewater system.

(2) Construction observations. - The professional engineer who designed the wastewater system shall make periodic visits to the site, at intervals appropriate to the stage of construction, to observe the progress and quality of the construction and to determine, generally, if the construction is proceeding in accordance with the engineer's plans and specifications.

(3) Special inspections. - The owner of the proposed wastewater system shall employ one or more approved special inspectors to conduct special inspections during the construction of the wastewater system. The professional engineer who designed the wastewater system, or the engineer's personnel, may function as an approved agency to conduct special inspections required by this subdivision. The professional engineer's personnel shall only operate as an approved agency for special inspections if the personnel can demonstrate competence and relevant experience or training. For purposes of this subdivision, experience or training shall be considered relevant when the documented experience or training is related in complexity to the same type of special inspection activities for projects of similar complexity and material qualities.

(4) Inspection reports. - Approved special inspectors shall maintain and furnish all inspection records to the professional engineer who designed the wastewater system. The records shall indicate whether the work inspected was completed in conformance with the engineer's design and specifications. Any discrepancies identified between the completed work and the engineer's design shall be brought to the

immediate attention of the on-site wastewater system contractor for correction. If discrepancies are not corrected, they shall be brought to the attention of the professional engineer who designed the wastewater system prior to completion of work. A final inspection report documenting the required special inspections and the correction of any identified discrepancies shall be provided to the professional engineer and the owner of the wastewater system for review at the post-construction conference required pursuant to subsection (j) of this section.

(h) Local Authority. - This section shall not relieve the owner or operator of a wastewater system from complying with any and all modifications or additions to rules adopted by a local health department to protect public health pursuant to G.S. 130A-335(c) that are required at the time the owner or operator submits the notice of intent to construct pursuant to G.S. 130A-336.1(b). The local health department shall notify the owner or operator of the wastewater system of any issues of compliance related to such modifications or additions.

(i) Operations and Management. -

(1) The professional engineer designing the wastewater system shall establish a written operations and management program based on the size and complexity of the wastewater system and shall provide the program to the owner.

(2) The owner shall enter into a contract with a water pollution control system operator certified pursuant to Part 1 of Article 3 of Chapter 90A of the General Statutes and who is selected from the list of certified operators maintained by the Division of Water Resources in the Department of Environment and Natural Resources for operation and maintenance of the wastewater system in accordance with rules adopted by the Commission.

(3) The owner of the wastewater system shall be responsible for the continued adherence to the operations and management program established by the professional engineer pursuant to subdivision (1) of this subsection.

(j) Post-Construction Conference. - The professional engineer designing the wastewater system shall hold a post-construction conference with the owner of the wastewater system; the licensed soil scientist or licensed geologist who performed the soils evaluation for the wastewater system; the on-site wastewater system contractor, certified pursuant to Article 5 of Chapter 90A of the General Statutes, who installed the wastewater system; the certified operator of the wastewater system, if any; and representatives from the local health department and, as applicable, the Department. The post-construction conference shall include start-up of the wastewater system and any required verification of system design or system components.

(k) Required Documentation. -

(1) At the completion of the post-construction conference conducted pursuant to subsection (j) of this section, the professional engineer who designed the wastewater system shall deliver to the owner signed, sealed, and dated copies of the engineer's report, which, for purposes of this subsection, shall include the following:

a. The evaluation of soil conditions and site features as prepared by either the licensed soil scientist or licensed geologist.

b. The drawings, specifications, plans, and reports of the wastewater system, including the statement of special inspections required pursuant to G.S. 130A-336.1(e)(3); the

on-site wastewater system contractor's signed statement of responsibility required pursuant to G.S. 130A-336.1(e)(4); records of all special inspections; and the final inspection report documenting the correction of any identified discrepancies required pursuant to subsection (g) of this section.

c. The operator's management program manual that includes a copy of the contract with the certified water pollution control system operator required pursuant to subsection (i) of this section.

d. Any reports and findings related to the design and installation of the wastewater system.

(2) Upon reviewing the professional engineer's report, the owner of the wastewater system shall sign and notarize the report as having been received.

(l) Reporting Requirements. -

(1) The owner of the wastewater system shall submit the following to the local health department:

a. A copy of the professional engineer's report required pursuant to G.S. 130A-336.1(k)(1).

b. A copy of the operations and management program.

c. The fee required pursuant to subsection (n) of this section.

d. A notarized letter that documents the owner's acceptance of the system from the professional engineer.

(2) The owner of any wastewater system that is subject to subsection (d) of this section shall deliver to the Department copies of the engineer's report, as described G.S. 130A-336.1(k)(1).

(m) Authorization to Operate. - Within 15 business days of receipt of the documents and fees required pursuant to G.S. 130A-336.1(l)(1), the local health department shall issue the owner a letter of confirmation that states the documents and information contained therein have been received and that the wastewater system may operate in accordance with rules adopted by the Commission.

(n) Fees. - The local health department may assess a fee for the engineered option permit of up to thirty percent (30%) of the cumulative total of the fees the department has established to obtain an improvement permit, an authorization to construct, and an operations permit for wastewater systems under its jurisdiction. The fee shall only be used by the department in support of its work pursuant to this section to conduct site inspections; support the department's staff participation at post-construction conference meetings; and archive the engineered permit with the county register of deeds or other recordation of the wastewater system as required.

(o) Change in System Ownership. - A wastewater system authorized pursuant to this section shall not be affected by change in ownership of the site for the wastewater system, provided both the site for the wastewater system and the facility the system serves are unchanged and remain under the ownership or control of the person owning the facility.

(p) Remedies. - Notwithstanding any other provision of this section or any other provision of law, owners; operators; professional engineers who utilize the engineered option permit, who prepare drawings, specifications, plans, and reports; licensed soil scientists; licensed geologists; and on-site wastewater system contractors employed for the construction or installation of the wastewater system shall be subject to the provisions and remedies provided to the Department and local health departments pursuant to Article 1 of this Chapter.

(q) Rule Making. - The Commission shall adopt rules to implement the provisions of this section.

(r) Reports. - The Department shall report to the Environmental Review Commission and the Joint Legislative Oversight Committee on Health and Human Services on or before January 1, 2017, and annually thereafter, on the implementation and effectiveness of this section. For the report due on or before January 1, 2017, the Department shall specifically study (i) whether the engineered option permit resulted in a reduction in the length of time improvement permits or authorizations to construct are pending; (ii) whether the engineered option permit resulted in increased system failures or other adverse impacts; (iii) if the engineered option permit resulted in new or increased environmental or public health impacts; (iv) an amount of errors and omissions insurance or other liability sufficient for covering professional engineers, licensed soil scientists, licensed geologists, and contractors who employ the engineered option permit; and (v) the fees charged by local health departments to administer the engineered option permit pursuant to subsection (n) of this section. The Department may include recommendations, including any legislative proposals, in its reports to the Commission and Committee. (2015-286, s. 4.14(c).)

15A NCAC 18A .1971 ENGINEERED OPTION PERMIT

(a) An Engineered Option Permit (EOP) on-site wastewater system, as defined by G.S. 130A-334(1g), is available to an owner that provides an alternative process for the siting, design, construction, approval, and operation of the system without requiring the direct oversight or approval of the local health department. An owner choosing to use the EOP shall employ the services of a registered professional engineer licensed pursuant to G.S. 89C to prepare signed and sealed drawings, specifications, plans, and reports for the design, construction, operation, and maintenance of the wastewater system in accordance with G.S. 130A-336.1 and this Rule. Except as provided for in G.S. 130A-336.1 and in this Rule, an EOP system is subject to all applicable requirements of Article 11 of Chapter 130A of the General Statutes and all rules of this Section. Nothing in this Rule shall be construed as allowing any professional to provide services for which he or she has neither the educational background, expertise, or license to perform, or is beyond his or her scope of work as provided for pursuant to G.S. 130A-336.1 and the applicable statutes for their respective profession.

(b) SITE EVALUATION: Prior to the preparation and submittal of a Notice of Intent to Construct an EOP system, pursuant to G.S. 130A-336.1(b), the owner shall employ a licensed soil scientist pursuant to G.S. 89F to conduct an evaluation of soil conditions and site features in the proposed initial and repair drainfield areas for the EOP system, pursuant to G.S. 130A-335(a1) and G.S. 130A-336.1(e)(2). The owner shall employ a licensed soil scientist or a licensed geologist pursuant to G.S. 89E to evaluate geologic or hydro-geologic features as may be appropriate for the proposed site. This evaluation and documenting report shall be in accordance with the rules of this Section, and adhere to accepted standards of practice applicable to the type and size of the EOP system.

(c) NOTICE OF INTENT TO CONSTRUCT: The Notice of Intent to Construct an EOP System to be submitted by the owner or a registered professional engineer authorized as the legal representative of the owner to the local health department in the county where the facility is located shall be on the common form provided by the Department. It shall include all of the information specified in G.S. 130A-336.1(b) and the following:

(1) Information required in Rules .1937(d) and .1937(e) of this Section for Improvement Permit and Construction Authorization applications;

(2) Identification and location on the site plan of existing or proposed potable water supplies, geothermal heating and cooling wells, groundwater monitoring wells, and sampling wells for the facility. The registered professional engineer shall specifically reference any existing permit issued for a private drinking water supply, public water supply, or a wastewater system on both the subject and adjoining properties to provide documentation of compliance with setback requirements in Rule.1950 of this Section;

(3) Documentation that the proposed wastewater system complies with all applicable federal, State, and local laws, regulations, rules and ordinances in accordance with G.S. 130A-336.1(e)(6);

(4) Documentation shall be provided that the ownership and control requirements of Rule .1938(j) of this Section and the requirements for a multi-party agreement in Rule .1937(h) of this Section shall be met, as applicable; and

(5) Proof of insurance for the registered professional engineer, licensed soil scientist, licensed geologist, and on-site wastewater contractor, as applicable.

(d) LOCAL HEALTH DEPARTMENT NOTICE OF INTENT COMPLETENESS REVIEW: The completeness review shall be performed by the authorized agent of the local health department pursuant to G.S. 130A-336.1(c). The local health department shall provide written confirmation of the completeness determination on the common form provided by the Department.

(e) DESIGN PLANS AND SPECIFICATIONS: The registered professional engineer design, plans, and specifications for the EOP System shall be in accordance with the rules of this Section and with adherence to accepted standards of practice applicable to the type and size of the EOP system. The registered professional engineer design shall incorporate findings and recommendations on soil and site conditions, limitations, and any site modifications specified by the licensed soil scientist or licensed geologist, as applicable. When the registered professional engineer chooses to employ pretreatment technologies not yet approved in this State, pursuant to G.S. 130A-336.1(e)(1), the engineering report shall specify the proposed technology, and the associated siting, installation, operation, maintenance, and monitoring requirements, including manufacturers endorsements associated with its proposed use.

(f) CONSTRUCTION OF WASTEWATER SYSTEM: No building permit for construction, location, or relocation shall be issued until after a decision of completeness of the Notice of Intent is made by the local health department pursuant to G.S. 130A-336.1(c). Construction of the wastewater system shall not commence until the system design, plans, and specifications have been provided to the on-site wastewater system contractor and the signed and dated statement by the contractor is provided to the owner, pursuant to G.S. 130A-336.1(e)(4)(b). The owner is responsible

for assuring no modifications or alterations to the site for the wastewater system or the system repair area are made as a result of any construction activities for the facility before or after construction of the wastewater system, unless specifically approved by the design professional engineer, licensed soil scientist, or licensed geologist, as applicable.

(g) POST CONSTRUCTION CONFERENCE: Attendance of the Post-Construction Conference required pursuant G.S. 130A-336.1(j) by the authorized agent of the local health department and by the Department (for systems designed for the collection, treatment, and disposal of industrial process wastewater or to treat greater than 3,000 gallons per day) is for the purpose of observing the location of the system and start-up conditions.

(h) AUTHORIZATION TO OPERATE: Prior to providing written confirmation for Authorization to Operate, the local health department shall receive the following:

(1) Documentation that all reporting requirements identified in G.S. 130A-336.1(l) have been met;
(2) Information set forth in Rule .1938(h) of this Section;
(3) System start-up documentation, including applicable baseline operating parameters for all components;
(4) Documentation by the owner or their legal representative that all necessary legal agreements, including easements, encroachments, multi-party agreements, and other documents have been properly prepared, executed and recorded in accordance with Rules .1937(h) and .1938(j) of this Section; and
(5) Record drawings.

The local health department shall use the State-approved form for written confirmation.

(i) OPERATION: The owner of the wastewater system approved pursuant to the EOP is responsible for maintaining the wastewater system in accordance with the written operation and management program required in G.S. 130A-336.1(i)(1) and .1961 of this Section.

(1) The operation and management program shall identify the system classification in accordance with Table V(a) of Rule .1961 of this Section.
(2) The operator required pursuant to G.S. 130A-336.1(i)(2) shall inspect the system and submit reports in accordance with Rule .1961(f) of this Section and the written operations and management program provided by the design professional engineer.
(3) The owner shall notify the local health department and the registered professional engineer who designed and certified the system permitted under this Rule of any site changes, changes in the operator or operator' duties, or any changes in ownership.

(j) SYSTEM MALFUNCTION: For systems permitted under this Rule, the owner shall contact the design professional engineer, project licensed soil scientist, licensed geologist, and contractor, as appropriate, for determination of the cause of system malfunction in accordance with Rule.1961(a) of this Section. For repair of a malfunctioning EOP system, this Rule shall be followed in conjunction with Rule .1961(l) of this Section. The operator shall notify the local health department within 48 hours of the system malfunction in accordance with Rule .1961(f) of this Section.

(k) LOCAL HEALTH DEPARTMENT RESPONSIBILITIES: The local health department is responsible for the following activities related to the EOP system:

(1) Perform a completeness review of the Notice of Intent to Construct to verify inclusion of information required by this Rule and indicate written verification of completeness determination;
(2) Attend the post-construction conference to observe location of system components and start-up conditions;
(3) Provide written confirmation of Authorization to Operate upon receipt of complete information required by this Rule;
(4) File all EOP documentation consistent with current permit filing procedures at the local health department;
(5) Submit a copy of the final Notice of Intent common form and written confirmation of Authorization to Operate to the Department;
(6) Review the performance and operation reports submitted in accordance with Table V(b) of Rule .1961 of this Section;
(7) Perform on-site compliance inspections of the wastewater system in accordance with Table V(a) of Rule .1961 of this Section;
(8) Investigate EOP system complaints;
(9) Issue a notice of violation for systems determined to be malfunctioning in accordance with Rule.1961(a) of this Section. The LHD shall direct the owner to contact the design professional engineer, project licensed soil scientist, licensed geologist, and contractor, as appropriate, for

determination of the reason of the malfunction and development of a Notice of Intent to Construct for repairs; and

(10) Require an owner receiving a notice of violation to pump and haul sewage in accordance with Rule .1961(m) of this Section.

(l) CHANGE IN PROFESSIONAL ENGINEER: The Owner may contract with another registered professional engineer to complete an EOP project. An updated Notice of Intent shall be submitted to the local health department.

History Note: *Authority G.S. 130A-335; 130A-336.1;*
Temporary Adoption Eff July 1, 2016.

2016/2017 Environmental Health Fees		30%
Soil/Site Evaluation	$240.00	$72.00
Site Revisit Fee	$70.00	
Authorization to Construct Type I, II, IIIacdefg	$250.00	$75.00
Authorization to Construct Type IIIb	$485.00	$145.50
Authorization to Construct Type IV	$730.00	$219.00
Authorization to Construct Type V	$1,250.00	$375.00
Authorization to Construct Type VI	$2,000.00	$600.00
New Well Permit	$365.00	
Replacement Well Permit	$365.00	
Well Repair Permit	$250.00	
PVC Camera Inspection	$120.00	
Manufactured Home Park Existing System Check	$75.00	
Existing System Check	$75.00	
Existing System Check for Plat	$75.00	
Bacterial H2O Sample	$40.00	
Chemical H2O Sample	$85.00	
Full Inorganic Panel (Inorganic, Chemical, Barcteriological & Nitrate)	$110.00	
Nitrate H2O Sample	$45.00	
Petroleum H2O Sample	$100.00	
Volatile Organic Compounds (VOC) H2O Sample	$100.00	
Pesticide H2O Sample	$100.00	
Tattoo Permit Application	$175.00	
Swimming Pool Permit Application (each pool)	$115.00	
Swimming Pool Plan Review	$285.00	
Restaurant Plan Review	$250.00	
Temporary Food Establishment Permit Application	$75.00	
Limited Food Service Establishment Permit Application	$75.00	
PLEASE BE ADVISED THAT ALL PAYMENTS ARE FINAL AND NO REFUNDS OR TRANSFER OF FUNDS ARE POSSIBLE. BY SIGNING AND SUBMITTING YOUR PAYMENT YOU ARE AGREEING TO THESE TERMS AND CONDITIONS.		