Appendix D. Summary of Public Comments with Staff Replies

SUMMARY OF PUBLIC COMMENTS WITH DIVISION STAFF REPLIES

MONITORING RULES FOR ANIMAL OPERATIONS

Description

This appendix presents Division staff's summary of the written and oral public comments that were received during the 60-day public comment period. A staff reply follows each summarized comment or group of comments on an issue. We attempted to provide all commenters the ability to view staff replies to their comments.

The following page provides a linked Table of Contents. The succeeding six pages provide a full list of all individual commenters grouped by type. A unique number is assigned to each commenter for reference within the body of the document. The links will take the reader to the full comment that was submitted. For those who only submitted oral comments at public hearings, the link will take the reader to the summary of comments for that hearing (Statesville, Kenansville, etc.).

The body of the document is structured as a table:

- The first column provides an ascending comment number, #1 - #40.
- The second column compiles the commenter numbers of all of the individual commenters who made that comment or a comment within that comment group. This column reflects the frequency of a given comment/comment group.
- The final column is the summarized comment/comment group and staff's reply.

Guidance on Searching for Individual Comments

To find an individual party's comments and staff replies, first find the unique number for that party in the commenter list. Search the document for that number using the 'Find' tool under 'Edit'. In the 'Find' dialog box, click 'More', then click 'Format' and select 'Highlight'. Finally, type the unique commenter number in the "Find What" box and click "Find Next" to search for the comments.

List of Commenters

Government Organizations

1. Alexander County Board of Commissioners
2. City of Raleigh
3. North Carolina Department of Agriculture & Consumer Services
4. North Carolina County Soil and Water Conservation Districts
    a. Cumberland County
    b. Guilford County
    c. Sampson County
    d. Robeson County
    e. Richmond County
    f. Johnston County
    g. Columbus County
    h. Wilkes County
    i. Alleghany County
5. North Carolina Soil and Water Conservation Commission
    a. Agriculture Task Force
6. Sampson County Tax Administrator
7. Town of Harrells, Mayor #1
8. Town of Harrells, Mayor #2

Business/Professional Organizations

9. Alum Springs, LLC
10. Anson County Farm Bureau
11. Cape Fear Farm Credit
12. Clinton Truck & Tractor Co., Inc.
13. Cleveland County Farm Bureau
14. Coharie Farms
15. The Hanor Company of Wisconsin, LLC
16. Haywood County Farm Bureau
17. Maxwell Foods, Inc.
18. Murphy-Brown, LLC
    a. Kraig Westerbeek
    b. David Nordin
    c. Robert Britt
19. NC Cattlemen's Association
20. NC Dairy Producers Association
21. NC Egg Association
22. NC Farm Bureau Federation 7-14-09
23. NC Farm Bureau Federation 6-9-09
24. NC Poultry Federation
25. North Carolina Pork Council – Deborah Johnson (NCPC)
26. North Carolina Pork Council – Tim Craig
27. Onslow County Farm Bureau
28. Robeson County Farm Bureau
29. Rockingham County Farm Bureau
30. Sampson Regional Medical Center
31. Scotland County Farm Bureau

Environmental/Non-profit Organizations

32. Neuse Riverkeeper Foundation
33. New River Foundation, Inc.
34. Southern Environmental Law Center
35. Waterkeeper Alliance

University/Academia

36. Dr. Jay Levine
37. Dr. John Classen & others
38. Dr. William Showers
39. NC State University Dept. of Soil Science

Individual – Opposed – Submitted at Public Hearings in Writing

40. Barefoot, Carlton
41. Beatty, Albert & Ada
42. Bennett Place Nursery
43. Brewer, Steve
44. Dail, Edward
45. Gladden, Jon
46. Grose, Roy
47. Howard, Darryl
48. Johnson, Everett
49. Lamb, James
50. Livingston, Bob
51. Lutz, Wayne
52. Matthis, Steven
53. Naylor, Robert
54. Rice, Ben #1
55. Rice, Ben #2
56. Singletary, Isaac
57. Smith, Timothy
58. Winn, Kay #1
59. Winn, Kay #2

Individual – Opposed

60. Allen, Roger Dale
61. Bailey, Dan
62. Ballance, Deborah
63. Banks, Wayne
64. Barrow, Jake
65. Bass, Billy
66. Black, III, L.D.
67. Bode, John
68. Butler, Tom

69. Britt, Dean
70. Chase, Donald & Brenda
71. Cheek, Rodney
72. Cowan, Douglas & Marian
73. Darden, Lew
74. Davis, Jim
75. Draughn, James
76. Freedman, Bill & Pearl
77. Gooch, John
78. Grose, Roy Neal
79. Hatcher, Amanda
80. Johnson, Neal
81. Langdon, Steve
82. Lewis, Miriam
83. Locklear, Charles
84. Lutterloh, Charles
85. Mann, Gary
86. Matthis, Thomas
87. Minnich, John
88. Myers, Barry
89. Neimond, Doug
90. Outlaw, Ben
91. Overman, Lorenda
92. Parker, Joel
93. Pearsall, Elbert
94. Pittman, James
95. Porter, Tommy & Vicky
96. Raines, Brenda
97. Rice, Ben #3
98. Sessoms, F. Minson
99. Sheffield, Gray
100. Smart, Donald
101. Smith, George
102. Spearman, Becky
103. Souther, Jerry Arnold
104. Stevens, Ed
105. Strickland, Pete
106. Stroup, Eddie
107. Tyndall, Robert
108. Tyndall, (First Name Illegible)
109. Weaver, Jay
110. Wells, DeKalb & Benita
111. West, Kevin
112. Wynne, Norwood
113. Form Letter #1 – 13 copies
114. Form Letter #2 – 14 copies
115. Form Letter #3 – 17 copies
116. Form Letter #4 – 12 copies
117. Form Letter #5 – 12 copies
118. Form Letter #6 – 13 copies
119. Form Letter #7 – 24 copies

Individual – In Favor – Submitted at Public Hearings in Writing

120. Bishop, Stephanie
121. Langrish, Art
122. Somerday, Joanne
123. Weston, Dale
124. Young, Gail

Individual – In Favor

125. Almond, David
126. Austin, Robert
127. Beacham, Molly
128. Binford, Sandra
129. Bixby, Robert
130. Brockelman, Judith
131. Burleson, Ken
132. Burnette, Sam
133. Cavalier, Corey
134. Clark, Diane
135. Combs, Cole
136. Cook, Marcy
137. Davidson, James
138. Dees, Roberta
139. Devore, James
140. Gale, Kathleen
141. Guo, Merrybelle
142. Hiteshue, Mindy
143. Houser, Michael
144. Johnson, Sarah
145. Jones, Cathy
146. Jurgelski, Annette
147. Kane, Bernard
148. Malpass, Betsy & HR
149. McElhaney, Mabel
150. Mueller, John
151. North, Linda
152. Nowlin, Colin
153. Payne, Heather
154. Petrocelli, Piper
155. Priest, Karen
156. Rooney, Melissa
157. Ryan, Margaret
158. Schermerhorn, John & Kathy
159. Schucker, Margaret
160. Sikes, Ginger
161. Smith, Laura
162. Triutt, Kim
163. Vann, Julie
164. Warren, Kay
165. Weissbeck, Jan

166. Wood, Ann
167. Woods, Terry
168. Young, William
169. Form Email #1 – 218 copies
170. Form Email #2 – 148 copies
171. Form Email #3 – 88 copies
172. Form Email #4 – 133 copies
173. Form Email #5 – 34 copies
174. Form Email #6 – 9 copies
175. General Support – 8 emails

Statesville Hearing – Oral Comments Only

176. Lutz, Wayne
177. Hood, Clarence
178. Johnson, Everett
179. Payne, Myles
180. Porter, Tommy
181. Gray, Jimmy
182. Howie, Jim
183. Dodson, James
184. Payne, Jason
185. Benson, Brian
186. Holland, Doug

Kenansville Hearing – Oral Comments Only

187. Stanley, Bobby
188. Naylor, Arthur
189. Arthur, Leon
190. Smith, D.J.
191. Dail, Edward
192. Strickland, Clay
193. Bell, Patrick
194. Phillips, Marshall
195. Hall, Tim
196. Waitus, English
197. King, Craig
198. Humphrey, Jennings
199. Kilpatrick, Baird
200. Gooden, Channing
201. Thornton, Craig
202. Pickett, Bill
203. Barker, Kathy
204. Morgan, Grey
205. Gooden, Alex
206. Gillespie, Charles
207. McKoy, Dorothy
208. McKoy, Marie
209. Butler, Don
210. Harrison, Mary Ann
211. Sanders, Tess
212. Sanders, Lainie
213. Weston, Dale
214. Toltzman, Douglas
215. Kramer, William
216. Jacobson, John
217. Hatcher, Sarah
218. Baron-Hall, Dothula

Raleigh – Oral Comments Only

219. Webb, Don
220. Cornelius, Greg
221. West, Gene
222. Kornegay, Bob
223. Humphrey, Edward
224. Warren, Gerald
225. Moore, Bill
226. Langdon, John
227. McLamb, Jimmy
228. Carter, Derb
229. Moore , Phil
230. Phillips, Marshall

Williamston – Oral Comments Only

231. Spain, Randy
232. Deck, Heather
233. Jones, Russ
234. Sykes, Lervern
235. Fisher, Linda
236. Smith, Ephraigm
237. Wood, Katie
238. Russ, Tony
239. McLamb, Jimmy
240. Lane, Bundy
241. Armstrong, Terry

Summary of Public Comments

Subject	Commenter #	**(1) General Comments – Cost and Benefit**
1	35, 126, 127, 128, 133, 136, 140, 141, 144, 150, 154, 169, 170, 171, 172, 173, 174	**General Comments on Rules – In Favor** • Postponing action inflates the cost of cleanup. If steps are taken now to reduce the impact of CAFOs on surface waters, it will be easier to clean up impaired waters. • By producing improvements in permit compliance and waste management practices, this Rule will provide the definable water quality improvements of cleaner and healthier waterways. • The proposed rules are capable of detecting, isolating, and quantifying the pollution contributions to state waters from individual facilities while still remaining sensitive to the economic and logistical needs of the rule implementers. • The rules are needed to evaluate the performance of the waste control measures required of large livestock operations, and to better understand the water quality impacts associated with CAFOs. • Monitoring of animal facilities will efficiently and effectively reduce the environmental and human health impacts caused by animal waste discharges. • This rule embodies a targeted and workable alternative that protects NC's economy, environment, and health of its citizens. • The rules are needed to ensure that CAFOs are properly handling their waste and complying with the law, which will protect water quality. • We cannot fix or prevent problems if we do not have a way of monitoring what is happening. • Several recent programs have shown pollution problems that can happen as a result of CAFOs (Food, Inc. and FRONTLINE on PBS).
		Reply: *We agree that these rules are needed. The goal of this rule is to help identify issues on specific farms that can be addressed. Water quality monitoring at animal operations is one tool of many that DWQ can use, along with ambient monitoring data and inspections by staff. Monitoring data at animal operations is one tool that has been missing up to this point. By addressing issues that are uncovered, we can improve water quality or prevent water quality impairment. An additional benefit includes protection of unimpaired streams in the watershed, and benefits to downstream areas.*
2	3, 4b, 7, 13, 15, 18a, 22, 28, 44, 49, 62, 63, 64, 66, 72, 75, 78, 85, 87,	**General Comments on Rules - Opposed** • Requiring this monitoring of all farmers penalizes good farmers and directs agency resources away from concentrating on problem farms.

	88, 89, 96, 97, 99, 109	• The petitioners are against the animal agriculture industry in general, and are trying to drive it out of business. • The proposed rules are too burdensome for operators to comply with on top of the existing requirements. • The money proposed to be spent on sampling in this rules could be better spent. Farms that spend this money may not have money left to implement needed BMPs. • The proposed rules assume that all farms are in violation. The swine industry as a whole has a very good compliance record, and we are responsible operators. • Farmers make their living off of the land and are interested in protecting water quality. • The proposed rules will not improve water quality. Testing does not prevent environmental problems.
		Reply: *We agree that testing by itself will not improve water quality. However, testing is the first step to water quality improvement. Once issues are identified, resources can be directed to help fix problems.* *We do not feel that these rules are overly burdensome. The purpose of DWQ developing the plans is to help relieve some of the burden from the farm owners.* *One of the goals of this rule is to help determine where money for BMPs can be effectively spent. Not all BMPs are effective in all situations, and they may not be needed at all farms. Monitoring of surface waters can show where problems may exist, and money can then be spent to correct identified issues.*
3	22, 132	**Scope** • The Petitioners appeared to be asking the EMC to direct attention to tile drain outlets and the possibility that pollutants may enter surface waters from drain tiles. The scope of these proposed rules goes way beyond tile drains, and extends to all permitted animal operations, whether or not they have tile drains. • If rules are adopted, they should only apply to problem facilities identified during inspections, not to all permitted animal operations. • The rules should apply only to the industrial-type farms, and not the small farmer with only a few cows.
		Reply: *The original petitions do look at tile drain outlets. However, they also focus on other possible discharge points such as groundwater lowering ditches, natural field ditches, and grassed waterways. Water quality impacts related to these features are possible from any land application system, not just problem facilities.* *These rules apply to all permitted animal operations (see 2T .1311). They do not apply to pasture based operations or those with only a few animals.*

4	4b, 4c, 4i, 9, 10, 13, 15, 17, 19, 21, 22, 24, 27, 29, 31, 57, 50, 40, 42, 44, 46, 54, 58, 60, 62, 64, 65, 66, 67, 70, 71, 72, 73, 75, 76, 77, 82, 83, 84, 85, 86, 87, 90, 92, 93, 96, 98, 99, 100, 101, 102, 105, 110, 111, 112, 113, 115, 116, 117, 118, 119,	**Costs – Affordability** • The costs of these rules are too high for the limited data and water quality benefit that will be generated. • We continue to operate in a severely depressed market and have lost many producers this year that could no longer hold on. This cost for additional monitoring could be the tipping point for many producers. • The past several years, producers have faced many challenges such as high input costs, and depressed markets. The cost associated with monitoring will add significantly to an ever increasing cost for operating and managing a farm. • Even in healthier economic times, small operations cannot bear the burden that these rules would impose. • Dairy operations cannot afford the extra burden of $1,700 in operating expenses. • Taking three whole days of productivity each year from a member of a farming family for monitoring and associated travel time is too much to ask. In addition, it is environmentally irresponsible use of energy to perform all of the travel that will be required. • This proposal is an inefficient use of the State's and farmer's resources. • The proposed rules are too costly for small farms. The cost for a dairy with 100 cows is the same as a farm with 1,000 cows or 10,000 pigs. It would take ten or more operations of my size to have a similar environmental impact to these larger operations.
		Reply: *We are sensitive to the issue of cost and how it will affect the farms regulated by this rule. We do recognize that while the animal industry in NC is large, most of the animals are raised on individually owned farms. We also recognize that the costs of the monitoring will fall on the individual farm owners, and not the industry overall. This is a major reason for the cap on the number of sample events and sample points in the rules.* *As we discuss in item number 28, we have agreed to remove fecal coliform and BOD from the list of routine monitoring parameters. We feel that we will be left with the minimum number of sample points and events that we feel can still provide useful data. The removal of fecal coliform and BOD from the routine monitoring list will result in a cost reduction of approximately $400 from the amount stated in the fiscal analysis.*
5	35, 147	**Costs – Affordability** • The cost estimate for the monitoring is only 40 cents per hog (10 million hogs, $4,000,000 program). This is a trivial incremental cost of pork production. It also contrasts dramatically with the per capita cost of municipal waste treatment. • Municipalities have committed many hundreds of millions of dollars to cleaning up streams, these rules are needed to keep that money from being wasted. • Improvements in water quality provide clear monetary benefits that will be outweighed by the cost of

		implementing the rule. Improvements include: • Recreation/tourism • Reduced fish kills • Improved fish/shellfish harvest • Improved drinking water quality • Improved public health • Preventing water quality problems ahead of time is far less expensive than using taxpayer money to clean up pollution after the fact, and this rule places the cost burden on the responsible party. • An ideal rule would have required more sampling locations, and more sampling events, as well as groundwater sampling. The rule in its current form is sensitive to economic impacts.
		Reply: *We agree that the rule as written and amended is sensitive to economic impacts. See the above comments for replies that address these comments.* *We agree that there is an economic benefit to improved water quality, and that it is fair to require monitoring of animal operations.*
6	20, 22, 24	**Costs Underestimated – Number of Farms Affected** • DWQ did not account for any new or expanding dairy or wet poultry operations that will be immediately affected by the rule. • If dry litter poultry farms were to apply for NPDES permit, they will be required to monitor. The fiscal note did not account for this possibility. • The fiscal note did not account for the possibility that High Rock Lake and Lake Rhodhiss may be declared Nutrient Sensitive in the future. A lot of the State's dairy operations are in these areas. • Dairy operations in the state have actually decreased by greater than 100 during the last five years, many of these being permitted operations. These rules would be very costly for an inactive operation.
		Reply: *If High Rock Lake and Lake Rhodhiss (or any other lake) are declared nutrient sensitive in the future, the farms in these watersheds will be added to the list based on the level of contribution to the impairment by animal operations. Discussions with DWQ planning staff indicate that it will be several years before any nutrient strategy is developed for the High Rock Lake watershed. DWQ planning staff also indicate that Lake Rhodhiss is not currently a priority for a nutrient strategy.* *The rule does call for any new or expanded operation, located anywhere in the state, to develop a monitoring plan when they submit their permit application. As a result, these operations will have monitoring requirements in their permits upon*

		issuance. As with existing operations, the new or expanding operations can request a reduction in monitoring in accordance with Rule .1310(b)(6). *If at some point in the future, if dry litter poultry operations become permitted, they would be subject to the monitoring rules on the same schedule (.1311(c)), as the operations that are currently permitted.* *An inactive farm is generally one that has gone out of business, but has not closed the lagoon/storage pond. Because the lagoon/storage pond is still open, they are required to remain permitted. Because there is very little land application occurring in these cases (usually just to maintain freeboard), we do not plan on developing monitoring plans for these operations.*
7	14, 17, 22, 24, 25	**Costs Underestimated – Sampling Costs** • DWQ assumed that only 25% of farmers will contract the sample collection to a 3rd party, and that the other 75% will do it themselves. The reverse is more likely, due to the complex sampling required. This could add as much as $700,000 to the overall cost in the fiscal note. • Four of the ten labs contacted by DWQ do not provide sampling service, and two do not provide pick-up service. This will increase costs if the farms have to contract with labs that are further away. • Many operations are in rural areas without access to nearby testing facilities. This would increase their costs. • I have received estimates from a highly respected environmental firm regarding this monitoring that the petitioners are seeking. The cost to our farming operations would be from $2,000 to $3,000 per farm per year. We cannot set prices, but must take what the markets bear. These costs cannot be passed on to the consumer. • Several factors were not taken into consideration. The necessity of using 3rd parties for sample collection, for developing the sampling regime, the time required to manage the overall program, inflation, and the current state of the economy were not considered. • Industry groups would need to spend additional funds for public relations and marketing as a result of this rule.
		Reply: *The Division has been held accountable for the fiscal analysis. The Commission, DENR's Division of Budget, Planning and Analysis, and the Office of State Budget and Management, have all had formal opportunity to review and comment on the fiscal analysis, and we have made a number of revisions as a result of their input.* *For lab costs, the Division contacted ten laboratories that are located in the watersheds in Rule .1311. The costs in the fiscal note come straight from those laboratory representatives. It is possible that the costs will be more or less based on a*

		particular farm's location. *The necessity of using a 3rd party for sample collection was considered, and that estimate cost is included in the fiscal analysis. The value of a farm owner/operator's time, while difficult to quantify, was considered in the fiscal analysis as well, using data provided by the Employment Security Commission.*
8	21, 22, 58, 89	**Cost to the State** • We do not understand how these rules can be implemented with no staff cost to DWQ, when DWQ will have to develop all of the monitoring plans (including site selection), enter data into a database, and interpret the data. • Other duties include training (both internal and external), dealing with public and permittee inquiries, and enforcing compliance with the rule – yet there is no increase in DWQ staff projected. • With budget cutbacks, it is hard to see how anyone will find the time to give this data the attention it will need. With 2,200 farms, 3 locations, 3 sample events, and 5 parameters, that is almost 100,000 pieces of data per year. Who will have time to analyze this data?
		Reply: *We agree that the Division will face costs at least in terms of workload realignment and would benefit from additional staff resources to most effectively implement the rules.* *The reduction in parameters to be analyzed will slightly reduce the workload on DWQ.*

(1) General Comments – Need for Rulemaking

Sub	Commenter #	Subject
9	1, 4b, 4h, 4i, 10, 13, 15, 16, 17, 18a, 19, 20, 22, 24, 25, 27, 40, 41, 43, 49, 52, 53, 54, 56, 57, 58, 62, 63, 65, 66, 70, 72, 74, 79, 80, 81, 82, 83,	**Current Regulations are Adequate** • DWQ can require both surface and groundwater monitoring at problem farms at any time DWQ feels it is necessary – from the State General Permit: "The Division may require any additional monitoring and reporting (including but not limited to groundwater, surface water or wetland, waste, sludge, soil, lagoon/storage pond levels and plant tissue) necessary to determine the source, quantity and effect of such waste upon the surface waters, groundwaters, or wetlands." • There are two inspections annually by DENR (one by DWQ, one by DSWC) on all farms that would be

	84, 87, 88, 91, 93, 94, 95, 98, 101, 102, 103, 104, 106, 107, 108, 110, 111, 114, 118, 119	impacted by this rule. Problems can be identified during these inspections and monitoring can be required at problem facilities. • If these inspections are done properly, issues will be identified before problems occur. DWQ can perform as many follow-up inspections as needed to verify compliance and make sure problems are addressed. • Nutrient management plans and proper operation of farms provide real protection of surface water, not sampling. • The certified animal waste management plans in place are scientifically-based plans for operators to follow to keep illegal discharges from occurring. The plan includes rules based on realistic yield expectations, nitrogen factors, soil types, and crops, among others. These rules were developed with years of research and with guidance from state universities and agencies that have years of experience in this field. • Requiring monitoring of all farmers in a watershed penalizes good farmers and directs agency resources away from concentrating on problem farms. • Maxwell Foods conducts well sampling on their farms, and has not seen any indications of impact on groundwater. • A study conducted by Agri-Waste Technology (AWT) on behalf of the NC Pork Council shows that there is more than adequate capacity for the application of nutrients from swine farms, even in the largest swine producing counties. For the top 30 swine producing counties, swine waste only accounts for approximately 10% of the nitrogen and 30% of the phosphorus needed for annual crop production. • The additional requirements of this rule will only serve as a punishment to permittees, especially those who operate safe and efficient farms. • A study conducted by the University of Nebraska shows that among the 10 highest swine producing states, NC has the most stringent regulations in the country already. • The largest farms in the state have already run the Phosphorus Loss Assessment Tool to address the transport of phosphorus off site. The new permits allow DWQ to require PLAT for all farms in nutrient sensitive watersheds. It is important to note that less than 1% of fields receiving animal waste from hog farms assessed so far rated high to very high on PLAT. • The amount of nitrogen and phosphorus in manure has drastically decreased over the years due to improved feed conversion and addition of phytase to feed. On some farms, crops are actually under-fertilized because of this. • Animal operations were all required to meet design standards at the time of design. No method other that the current system has been found to manage waste in an economical manner. • Many of the pictures presented at the public hearings were old. It is reasonable to assume that these problems were reported to DWQ, and that they were dealt with at that time, and that these conditions no longer exist

		today. Such evidence presented in the future should have a date stamp. • If there are problems, better enforcement of current rules should be the priority. *Reply:* *The comment is correct that DWQ can currently require additional monitoring through existing permit conditions. Conditions similar to this one are included in nearly every permit issued by DWQ. However, this permit condition is generally reserved for problem facilities, and not for broad, program-wide planning purposes. Further, using this permit condition to require all animal operations to perform monitoring would likely be viewed as a circumvention of the rule-making process. Using the rule-making process to implement the monitoring plans is the fairest process to all interested parties, and has allowed all interested parties to have their voices heard on the topic.* *The twice-yearly inspections by DENR can identify issues before they become large problems. However, routine inspections are not able to identify overall impacts such as the concentration of nutrients in drain tile outlets, seepage from lagoons, and long-term groundwater flow to ditches and streams. Monitoring of surface waters is one more tool we can use to help identify these issues.* *The Certified Animal Waste Management Plans (CAWMP) that are in place at farms do specify that waste be applied at agronomic rates, and they do certify that proper lagoon sizing and fields are in place to prevent major problems. However, having a CAWMP in place does not assure that there will be no long-term impacts to surrounding surface and ground waters.*
10	4b, 5a, 16, 22, 25, 54, 70, 72, 78, 110, 117,	**Rules Not Needed** • Frontline Farmers report shows that swine farms are not causing water quality issues in eastern NC. • Water keepers assume that animal waste moves by preferential flow through soil into drain tiles or nearby surface waters. The soil conditions in eastern NC are different than the studies cited by the Water keepers. Soils in eastern NC do not have the large cracks that allow for preferential flow, meaning that waste moves through the soil much slower. This allows for attenuation of any pollutants due to microbial activity and plant uptake. • Swine operations have improved over time, as evidenced by the number of Notices issued by DWQ over the past several years. • Fish kills have been happening for over 100 years. They can happen anytime the water temperature gets too hot and lowers the oxygen level. • It is unfair to require additional testing in areas where there are few, if any problems. • Health effects of swine farms are greatly exaggerated. If farms were such a threat, workers on these farms would get sick more frequently than the average population, and this isn't the case. • We drink the water from wells on our farm, as do the animals. There have been no health effects from the water.

		• The Second Circuit Court in 2005 held that all Large CAFOs were not required to obtain NPDES permits due to the fact that they do not all discharge. This rule assumes that they do. • The Second Circuit Court in 2005 held that Agricultural Stormwater is exempt from the discharge provisions of the EPA CAFO Rule. Requiring sampling because of nutrients leaving the spray field is inconsistent with this ruling.
		Reply: *It is true that most eastern NC soils do not have large cracks that allow for preferential flow. However, we have witnessed issues due to drain tiles in the past. Causes include over-application, application immediately before or after rainfall events, and application before of after irrigation of fresh water.* *In addition, nutrients can enter surface waters from drain tiles when preferential flow is not a factor.* *This rule does not assume that all farms will discharge. What this rule does, is require farms to monitor for possible discharges, and to monitor for possible long-term impacts that would not be observed as a discharge of waste.* *For comments addressing fish kills, see the response to comments 12 and 13. For responses on the public health issues, see comment 15.*
11	2, 32, 33, 34, 35, 120, 129, 134, 139, 143, 149, 153, 155, 157, 162, 166, 173	**Rules are Needed** • The current regulatory scheme does not help determine whether CAFOs are complying with their requirements to operate as non-discharge facilities. CAFOs need a system in place to monitor for discharges in order to be sure that they are in compliance. • The proposed rules are in line with the Neuse Basin Plan, which calls for research to "Quantify the potential magnitude of nutrient loading from spray fields, directly from animal housing and holding, and waste storage facilities of confined animal feeding operations." • Less than 1/3 of CAFOs have participated in a cost-share program for implementation of voluntary BMPs. See Neuse Plan, Chapter 19.2. • At the USGS Lizzie Research Station located in Greene County, researchers have found increased concentrations of nitrate and other chemical constituents in the groundwater beneath sprayfields. The nitrate and other chemical constituents ranged from 10 to 35 mg/L with one concentration as high as 56 mg/L. During the four years of spray applications, groundwater nitrate levels increased by a factor of 3.5. • The rules are needed to ensure that water quality and public health are protected from the discharges of prohibited pollutants into our waters from swine animal waste management facilities. • Science shows that even with CAWMPs, these facilities do discharge waste from their spray fields into both

		surface waters and ground waters even when applied at recommended rates. • The Clean Water Act requires persons who discharge pollutants into waters of the US from a point source to monitor that discharge. • Confinement facilities typically fail to have the land required to properly apply large amounts of waste they generate. Disposal of manure on an insufficient amount of land results in runoff and leaching of waste into surface and groundwater. • Seepage from older lagoons has been documented in several studies, notably a study by NC State in 2004. • The USGS has stated that 50% of the nitrogen and 75% of the phosphorus come from agricultural fertilizers, and only 5% comes from municipalities. • The rules will give state officials and the public the ability to evaluate the impact of large livestock operations on water quality, and to determine trends over time. • We have witnessed 3 fish kills in the lower Neuse watershed. These fish kills can be scientifically traced back to the swine industry as being a major contributor to the high nutrient loads that result in fish kills. • The rules will allow determinations to be made on the impact of CAFOs, especially during times of heavy rainfall. • Many farms are grandfathered in under older rules, which can lead to surface and groundwater issues. The lagoon system itself is subject to malfunction and seepage and runoff issues • With NC's population growing water use will continue to increase. Monitoring to ensure a clean water supply is needed. Eliminating preventable pollution is one of the most efficient ways to ensure a safe water supply.
		Reply: *DWQ agrees that monitoring information from animal operations is needed. As research shows, animal operations are a source of pollutants into surface waters. These rules will be able to help identify issues that can be corrected, resulting in water quality improvements.* *The USGS research at the Lizzie Farm shows that CAFOs can impact surrounding surface waters, even when operating in compliance with their permits.* *Replies addressing grandfathered rules and farms that were built according to existing standards can be found in topic 14.*
12	7, 12, 87	**Current Condition of River Basins is Good** • The Sampson/Duplin/Bladen region has the highest concentration of hogs in the world. Yet our waterways remain some of the cleanest and most pristine in the state. • The Black River is classified as an Outstanding Resource Water (ORW). This river runs through the heart of hog country.

		• There is no proof that swine farms are causing impairment.
		Reply: *We received a lot of comments stating that the Black River basin has outstanding water quality, even with the high number of swine operations. The Environmental Sciences Section of DWQ looked into the present data on the watershed. The findings are summarized below:* *1. DWQ conducted the Black and South River Outstanding Resource Waters (ORW) evaluation in 1989 and 1990. This was prior to the large increase in animal feeding operations in the southeastern part of the State. The study concluded that areas eligible for ORW designation included all of the Black River, the South River below Big Swamp, and Six Runs Creek below Quewhiffle Swamp. This conclusion was based upon excellent water quality, recreational use/potential, and ecological/scientific value of the waterbodies. Headwater areas and tributary streams did not qualify as ORW due to nonpoint source impacts.* *Based upon this report, the Black River from its source to the Cape Fear River (Stream Index No. 18-68) and the South River from Big Swamp to Black River (Stream Index No. 18-68-12-(8.5)) were supplementally classified as ORW:+ on June 01, 1994. The "+" symbol signifies that a special management strategy also applies to protect the designated ORW areas.* *2. DWQ has limited fish community assessment monitoring data from the ORW area (i.e., Colly Swamp, Diversion Canal, and Crane Creek). Despite naturally low fish abundances and species diversity, all of the fish communities sampled were characteristic of unimpacted and fully functioning streams and showed no obvious signs of degraded water quality. However, due to the ongoing revision in the NCIBI scoring and rating criteria for Coastal Plain ecoregions, fish community sites in this basin were not rated.* *3. Between 1996 and 2008 17 fish kills were reported to DWQ in the ORW area. The total fish killed was 11,500. The causes for the kills were the illegal discharge of sweet potato waste, illegal discharges from hog waste lagoons, depressed dissolved oxygen conditions due to hurricanes Fran and Bonnie, and to unknown causes.* *4. Benthic macroinvertebrate data from 29 sites in the ORW area are presented in Table 1 and Figure 1. The biological ratings for the eight sites (waterbodies) supplementally classified as ORW have generally been Good or Excellent.* *5. Two state Special Concern species of fish, the "Broadtail" Madtom, Noturus sp. cf. leptacanthus, and the "Thinlip" Chub, Cyprinella sp. cf. zanema, are found in the ORW area. According to F. C. Rohde, during the late 1970s, the "Thinlip" Chub was very common in the Black River in Sampson County. However spills from concentrated animal operations in the 1980s and 1990s have drastically reduced its numbers there. A recommendation by the the North Carolina Wildlife Resources Commission's Scientific Council on Freshwater Fishes to be submitted to the Nongame Advisory Committee by September 2009 is seeking to re-classify both species as State Threatened due to their declines resulting from increasing developmental pressure and runoff from confined animal operations.*

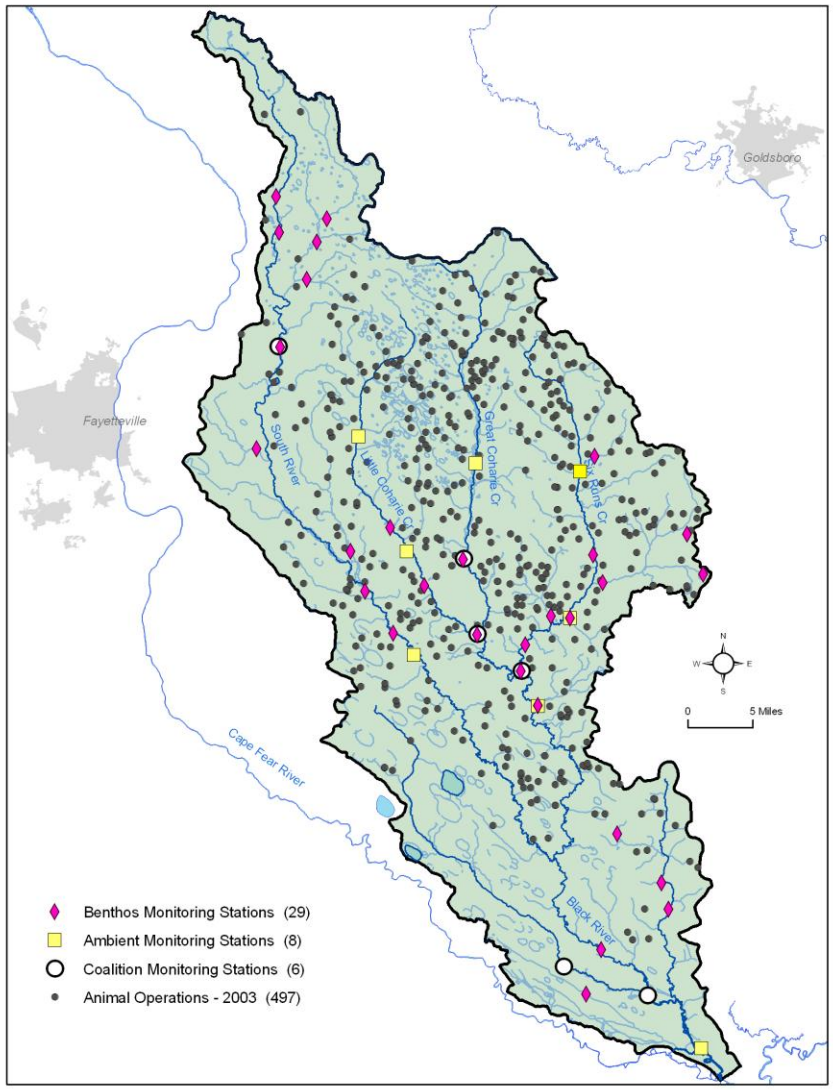
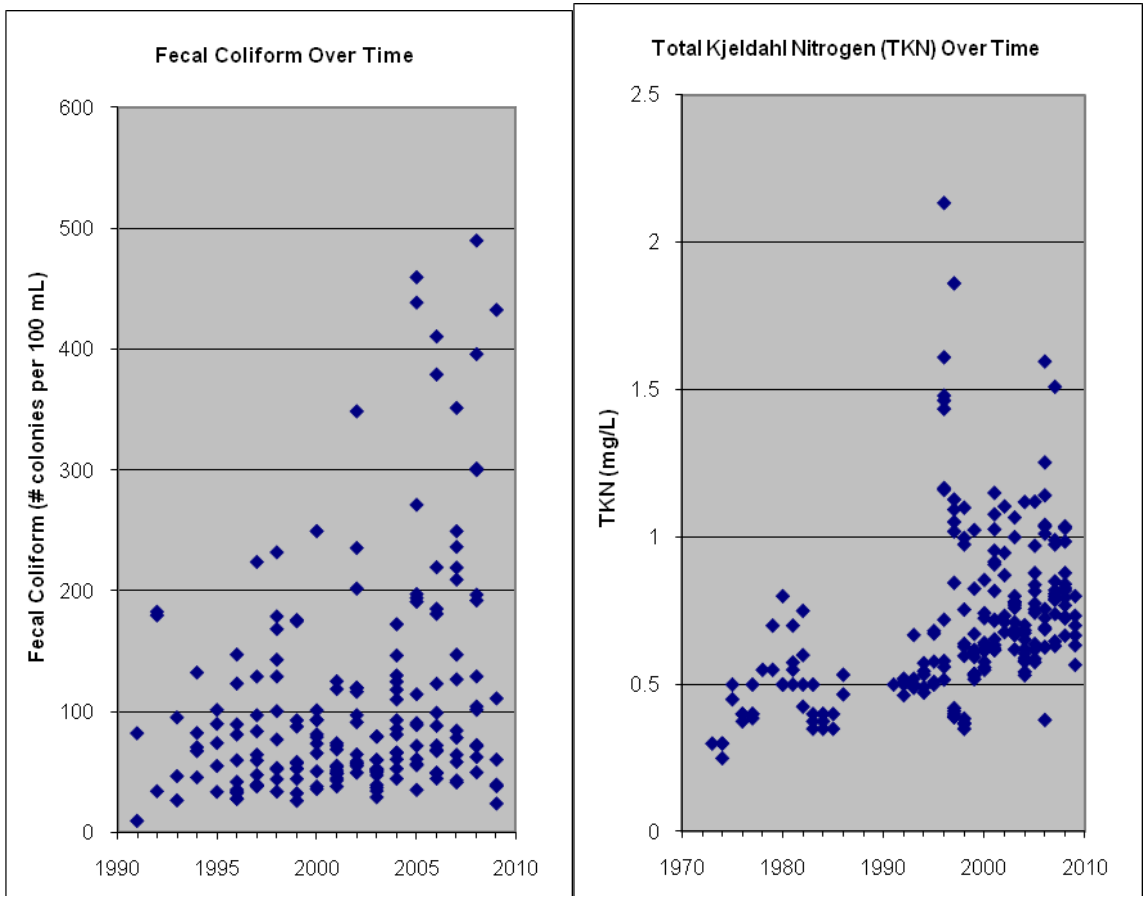


Figure 1. The Black River/South River watershed showing monitoring stations and animal operations.



Notes:
Each point represents an annual average for a monitoring station in the Black River Hydrologic Unit. There are 14 stations depicted over four decades in these two graphs. The graph for fecal coliform depicts a shorter time period to better illustrate the trend of the past 20 years.

13	2, 33, 35	**Current Condition of River Basins is Impaired** • The nitrogen loading of the Trent River and Contentnea Creek both demonstrate the need for a more effective control system to prevent discharges from CAFOs. The Trent River shows a steady increase in nitrogen loading since the 1991-1995 timeframe. It has increased by as much as 66% during the operational period of the Basin Plan. • Fish kills rose in 2008 after several years of decline. The suspected cause in most cases was low dissolved oxygen due to algal blooms. An extreme example of this is the "dead zone" in the Gulf of Mexico, which is also caused by high levels of nutrients in the water. Hog waste discharges have also been linked to Pfiesteria outbreaks in the Neuse River. • Frontline Farmers report submitted by the industry is flawed, and excluded data that would have shown issues.
		Reply: *The Neuse and Tar-Pam rivers are listed as impaired for Chlorophyll-A, and animal operations are a contributor to that impairment. As shown in the graphs above, water quality in the Black River watershed (subset of the Cape Fear watershed) appears to be worsening over time.* *DWQ feels that monitoring will be able to identify problems that when corrected, can help improve water quality.*
14	87	**Current System is the best there is for now** • Farms were built to the specifications of DWQ and DSWC at the time of construction. It is unfair to keep raising the bar and add costs.
		Reply: *It is true that the farms currently in operation were built to meet the standards in place at the time of construction. However, all permitted operations in the State are subject to more stringent standards over time. Municipal wastewater treatment plants have spent millions of dollars upgrading their facilities as their requirements have tightened. Recent rules passed for the Jordan Lake watershed will require existing development to install upgraded stormwater controls. While we are sympathetic to the issue of rising costs, some additional costs are unavoidable if water quality is to be protected or improved.*
15	35, 125, 142, 164	**Public Health Concerns** • Many recent disease scares have come from CAFOs, better monitoring can help with public health and safety issues. • Fecal coliform can be an indicator of disease casing pathogens. Monitoring can help prevent the spread of disease causing organisms such as H1N1 flu. • Health issues related to contaminated groundwater from CAFOs can be prevented with appropriate monitoring.
		Reply:

		While there may be secondary benefits related to public health as a result of these rules, the above comments are not the major reasons for requiring monitoring of surface waters.

Rule .1310(a) – Discharge Monitoring

16	22	**Discharge Sampling** • The sampling that is done in the event of a discharge should not be an automatic requirement. The Permittee should report to the DWQ Regional Office, and the Regional Office should decide if sampling is necessary, and for what parameters.
		Reply: *We disagree with this comment. Currently, DWQ will typically sample in the event of a discharge, and if we follow up with enforcement, we would recover this cost.* *However, if no enforcement is pursued, then we cannot recover this cost. We feel that it is reasonable for the permittee to take the samples and bear this cost. If DWQ staff are on site to investigate a reported discharge, they will be available to provide guidance on sampling locations, etc.*
17	35	**Visual Observations** • .1310(a)(2) and (3) are a little contradictory. (2) requires inspections during all land application events on fields with subsurface drains, but (3) only requires post-application observations two times per year per field. It would make more sense to remove the twice per year limitation and require that visual observations of subsurface drains take place both during and after all land application events. • Additionally, one way to clarify (3) would be to say that the visual observations should take place "during and up to forty-eight hours after a land application event."
		Reply: *.1310(a)(2) refers to the inspections that operators of animal waste systems are required to make during waste application events. Operators are required to make observations of land application equipment and the sprayfields. This rule adds tile drain outlets to the list of items that need to be inspected, and is fairly straightforward.* *The rules have been modified to clarify Rule .1310(a)(3). The intent is to inspect tile drain outlets after waste application, to check for waste leaving the drains. One of these inspections should take place after a rainfall event that occurs after the waste application. Additionally, we have added that the inspections should take place within 48 hours of the application event.*

Rule .1310(b) – Surface Water Monitoring

18	4i, 35, 113, 122, 124, 137, 144, 148	**Sample Collection/Training** • Concern about the possibility of abuses, whether intentional or unintentional. The Rule should be structured so that an independent party does the monitoring and analysis, and the farm owner simply pays for the services. This would avoid the situation of a regulated community monitoring itself, and would assist producers who are concerned about performing their own sample collection. Additionally, streamlining the process may cut down on the cost to producers. • A QA/QC program could help ensure that monitoring plans are working as intended. DWQ could shadow the operator on the first sampling run to affirm understanding of the sampling methods and locations. This could be incorporated into the routine inspections. Additionally, DWQ could randomly split samples with producers. • Assigning the facility operator as the person responsible for taking the sample demonstrates a direct conflict of interest. What are the expected results for a facility that take sits own samples; knowing that may incriminate themselves? There is a need for highly skilled professional to take these water samples; such as DWQ employees, etc. • It is important that the people who monitor water quality around animal feeding operations be state government officials and not employees of the pork industry.
		Reply: *It would be inconsistent for DWQ to require that a 3rd party collect samples at permitted animal operations, when it does not require 3rd party collection for any other permitted entity. There is always concern in any self-monitoring scheme that abuses (intentional or unintentional) could happen. The farm owner always has the option to contract the sample collection to a 3rd party.* *DWQ and DSWC staff are always available to answer questions that producers may have, including those related to sample collection. DWQ occasionally splits samples in other regulatory programs, and that could be done occasionally in this program as well.* *The state does not have the resources to collect and analyze the samples. If DWQ performed this work, it would require additional employees, plus additional vehicles and expenses for samples collection, and additional lab resources for sample analysis.*
19	3, 4c, 4d, 4e, 4f, 5, 5a, 18c, 22	**Sample Collection** • The expertise required to properly collect the proposed monitoring samples in the field is immense and unrealistic for the average livestock producers to execute. The preservation, temperature, and chain of custody requirements are too complex for the average farmer. This leads to a high likelihood of sampling errors.

		• Taking proper samples will require a lot of training, and the average producer will not feel comfortable doing this work.
		Reply: *We recognize that the majority of farm operators have not collected samples using techniques that will be required under these rules. However, we feel that with some brief training, farmers will be able to properly collect samples.* *The Division plans on performing several "train the trainer" classes, where county Soil and Water District employees and County Extension agents can learn the proper sampling techniques. Farm operators are required to attend occasional classes to obtain continuing education credits to maintain their operator licenses (A total of 6 hours every 3 years). The staff of Soil and Water Districts and County Extension offices frequently conduct these training classes for operators. The sampling techniques can be incorporated into these classes as a new training topic.* *DWQ and DSWC staff are always available to answer questions that producers may have, including those related to sample collection. DWQ routinely splits samples in other regulatory programs, and that could be done occasionally in this program as well.* *The farm owner always has the option to contract the sample collection to a 3rd party. For those farm owners who elect to pay a 3rd party to conduct sampling, this will not be an issue.*
20	5a, 22, 34, 35	**Sample Locations – General** • All locations should be representative locations of where waste discharge may occur such as ditches, streams, subsurface drains and wetlands. • Sampling sites must be carefully selected to provide meaningful results. If the results are to have any validity, DQW must ensure that field staff receives adequate training and resources to help perform the selection of representative locations.
		Reply: *We agree with these comments. Proper site selection is extremely important if the results are to be meaningful. The sites selected will need to be representative of the farm, and will need to eliminate outside influences to the extent possible.*
21	5a, 34, 35, 135	**Sample Locations – More Locations Needed** • The Rule should not set a maximum number of sampling locations. • If a maximum number is set, it should be between six and nine. • Each facility should be required to have a minimum number of sampling locations. Three locations is the absolute minimum needed to get a clear picture, especially since one needs to be a background sample. This would give DWQ flexibility to choose the number relative to a farm's size and site-specific characteristics.

		• There should be 3 downstream sites so that incremental monitoring can take place to monitor output, deposition over distance, oxygen depletion, etc.
		Reply: *We agree that in general, more monitoring locations will provide more meaningful data. However, we do have to take cost into account. It is important that farm owners be able to accurately predict the cost to their operation. Having an open-ended number of sampling locations would give DWQ more flexibility, but it would leave the farm owner in a position of uncertainty regarding cost. We feel that a maximum of three locations will provide meaningful data, while giving the farm owners a reliable indicator of the cost to them.*
22	22	**Sample Locations – No more than 3** • No more than 3 sampling locations should be required to be sampled. If a farmer requests more than 3 locations, that should be allowed.
		Reply: *We agree with this comment. The rule does provide flexibility so that a farm owner could request more that three monitoring locations.*
23	34, 35, 135	**Number of Sampling Events** • One obvious way to improve the accuracy of monitoring plan results is to increase the number of sampling events. This will ensure that the sampling results produce a sufficient amount of information to statistically and accurately analyze waste management methods. • The rule should require 8 sampling events instead of 3. Specifically more sampling should be required in the March – September timeframe. • The rule should require between 9 and 12 sampling events per year. Three events per year are not enough to "track the performance of the system…" • Alternatives – base the number of samples on the amount of waste applied (gallons), or after every fourth land application event. This would allow the cost to be related more to risk of impact. • More sampling events will ensure that monitoring plans yield enough information to show whether or not a facility is in compliance with its CAWMP. • At least 4 sampling events (one per quarter) should be done each year.
		Reply: *As stated in our response for the comments addressing the number of sampling locations, we generally agree that an increase in the number of samples collected will result in more meaningful data. Again, we have tried to consider the cost impact of the rules to the regulated community. We feel that three sample events per year will provide meaningful data, while helping to keep the cost in line.*

		The alternatives that were proposed (base the number of sample events on either the number of application events or the gallons of waste applied) are sound ideas. However, these types of monitoring plans would also be more difficult for farm owners to implement. It would be more difficult for farm owners to accurately predict costs to their operations as well. These monitoring schemes would also be difficult for inspectors and central office staff to track.
24	34, 35	**Reductions in Monitoring** • The conditions for changing a monitoring plan are written too broadly. It leaves too much uncertainly about when changes would be allowable. • The rules should specify how the Division will determine a "functioning BMP." The decision should be based on historical sampling data rather than the mere presence of BMPs. • The effectiveness of BMPs in reducing runoff can be overstated. The only way to show that they are effective in eliminating discharges is through monitoring. • "Historical data" should be defined – either a number of years or number of samples. • The decision to reduce or eliminate a monitoring plan should be subject to review by DWQ. DWQ should use a robust process to make the determination including sample results, number of samples collected, changes in loading rates, presence or changes to BMPs, compliance history, etc. • Monitoring plans should be re-implemented if the farm later violates its permit.
		Reply: *We agree that the conditions where a farm can have monitoring reduced or eliminated (.1310(b)(6)) can be better defined. Requests for reductions in monitoring will be evaluated on a case-by-case basis using best professional judgement. DWQ will need to be able to assure the public that the facility does not pose an ongoing risk to surface water quality before reducing or eliminating monitoring requirements. When evaluating a request, DWQ will consider the following factors:* • *Levels of pollutants in previous monitoring data – high or low?* • *Consistency of previous monitoring data – are all the results generally the same, or do they have a wide variation? Are the concentrations trending upward, downward, or remaining stable?* • *Changes in management practices on the farm, including a reduction loading rates – has the operation changed such that we expect a reduced impact to surface waters?* • *Consistency of the farm management practices – has the farm been operating the same way for many years, and do we expect the monitoring data to remain stable as a result?* • *Installation and maintenance of BMPs. Has the farm installed BMPs to reduce any impact to surface waters, such as increased buffers to streams and ditches, or capping off/removal of old drain tiles?* *For farms that have their monitoring plan reduced or eliminated, the conditions of .1310(b)(7)(F) will still apply. If the farm later has compliance issues, DWQ will have the authority to require that the monitoring plan be re-implemented.*

		There are a few situations where DWQ could increase the number of monitoring locations from the original three. Some permits actually cover more than one farm site. These are large complex-type operations that cover a very large area. In these cases, DWQ could require three monitoring locations per farm site, resulting in six (if a permit had two farm sites) sampling locations in a monitoring plan. DWQ will use best professional judgment in determining if a permitted operation encompasses more than one farm site. *If after the monitoring plan has been in place for some time, there may be a need to modify the plan. This could be needed to help identify the source of pollutants from an operation, or to determine the fate of pollutants beyond the area that is currently monitored. In these cases it could be necessary to add an additional monitoring site.*
25	18c, 38, 78	**Monitoring Plan Development** • Station location criteria of "one up and two down" may be impractical in some locations and insufficient in others. The location of monitoring stations should be determined by GIS Spatial Analysis criteria and not by a cookie cutter monitoring plan. • It will become quickly apparent that many facilities do not have a consistent defined flow source to adequately conduct surface water sampling. The cookie cutter approach of one up and two down will result in vast quantities of inconclusive data. The Virginia program started out very similar to this one, and they are reshaping it to incorporate a science-based foundation. • The proposals do not take into account the difference between monitoring large streams in eastern NC versus small streams on rolling land in the piedmont.
		Reply: *We agree that we will see a wide variation in geographic settings and operation practices that will affect the location of monitoring stations. We plan on using all tools available to us (GIS, aerial photography, and field work) to ensure that monitoring stations are representative and will provide useful data.* *There may be cases where there is no need for three stations. There may be cases where we decide monitoring is not needed at all due to geographic setting and/or operational practices on the farm.*
26	1, 3, 4h, 5a, 7, 14, 17, 18a, 21, 22, 24, 25, 27, 37, 38, 39, 61, 86, 104, 115, 116,	**Data Usefulness/Interpretation Concerns** • On a watershed scale, the flux of a particular pollutant, not the concentration, is needed to determine the magnitude of impacts to the lower watershed. Without flow measurements, concentration data will be difficult to interpret in terms of surface water quality impacts. High nitrate concentrations in tile drains or creeks are not hydrologically significant if the creek is not flowing. • Knowing the concentration of a pollutant at one time during a discharge event will not have much hydrological

		significance and be of little use in determining watershed impacts. • The number of sampling locations and the frequency of sampling will, more than likely, not provide enough data to draw conclusions about such complex and heterogeneous systems. • System performance must consider loading rates, site conditions, and background concentrations. • Having a random selection of sites and utilizing professional water quality experts to develop monitoring plans and to collect samples would likely yield more useful data. In this way, the stated objectives can be met with the proper scientific approach and documentation. • No provision is made in the rule for collecting complementary data that will be necessary to make statistical inferences from the monitoring results (rainfall, stream flow, temporal and spatial land use, impact of adjacent facilities and activities, etc.) • DWQ must ensure that there is adequate time and expertise available for evaluating the data and performing any needed statistical evaluation. • A series of grab samples for six parameters to be collected for drainage features three times a year has no scientific merit. The program as designed will not produce data that are adequate to provide a sufficient basis for action to produce water quality benefits. • The rule anticipates that significant actions will be required based merely upon the results of a very narrow set of data – specifically a series of grab samples for seven parameters to be collected from drainage features three times per year. There are many issues with this approach due to quality control of samples, inadequate data for stream flow, and managing the data that is collected. • There is no means to determine the impact of upstream activities on samples, which could lead to false positives. • The raw data from this collection effort will be meaningless unless it can be sorted and analyzed, which will probably be difficult if not impractical. • I cannot understand how this data is going to be used to any benefit or as a way to determine compliance. • Can DWQ show examples of other programs that have used monitoring like this to improve water quality? • There is no evidence that this monitoring program will prove anything.
		Reply: *Some of these comments miss the point of the rules. We agree that it will be difficult to use the data collected through this rule to make broad conclusions about the health of a river basin in general. In a perfect world with unlimited funds, there would be more parameters to sample, more sites to be sampled, and much more statistical analysis taking place. Working with existing budget constraints, we feel that this rule can provide basic information that can be used to make water quality improvements on a farm-by-farm basis.* *What these rules can do is show whether waste and nutrients are leaving a specific farm. Monitoring of surface waters at animal*

		operations is one tool of many that DWQ can use, along with ambient monitoring data and inspections by staff. By addressing issues that are uncovered, we can improve water quality or prevent water quality impairment. This will allow site-by-site improvements over time that should positively affect overall water quality.
27	5, 5a, 4c, 4d, 4e, 4f, 21, 37	**Data Quality Concerns** • Standard practices of sample collection, preservation, and transportation have been established to limit sample degradation, and subsequent erroneous information. Not only are such methods not included in the proposed rules, but even if they were, they would be difficult to meet when trained technicians are not performing the work. • The sample collection requirements (Guidance on sample collection from DWQ's Lab Section was attached) will result in a significant burden for producers in both time and expense. It will be extremely difficult for even the best trained producers to follow these sampling protocols in a manner such that useful water quality data is obtained. • The complex site selection and sampling requirements are likely to lead to poor quality data, or data that cannot be analyzed accurately.
		Reply: *It is true that poorly collected and preserved samples will result in poor data. However, DWQ feels that with minimal training, farm owners or operators can successfully collect, preserve, and transport samples to a laboratory for analysis. Sample collection and preservation requirements have been eased with the removal of fecal coliform and BOD.* *The requirements for the sample collection and preservation procedures were not spelled out in these rules because they are the same for all programs that DWQ regulates.* *Again, for farm owners that contract the sample collection to a 3rd party, this will not be an issue.* *See the response to comment 25 for information on monitoring site selection.*
28	5a, 22, 25, 35, 39, 122	**Sample Parameters – Fecal Coliform – Keep in or Remove from the Rule** • Fecal bacteria can be difficult to sample because absolutely sterile conditions are required to collect and handle samples. • Fecal bacteria can come from many sources, and do not always indicate the presence of livestock. • The Vet School at NC State has developed a useful assay that can be used to pinpoint the source of fecal contamination. It costs about $50 to run a test. • The presence of fecal coliform bacteria is an indicator of animal waste and possible pathogens. Pathogen

		contamination of water supplies can cause disease, and is important to measure for. • I am on a team that does water sampling with the Neuse Riverkeeper. Our group is trained and experiences and we work under protocols which include using gloves and a clean cup for each sample. The bottles we use are sealed, with the proper solutions, in a large container, and provided by the lab ahead of time. We open them on site, put them on ice, and take them to the lab within 6 hours. This procedure is no big deal.
		Reply: *For several reasons, we feel that fecal coliform should be removed as a routine monitoring parameter from these rules. Although we feel that farm owners/operators are capable of properly collecting samples, there are legitimate issues related to sample collection and holding times. Additionally, many commenters pointed out that there are multiple possible sources of fecal coliform, and that a high sample may not be related to waste from a permitted operation. We feel that the combination of ammonia, nitrate, and chloride will provide enough data to identify potential issues at a farm.* *We do feel that fecal coliform should remain as a parameter to sample when a discharge of waste occurs.*
29	35, 58, 124	**Sample Parameters – Others – Keep/Add/Remove** • Ammonia and Nitrate are parameters that can contribute to oxygen depletion of surface water. Ammonia is an indicator of manure, and nitrate is regulated under drinking water regulations. • BOD is also a measure of the amount of available oxygen in a waterbody, and is present in wastewater. • Chloride is an economical way to measure for waste that has originated from a lagoon or storage pond. • All parameters proposed in the rules are important to determine the source of pollution. Any reductions in the number of parameters to be sampled for will actually waste time, money, and effort because it will limit the rule's ability to determine sources of pollution. In addition, it will not help the facility's ability to manage the waste effectively. • The parameters being monitored should be expanded to include temperature and pH. These parameters determine how NH3 and NH4 coexist in water. • Antibiotics and air emissions should be added to the list of parameters. See attached report from Union of Concerned Scientists on Antibiotics. • BOD is not a good test for waters in eastern NC. It shows a past condition and not a present one.
		Reply: *For many of the reasons stated in the fecal coliform comments above, we have decided to remove BOD from the list of parameters as well. While it may be appropriate to measure BOD in a discharge, it is generally not measured in-stream. NPDES dischargers that perform in-stream monitoring do not measure BOD. Ammonia and chloride are also indicators of animal waste. We feel that the combination of ammonia, nitrate, and chloride will provide enough data to identify potential issues at a farm. As with fecal*

		coliform above, BOD will remain as a parameter to be sampled when a discharge or waste occurs. *Nitrate and ammonia are nutrients that are common in animal waste, and can have a detrimental effect on water quality. Chloride is an indicator of animal waste, specifically waste that has been stored in a lagoon.* *Other parameters mentioned above such as temperature and pH could be added later if needed to help identify the sources of an issues identified through the monitoring plan. In addition, fecal coliform or BOD could be added later as well on a case-by-case basis.* *Although antibiotics and emissions of ammonia are areas that can cause concern, we feel that these rules are not the appropriate place to address these issues.*
30	20, 58	**Sample Collection – Safety Concerns** • Safety can be a concern due to possible remote sites on the farm for sample collection and the lack of first aid if accidents occur. The presence of cattle in the fields is also a concern for sample collectors. • Farmers should not be expected to use a dangerous substance like sulfuric acid when collecting samples, especially in a field setting where no first aid or eyewash station is available. • Some consideration should be given to the safe storage and disposal of the testing chemicals and their spent containers…these pose additional environmental and safety risks, and associated costs.
		Reply: *We feel that safety risks posed by this rule are minimal. When collecting nutrient samples, acid is added to the sample as a preservative. However, the acid is contained in a single-use vial that is shipped with the sample bottles to the farm ahead of time. This is simply added to the sample bottle after the sample is collected.* *Farmers will not be required to keep a supply of acid on their farm to collect samples.*
31	5a, 7, 17, 18c, 25, 37, 41, 42, 43, 44, 49, 52, 53, 54, 61, 63, 68, 69, 70, 72, 73, 74, 82, 83, 86, 87, 94, 101, 105, 107, 108, 111, 113, 114, Reese	**Other Sources of Impairment/Fairness** • Surface waters near animal production facilities are impacted by numerous sources in addition to the operation itself. Targeting only animal production misses other potential sources of water quality problems in the same watershed, including field crop production with inorganic fertilizer, septic systems, wildlife, and residential fertilization. • By ignoring these other sources, the proposed rule limits the potential solutions to water quality problems. • Research by the NCSU Soil Science Dept. shows that over 96% of all Groundwater sampled below spray fields is below threshold for *E. coli* (250 cfu/100 mL). Samples of surface water in the same time period showed *E. coli* counts consistently over 250 cfu/ 100 mL. Source tracking of nearby surface waters showed that wildlife

		was a major contributor to high bacteria counts in the area. • Wal-Mart is the largest distributor of fertilizer in the country. This fertilizer goes on residential and commercial lawns, and there are no controls placed on this. The runoff from these sites goes into storm drains and then into surface waters. • Municipal discharges and sewer overflows are a major source that needs to be accounted for. • These proposed rules single out the animal industry when there are many other sources contributing to water quality issues. A more targeted approach focusing on impaired watersheds should be used, and all sources of impairment should be considered. • According to the inspection report to the Environmental Review Committee, out of 4992 inspections conducted in 2008, only 18 discharges were identified. In 2008, 973 municipal spills reached surface waters. This shows that DWQ should consider all sources when looking at impaired watersheds. • While running PLAT on farms, it became apparent that fields with higher rating were formerly tobacco or turkey litter fields, indicating that other sources are contributing to impairment. • This rule focuses only on animal operations with no regard to other sources of fertilizer such as golf courses, municipalities, factories, and chicken and turkey farms.
		Reply: *We agree that there are many sources of pollution to be accounted for. Many of these potential sources are being accounted for in other processes. Municipal/industrial discharges, sewer overflows, and stormwater issues have all been the focus of recent activities by the Division. Even the application of fertilizer has been addressed in basin plans for the Neuse and Tar-Pam rivers, and the Jordan Lake watershed.* *The comment about* E. coli *is a little confusing.* E. coli *and fecal coliform are both subsets of Total Coliform. The regulatory threshold in groundwater for Total Coliform is 1 cfu/100 mL (15A NCAC 02L .0202(g)). There is no standard for* E. coli *or fecal coliform, meaning that detection above background levels is considered a violation. So it is expected that* E. coli *levels below sprayfield would be far less than 250 cfu/100mL. There may be some confusion about the surface water standard for fecal coliform, which is 250 cfu/ 100 mL* *Phosphorus was considered as a parameter for these monitoring rules, but was not included. Part of the reason for this is the PLAT assessments that have been conducted. Additionally, data from the USGS shows that phosphorus in groundwater is generally not an issue at animal operations.* *Requiring monitoring at animal operations is consistent with the actions DWQ has taken for other regulated entities.*
32	128, 130, 131, 138, 145, 146,	**Fairness** • CAFOs, like all industries, should have to monitor the impact their operations have on nearby water supplies.

	151, 152, 158, 159, 168, 172, 174,	• The 10 million hogs in NC generate about 13 million pounds of waste per day. Monitoring of the waste should be required like in other industries. • Human waste is required to be treated to a much higher level, and they also are required to do monitoring. CAFOs should be treated the same.
		Reply: *Please see the above comments.*
33	34, 35, 78	**Monitoring Coalitions** • Participation in a monitoring coalition should not amount to a license to opt out of compliance with this Rule. The number of representative sampling locations and sample events should not be less for facilities represented by a monitoring coalition than for individual facilities operating outside of a monitoring coalition. • The same chain of custody and sample handling rules should apply to coalitions and individual facilities. • The Division should provide the same level of oversight to monitoring coalitions as they do for individual facilities. • .1310(c)(3) should be removed from the Rule. • The coalition monitoring program seems ill-suited for dairy operations in the western part of the state due to varying characteristics and the distance between them.
		Reply: *We agree with many of these comments. The coalition program is in no way meant to serve as a license to opt out of the monitoring program. The same chain of custody and sample handling rules apply whether the sample is taken from an individual farm or as part of a coalition program. The Division will be responsible for approval of all coalition monitoring plans. In addition, if a facility opts out of a monitoring coalition, they will be required to revert back to an individual monitoring plan. In discussions with staff that manage the NPDES coalition program, they state that the coalition program does not generally save money on a farm by farm basis. It can relieve the farm owner of the day-to-day management of a monitoring program though. We also agree that in areas where there are few facilities such as the piedmont, or some areas of northeastern North Carolina, it may not be feasible to form a monitoring coalition.* *We disagree that each farm that participates in a coalition should be required to have three monitoring locations. The rules do require that each participating farm have at least one location. The purpose of the coalition program is to look at the watershed and select representative locations that will provide the best data. As a result, some farms could have four locations, while others had one.*
34	22, 35	**Groundwater** • If rules are adopted, the groundwater monitoring requirements should be no more stringent than the 2002

		written DWQ guidance for requiring groundwater monitoring. • It is important to keep DWQ's supervisory role in developing and implementing and groundwater monitoring plan. Any changes to the plan should go through the same analysis that is suggested for the surface water plan.
		Reply: *We agree with both of these comments. The groundwater requirements that are included in these rules are merely a reflection of existing DWQ policy. When groundwater monitoring plans are implemented, DWQ does have a supervisory role in approving the plans, as well as any modifications to the plans.*
35	34, 35	**Reporting** • Reporting of monitoring results should be done on a more frequent basis. The reports should be due the month after the sample collection period (March for January – February, etc.) • The rules should require that facilities keep such records on site and available for a specific period of time.
		Reply: *We feel that an annual reporting requirement is the best way to get all of the data to DWQ in a manner that will allow for the easiest data entry and analysis.* *Existing permits already require that all records for state permitted farms be kept on site for three years. For NPDES permitted facilities, the requirement is five years.*
36	22, 34, 35	**Timeline** • The approach of addressing impaired watersheds first, then the watersheds with the highest concentration of farms is a good one. • The rules should set a timeline for implementation in each of the listed watersheds. This will help provide the regulated community with an expected date for implementation, and will give a benchmark for water quality monitoring results. • All monitoring plans should be completed within 4 years of adoption, or the requirements should be incorporated into permits upon renewal, as 2T.1310(a). • DWQ should be required to report annually to the EMC on the progress of implementing the rules. • The Fiscal Analysis projects complete implementation of the rule in 5 years. If compliance dates are added to the rules, it should be much longer than 5 years. • If rules are adopted, the date of July 1, 2008 should not be the effective date for any new or expanded animal operation in Rule .1311(c).
		Reply: *Because DWQ is committed to developing the monitoring plans with existing staff and resources, we are uncomfortable in*

		committing to a strict timeline for implementation. We feel that the approach of starting with watersheds that have a documented impairment, and then moving on to those watersheds with a higher concentration of animal operations will allow for the greatest impact and benefit. *The hearing officers have stated that they will ask DWQ to provide annual updates to the EMC on progress in implementing these rules.* *We agree that the date of July 1, 2008 should be removed from the rule. The rules have been modified so that any new or expanding operation as of the effective date of the rules will be required to implement a monitoring plan.*

37	1, 4b, 4d, 4e, 4f, 5, 5a, 18a, 25, 69, 77, 80, 89, 113, 114,	**Proposed Alternatives to the Rules**
		• Identify artificially drained soils with the highest likelihood for preferential flow. Initiate efforts to determine conditions where preferential flow may be expected to occur on these soils and develop management strategies and practices to prevent these events.
		• Initiate efforts to determine more precise hydraulic loading rates based on soil characteristics and antecedent soil moisture conditions. Develop management strategies to prevent exceeding the moisture holding capacity of the soil.
		• If monitoring is done, it should be at a sub-watershed scale small enough to generate meaningful results. BMPs should be identified that will address all potentially significant sources of pollutants to surface waters.
		• Initiate rulemaking to require installation and maintenance of enhanced BMPs on potentially significant sources of pollutants to surface waters, focusing on impaired watersheds.
		  • Select criteria to use to identify appropriate sub-watersheds.
		  • Develop list of sources to be targeted.
		  • List of activities that would require BMP installation
		  • List of approved BMPs
		  • Allow monitoring instead of BMP installation if desired.
		• Money and resources would be better spent by focusing on all pollution sources in impaired watersheds. Singling out the swine industry will not help improve water quality.
		• Ditch valves could be required instead of testing. This would prevent accidental runoff from getting to a stream, and the cost would be less than one year of testing.

		Reply: *Many of the ideas listed above would make great study topics. The issue with any proposal for study is funding. DWQ does not have the funds or the manpower to conduct the types of studies that are suggested above. Additionally, the EMC does not have the authority to generate money to fund such a study.*

		The issue with requiring monitoring at a sub-watershed scale is fairness. We would be forced to single out a few operations for monitoring. Additionally, the monitoring required in this case would likely be much more expensive than what is required under these rules. *We feel that the swine farms (or animal industry in general) are not being singled out by these rules. There are many other regulated entities that are required to perform routine monitoring.*
38	35	**Environmental Groups Responses to Alternatives** • BMP effectiveness cannot be determined unless a monitoring program is in place. • BMP effectiveness is dependent on design, siting, implementation, and maintenance. Any deficiency will result in a practice that does not prevent pollution. Monitoring is needed to ensure that BMPs are effective.
		Reply: *We agree with these comments.*
39	6, 13, 30 35, 120, 121, 130, 158, 161, 167	**General Economy – Economic Benefit of Farms/Economic Benefit of Rules** • Swine farms account for 13% of Sampson County's property tax collections. • Sampson County realizes over $900,000,000 in agribusiness income with 39.3% of our population employed in agriculture or agribusiness. • Pork producers have been major contributors to the Sampson Regional Medical Center. • This rule will place NC farmers at a competitive disadvantage. • Since the structure of a CAFO is meant to maximize efficiency, CAFOs generally employ fewer people than smaller independent farms. • CAFOs are important to the economy, but they are not <u>the</u> economy. Communities, fisheries, tourism, industry and wildlife need clean water. • A 2003 study by Iowa State University shows that CAFOs lower neighboring property values. • The economic benefits of the industry should not outweigh the value of public health.
		Reply: *We recognize the economic benefit that the animal feeding operations in the state have provided. However, many other industries that provide economic benefits are required to monitor their operations. The rules that were put out for public comment, and the revisions made as a result, were done with consideration of economic impact.*
40		**Other Comments**

		• Minnich - We should be focused on eliminating lagoons as soon as possible, rather than implementing this rule. • Locklear - Animal waste has a great value as fertilizer and should be allowed to be used as such. • N. Johnson – Dairies have been caught up in a rule that was meant for swine farms. • Guilford - Our Board was not notified by the EMC, DWQ, or by the media of the four public hearings. • Malpass – Bigger fines are needed even with monitoring to keep everyone honest.
		Reply: *The overall issue of lagoon and sprayfield systems is beyond the scope of this rule making effort.* *We feel that this rule does not hinder the ability to use animal waste as a fertilizer source.* *We feel that it would not be fair to specifically single out the swine industry in these rules. As a result, any dairy or wet poultry operation in the watersheds listed in Rule .1311 is included. In addition, any dry litter poultry operations that were to apply for permit coverage will be included as well.* *We are sensitive to the issue of notification. DWQ sent notice of these meetings to many different outlets, including a listserve that goes to each Soil and Water Conservation District office.* *North Carolina has one of, if not the most, comprehensive inspection programs in the country for animal operations. When appropriate, we do issue fines to animal operations. A monitoring program will not take the place of routine compliance and enforcement activities.*