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| 🞂 | **To:** Delta County Board of County Commissioners**Comments Regarding:** Western Slope Layer FacilitySpecial Development Application HearingMay 1, 2013 |

 | Sandra Genell Pridgen3181 Gray’s Mill RdSnow Hill, NC 28580Phone: (252)286-7006 |

On August 16, 2012, Plateau, Inc conducted an inspection of Western Slope Layers per request of the Delta County Health Department. The 2-hour Air Monitoring Survey was conducted in response to Delta County District Court having remanded the application for the Western Slope Layers facility back to the Delta County Commissioners to make additional findings and make a decision based upon 4 areas: (1) whether the operations were compatible with the neighborhood; (2) whether the operations would have a negative impact on neighboring property values; (3) whether the conditions imposed were sufficient to mitigate environmental concerns; and (4) whether the County staff was able to monitor and enforce the conditions of approval. There were four items the County put in the record. These items were the:

1. Air Monitoring Survey composed of 3 parts- Letter to Ken Nordstrom, Aerobiology Lab results, and lastly, Particulate counts

2. Amended Air Monitoring Survey by Lakin dated September 28, 2012

3. Ken Nordstrom Memorandum October 12, 2012

4. Nuisance Myths and Poultry Farming from U. of Georgia

I, Genell Pridgen have been asked to provide expert testimony based upon the aforementioned criteria. I have a BS in Biology with a concentration in Environmental Biology. I have university and work experience in molecular-based epidemiological studies including direct experience in PCR Amplification. I also have over 30 years direct experience in poultry production and am a consultant for the Socially Responsible Agricultural Project. The following are my findings based upon these criteria.

**Plateau Report 8/27/2012**

After having reviewed the Plateau Report of 8/27, I contend that the operational conditions under which the Air Monitoring Survey were undertaken were insufficient to properly analyze the environmental impact of Western Slope Layers to the local community. Page 3 of the report indicates that “testing was conducted during general ventilation mode as it would likely allow better analysis of disseminated particles by not discharging them forcefully and too widely in the vicinity.”

The building is equipped with three 36-inch sidewall fans which can move up to 9-11,000 cubic feet/minute. The building is also equipped with three 54-inch (tunnel) fans on the far end of each side of the building as well as two 54-inch (tunnel) fans on the back of the building. Each one of these 54-inch fans can move up to 32,000 cubic feet/minute. The volume of air that the building contains at any given time is approximately 185,000 cubic feet.

V = 10 ft Height X 370 ft Length X 50 ft Wide = 185,000 cubic feet

At maximum airflow conditions (all fans operating at maximum operational capacity), approximately 289,000 cubic feet/minute of air/fecal matter, bacteria, etc. within the building could be expelled to the outside environment.

Under tunnel ventilation operation (up to eight 54-inch fans operating), approximately 256,000 cubic feet/min of air/fecal matter, bacteria, etc within the building could be expelled to the outside environment.

Under maximum general operation (only three 36” sidewall fans operating), approximately 33,000 cubic feet/min of air/fecal matter, bacteria, etc within the building could be expelled to the outside environment.

The Plateau Report of 8/27/2012 indicates that the 2-hour Air Monitoring Survey was conducted with sidewall curtains down and three 36-inch fans operating. Dr. Susan Raymond has submitted video footage showing that the sidewall curtains were up on the facility during the testing period. With only three 36-inch fans operating during the testing period, only a small volume of the air/fecal matter, bacteria, etc within the building was being expelled to the outside environment. Mr. Lakin of Plateau, Inc indicated in page 3 of his report that he briefly observed the tunnel ventilation mode of operation and the increase in airflow is noticeable versus general operating conditions.

On page 5 of the Plateau Report of 8/27/2012, Mr. Lakin states that “Persons reading this report are advised to interpret it with caution. It can be reasonably anticipated that the conditions at this facility are highly dynamic. The testing results at this phase of operation under the observed environmental conditions may be very different from that at another time or under different operational conditions. The microbiological emissions from this facility will possibly change with season, operational sequence and other environmental factors. In general it can be stated that this facility generates a considerable plume of particulates and biological components. Potentially, some of these components may be hazardous to certain persons.” Based upon the my scientific background and the methodology of the testing at this facility, I do not believe that the results of the 2-hour Air Monitoring Survey is indicative of potential air pollution problems that can occur from this facility. The comments of Mr. Lakin on page 5 of the Plateau Report of 8/27/2012 indicate that he has the same concerns.

**Ammonia Level**

Based upon research articles provided in my testimony from 8/29/2012, I stated that Ammonia will become an increasing issue over the 14 month tenure of the layer cycle. It is documented that Western Slope Layers had a 53ft tractor trailer load of shavings placed inside their facility approximately 3 days prior to the air monitoring survey. A 53ft tractor trailer of shavings equates to approximately 7 inches of fresh, new bedding in the facility where the hens have access.

Calculation:

10 ft Wide (walking space) X 370 ft Length (hen floor space) = 3700 square ft X 2 sides = 7400 square feet of floor space that the hens have access to.

There is 4,054.5 cubic feet of sawdust in the tractor trailer load. Therefore, this will equal approximately 7 inches of fresh bedding added to the facility.

The addition of shavings during the middle of a layer cycle is not typical practice in the poultry industry. New shavings are generally added after the turnover of a flock; after cleanout of the facility. The addition of 7 inches of fresh shavings will significantly dampen emissions and cut down on ammonia levels until the ammonia picks up again once the shavings become damp and caked with fecal matter. It is apparent to me that Western Slope Layers operation placed shavings inside the housing in an attempt to reduce dust and fecal particles from being emitted through the exhaust fans and to reduce ammonia levels in the facility during the testing period. It is my opinion that Western Slope Layers “stacked the deck” in their favor for the testing that was done. Comments by Mr. Lakin indicated that “ammonia levels were 10-14ppm on the sides of the houses, well within detectable range for smell.” Obviously, those levels were lower than before 7 inches of fresh shavings were put into the facility. I reference a peer review by David Wallinga, MD of the health risks from air pollution due to CAFO’s (<http://www.iatp.org/files/421_2_37388.pdf> ). In the review, he states that “Ammonia absorbed onto CAFO dust particles can be carried deep into lungs, where it irritates tissue even at low concentrations. Ammonia impedes lung cilia from clearing dust particles, leading to worse than additive impacts from dust and ammonia exposure together. In the general vicinity of livestock operations, both ammonia and hydrogen sulfide have been measured at concentrations posing health concerns for neighbors experiencing prolonged exposure. Recommended maximum exposure is 7 parts per million, but human smell begins detecting ammonia at just 5 ppm”.

Delta county EHD has accepted the 2-hour Air Monitoring Survey as adequate testing for Ammonia emissions from the facility. In my testimony from 8/29/2012, I noted that the Clean Air Act (CCA) states that emission calculations should consist of measuring the concentration of pollutants being discharged from the facility multiplied by the ventilation rate of air discharged from the house. Emission calculations did not include ventilation rates. I also questioned whether Delta county EHD was prepared to continue to test for Ammonia emissions from this facility over the long-term? Proper long-term testing should include unannounced testing during various times of the layer cycle to measure Ammonia levels as the manure levels increase in the facility and the shavings are not brand new. Therefore, the methodology of the Air Monitoring Survey should be considered inadequate for proper analysis of this facility.

**Viable Bacteria Counts**

In the Plateau Report of 8/27/2012, Mr. Lakin states that “the viable bacteria counts were very high as indicated by tests 3B through 6B in comparison to the upwind samples 1B and 2B”. Mr. Lakin also states that he did discuss the results with the analyst and that the analyst did “express a concern regarding the ‘Lactose Fermenting Gram negative rod’ that was found in samples 3B through 6B. This bacteria is likely fecal in origin and of interest as a pathogen. Viable bacterial discharge from this facility easily exceeds 100,000 colony forming units (CFU) per cubic meter of air compared to likely less than 1000 CFU upwind.” The Lactose Fermenting Gram negative rod was found to be of the species ***Yersinia*** (lab results 8/29/2012). Some members of ***Yersinia***are pathogenic in humans. ***Y.*** *pestis* is the causative agent of the plague and rodents are natural hosts.  ***Yersinia*** *enterocolitica* is the most common cause of gastrointestinal disease in humans. It is prevalent on raw chicken meat. ***Yersinia***is being emitted from this facility, travelling through the air and eventually landing on the soil and in the water of the community. Through human interaction with the soil and water (such as when working in flower beds, vegetable gardens or fishing in the nearby waters, humans can pick up ***Yersiniosis***. (reference Ohio State University Extension fact sheet found online at

<http://ohioline.osu.edu/hyg-fact/5000/pdf/5574.pdf> ) .

This fact sheet references ***Yersiniosis*** as an important concern for young children and immune compromised individuals. One would expect the Delta County Environmental Health Director to recognize the presence of ***Yersinia*** as having very serious health implications within the community.

It was suggested by the lab that “if further identification is desired, highly specific identification methods such as PCR is recommended.” Molecular based epidemiological studies are more efficient in investigating the occurrence of ***Y.*** *enterocolitica.* Polymerase Chain Reaction (PCR) assay would have allowed one to determine if the ***Yersinia*** found in the samples were pathogenic strains because they would be able to test for virulence genes.

On page 1 of the Plateau Report of 9/28/2012, Mr. Lakin states that “an attempt was made to identify the gram (-) bacteria found in samples 3B, 4B, 5B. However during sub-culturing, this bacteria was overgrown by other bacterial species and opportunity for identification was lost.” The use of serial dilution technique on an overgrown plate could have been used to identify every species present. The addendum was supposed to be used for the purpose of further identification of previously unidentified bacteria on some of the plates. This was not accomplished.

**Memorandum of Mr. Nordstrom**

Mr. Nordstrom, Delta County Environmental Health Director, states in his memorandum of 10/12/2012 that “the complainants have extrapolated the conclusions regarding occupational exposure to ambient environmental exposure.” He states that the department has done a “limited literature review” and that “the burden of proof is quite high”. An obvious question should be for whom is the burden of proof quite high, the residents of the community or Mr. Nordstrom whose job it is to protect the citizens of Delta County? An important review by David Wallinga, MD, (of 23 research studies) on health risks from air pollution due to CAFO’s (<http://www.iatp.org/files/421_2_37388.pdf> ) shows that there is a pattern of symptoms found in neighbors of a CAFO consistent with those found in workers. Although the studies are predominately involving swine CAFO’s, much of the air pollutants of concern are the same as found near poultry facilities; bacteria, ammonia, odors, dust particles and toxins. I submit that Mr. Nordstrom hasn’t given due diligence to review of existing literature. Mr. Nordstrom has not followed the recommendations of the Plateau Report of 8/27/2012 (page 5) where Mr. Lakin suggests “further evaluation of the human health impacts of this facility should be conducted in concert with a medical specialist.”

**Conclusion**

In view of the methodology used (including the addition of new shavings to facility), the extremely brief testing period and the lab results themselves, these reports could provide no credible evidence on which to approve continued operation of the facility, but, to the contrary, what was identified during the testing in fact has the potential to be very harmful to the surrounding neighbors. If the Delta County Board of County Commissioners feel that proper non-biased scientific testing procedures were employed and a 2-hour testing period is sufficient, then one must question if the Delta County Board of County Commissioners are knowledgeable enough to be qualified to monitor and enforce the conditions of approval for this facility.

Sincerely,

Sandra Genell Pridgen

Agricultural Consultant

Socially Responsible Agricultural Project

4/30/2013