ATTACHMENT 1

DECLARATION OF [redacted]

1. My name is [redacted]. I am of legal age and competent to give this declaration. All of the information herein is based on my own personal knowledge and experience unless otherwise indicated.

Background

2. I am a [redacted] man. I currently live in [redacted], North Carolina at [redacted]. My home is less than a mile from an industrial hog facility, as shown in the map attached as Exhibit 1.

3. My family owns around 150 acres of land surrounding my home. I grew up on this land and have lived in various homes on it all my life. For the last 20 years, I have lived at [redacted].

4. I used to raise turkeys on a farm on my family's land as a contract grower, but Hurricane Fran came and destroyed the facilities. The hurricane did a lot of damage and nearly blew down the walls of the house that I was living in at the time. I now lease parts of my property out to other farmers to grow wheat and farm myself part time.

Experience Living Near a Hog Facility

5. As is shown in the map attached as Exhibit 1, there's an industrial hog facility less than a mile from my house and adjacent to my property. The state records show that this facility is permitted to have over 3,500 hogs on site. This hog facility wasn't always here. I don't remember exactly when it was built, but it was probably built in the mid 1990's. I'm aware of six other hog facilities within three miles of my home, and the state's records show that there are around fifteen hog facilities operating under the state general permit within three miles of my home. A map showing the facilities

within three miles of my home is attached as Exhibit 2. The hog facilities in the area usually pump the waste from the lagoons, which are open air pits that contain hog waste, and spray it out over fields with high volume sprayers.

6. The hog facility nearest to my home operates a lagoon very close to the southern boundary of my property line and sprays the waste over a field adjacent to my property. The facility never gives me any notice when it is going to spray. The spraying leaves a fine red dust or mist that covers all of the screens on the windows and doors on my house. I have to wash the screens with Clorox to get it off. Sometimes you can even see the mist on the grass.

7. I can almost always smell the hog waste on my property. It makes it impossible to go outside at times, especially on warm nights or when the wind is blowing from the south. The waste from this facility has a particularly bad, almost chemical smell and I wonder if it might be related to medicines they give the hogs. It's a smell you don't want to experience for too long. The other hog facilities near my home only make the smell even worse. You can smell the odor from the hog facilities for miles, even in the town. I remember playing outside all the time as a kid, even working out in the fields, before the hog facilities came to this area. The air was clean and it was nice to be outside. Now you can't sit outside because the smell affects your breathing and isn't good for you.

8. Before the hog facilities came to this area, I always used to open my windows, especially to get that cool air in the morning. Now I can't open my windows most of the time because of the smell from the hog facilities, especially in the hot summer days if the facility nearest to me is spraying and the wind is blowing.

Sometimes, the smell even comes through the ducts when the windows are closed and I'll catch a whiff of the smell.

9. Because of the smell, I have to run my air conditioner much more than I would otherwise, which is a great expense. About a third of the time, I have to run my AC all of the time. This has increased my monthly energy costs to anywhere from $50 per month to around $275 per month, depending on the season. The hog industry shouldn't insert a cost on me while they get the benefit.

10. I can't have cookouts anymore because of the dust and the smell. The flies coming from the facility are everywhere, like invaders. It's a nuisance that has come right at my doorstep and into my house.

11. I usually cover my face just to go outside and mow the grass because of the dust and smell. When the smell is particularly bad, I have to wrap a towel around my nose and mouth and sometimes wear goggles. I still sometimes have trouble breathing the next day, sometimes for a week or two.

12. The industrial hog facility nearest to my home keeps dumpsters where it stores all of the dead hogs out on [redacted] (b) (6) Privacy (b), a public road near my home. Nearly every time I want to leave my house, I have to drive by these dumpsters, which also are called dead boxes. Some of the dead boxes have tops and others don't. I usually can see the blood washed over the sides of the boxes. Sometimes I'll see the hogs covered with flies and maggots and things. In the summer months, many more hogs die. I think the heat kills the animals and makes it easier for disease to spread. In the summer, I notice the boxes are full of more animals. I often see vultures around the dead boxes and the smell is terrible.

13. Every so often, a truck will come by and pick up the dead hogs from the dead boxes. The smell is so bad that I can hardly stay in my car when the dead trucks drive past, particularly in the summer.

14. The hog facilities in this area also move the hogs from time to time to different facilities to continue growing or to be slaughtered. Depending on where they're moving the hogs, there is a lot of truck traffic on the road.

15. My property used to be on well water, but now I am hooked up to county water. I know the lagoons can overflow and I think they might leak into groundwater. Before switching to county water, I was concerned that the hog facilities and their lagoons would contaminate my well water. I had to pay a $500 connection fee and now have to pay an additional $30 to $45 every month for county water treated with chloride.

16. Even though I am connected to county water, I'm still worried that the water could be contaminated from the hog facilities. I almost always buy my drinking water from the store in five-gallon drums. Several times since I have been on county water, the water coming out of the faucet has been brown. My neighbors and I have had to call the county to have them to flush the system. I think the brown water is related to the hog facilities in the area. Other times, there is so much chlorine in the water that you can smell it, which makes me wonder whether it's safe to drink.

17. There are several poultry facilities in the area, too. When I was a poultry farmer, we followed the environmental rules to spread out the litter and cut it into the soil, but no one even enforces these rules. When I'm driving through the county, I will see piles of poultry litter that will stay out for weeks before they are cut into the soil. Even when I'm in the car, I can still smell the piles of litter as I drive by. As a poultry

farmer, I know the problems this waste can cause to the environment if not disposed properly like this. In particular, I know chicken litter contains high levels of arsenic, which can contaminate the environment if the litter is not spread properly.

18. I live near the airport and experience noise pollution from the air traffic. Military airplanes fly over at least once a month, generally at night but also sometimes during the day. Outside of the smell and pollution from the hog facilities, the noise from the planes is yet another nuisance keeping me from being able to enjoy my property.

19. I think the industrial hog facilities are affecting my health. After the facilities were built in the area, I began to have problems breathing and was diagnosed with asthma. I have to see my doctor in (b) (6) Privacy one or twice a month for a check-up. My doctor believes my condition is related to living near these hog facilities. I can't stay outside for very long around my house or else I'll have (b) (6) Privacy the next day, and this, too, makes me think that my condition is worse because of the hog facilities. I now have to use a prescription (b) (6) every 3 to 4 hours and take an oral medication. I generally go through two to three (b) (6) per month and generally have to get a new one every other week. Even with the (b) (6) Privacy medicine, sometimes I'll get a cough that can last for several months, which I think is related to the pollution from these hog facilities.

20. I have (b) (6) Privacy, (b) (7)(C) Personal and have been on medication for the last 3 to 4 years. In 2011, I suffered a (b) (6). I initially couldn't walk and was taken to the hospital for observation. I now take a prescription stroke medicine and get monthly check-ups to monitor my (b) (6) Privacy, too.

21. Social Security and my other income only barely cover my medical expenses. My insurance will only cover the generic versions of my (b) (6) medication, which doesn't seem to work as well in my experience. With my (b) (6) medicine and the medicine I need to (b) (6) around the hog facilities, not to mention the cost of the AC, it's hard to make ends meet.

22. I used to fish every once in a while, but now I'm afraid to eat anything caught in the rivers and streams in the area. Some places in these waterways you see a reddish color and I think it's related to the pollution from the hog facilities in the area. I have heard news reports that the fish can carry germs and bacteria from the pollution from industrial animal operations. I don't want to eat the fish from this area any more after seeing those reports.

23. Since the hog industry took over hog farming from smaller farmers, I've cut down my consumption of pork. I don't want to support their business and I am concerned that because of the way they raise the animals the meat is not as healthy to eat.

24. The hog facility nearest to me has approached me to buy some of my property, but I refused. I don't want to be associated with an industry that pollutes its neighbors.

Impact on the Community

25. The whole community is affected by the hog facilities. On some days, you can smell the odor in town almost two miles away. You can smell it at the church, courthouse, restaurants, tax office, and all over town.

26. The real power here is the hog industry. A while back, one of my neighbors opposed the building of the hog facility to the Town Board. He ran a general

store in town and on property controlled by one of the swine growers. The same evening, they fired him and took his truck away. He's since sold his property and moved away.

27. There is almost no communication between the hog facilities and the community. The hog facilities don't give any notice when they're going to spray hog waste out over the fields. I have seen some facilities even spray when it's raining, when spraying is not allowed because the rain can wash the waste into ditches and the waters.

Advocacy Efforts

28. I have been working with the Rural Empowerment Association for Community Help, also known as REACH, for the past 2 to 3 years. I want to see the hog facilities adopt practices that are safe for the community and create a plan that is fair for everyone involved.

29. We deserve better environmental health. Everybody has a right to a healthy environment and not to bear the brunt of pollution from a neighbor. We should be able to walk out and shake hands together.

30. I have also worked on a lot of agricultural policy and rural aid issues. I have experienced discrimination as a black farmer and I testified before the United States Congress about the discriminatory practices against black farmers. I wanted to get fair and equal treatment from the government, which I believe has been discriminating against people of color since the 1920's. Black farmers have been prevented from receiving agricultural loans and farming aid, which caused a significant number of them to lose their land. When you think about the land loss that has taken place in rural areas for minority farmers, I think the placement of these large corporate farms has been discriminatory.

31. The communities near these hog facilities need more inspections for these facilities to make sure that they meet even the weak rules that are in place. More than that, though, the hog facilities need better waste treatment systems so that they don't spray the waste on their neighbors.

32. The odor from the hog facilities truly affects me both mentally and physically. It frustrates me and stresses me. I don't think that it's fair that I have to deal with something that someone else is profiting from. I shouldn't have to experience that nuisance. I was here before the swine industry moved in and I feel like a right as a citizen to enjoy the air, odor free.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in (b) (6) Privacy, (b) (7)(C) Personal Privacy County, North Carolina on 8/06/15
Date

(b) (6) Privacy, (b) (7)(C) Personal Privacy

(b) (6) Privacy, (b) (7)(C) Personal

EXHIBIT 1

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

EXHIBIT 2

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

ATTACHMENT 2

ANONYMOUS DECLARATION II

1. I wish to remain anonymous for this statement. I am of legal age and competent to give this declaration. All of the information in this declaration is based on my own personal knowledge unless otherwise indicated.

Background

2. I live in (b) (6) Privacy [redacted], North Carolina in a home that I own. I am African-American. I've lived at my current home for 45 years. I am (b) (6) Privacy [redacted] old.

3. There are at least five hog farms within one mile of where I live.

4. When the hog farms spray the hog waste, it burns my eyes. The smell is the worst in the early afternoon, but it's also bad in the morning when the waste in the air starts coming down to settle. I also think they must be spraying at night, because some mornings the smell is quite strong. It takes a couple of days after the spraying before I can come outside without the air burning my eyes.

5. Sometimes you see trucks going by in the afternoon, and I see the hog waste running out behind the trucks. I think the trucks are going to go spray somewhere else.

6. I can't eat outside or put my clothes outside on the line to dry because the odor from the hog farms is unbearable.

7. Because of the odor from the hog farms, I have bad allergies and need to take allergy medicine. I also have headaches a lot and I think my headaches are caused by the odors. I need to take Tylenol for my headaches. I also need to use a machine to help me sleep, and have to have a humidifier because it makes the air better inside my home. In the room where I don't have the humidifier, the air is terrible. I think my health issues are worse because of the hog farms.

8. Hog farms have been in close proximity to my home for approximately 10 to 15 years. Before the farms, it was pleasant to live here. There were less fumes passing through the house. Now, with the hog farms, the odor is often unbearable. Once the odor gets in the air, it stays for a day or so.

9. When the hog farms came in, I asked my neighbors whether they smelled it. I thought that someone had been killed and was thrown in the woods. The smell is worse in the winter and fall because the leaves fall off the trees and there is nothing to hold the odor back.

10. My granddaughter lived with me for about five years. She lived here after the hog farms moved to the area. When my granddaughter lived with me, she sneezed, had runny eyes, had trouble breathing, and couldn't play outside because of the fumes in the air.

11. I am on the county water system. I have been on the county system for about four years. I had concerns about water quality before I got connected to

the county water system. Before I was connected to counter water, my well-water had an odor to it and the taste was terrible. I don't know what the cause was, but I had my water tested two or three times before going on county water. I don't have the test results, but I was really concerned about it at the time. Before I connected to the county water, I had a purifier put on my sink because I was concerned that my water was not safe to drink. It cost about $500 to get hooked up to the county water system, and my water is better than it was before.

12. I am concerned about my property value because of the hog farms and the turkey farms being so close. I think the value of the house will be lower than what it otherwise should be if my house was not surrounded by hog farms. I can prove that the value of my house has been going down because the tax papers show the value is declining. It has declined by at least $10,000 in the last ten years, the same time period when the hog farms came to my neighborhood

13. I've talked about how the hog farms are affecting my health and ability to enjoy my property to different lawyers and among my neighbors. The Smiths, the Browns, and the Murphys have such a big hog organization, there's not much we can get done, but we still want to try.

14. If I could change anything, I would move the hog farms away from where people live.

15. The location of the hog farms and the impact they have on communities is a civil rights issue – I think more African Americans suffer than anyone else, because hog farms are usually in the Black communities. I don't see the hog farms in the White communities.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Statement verified in (b) (6) Privacy [redacted], North Carolina on November 20, 2014

ATTACHMENT 3

DECLARATION OF (b) (6) Privacy

1. My name is (b) (6) P I. I am of legal age and competent to give this declaration. All of the information herein is based on my own personal knowledge and experience unless otherwise indicated.

Background

2. I am a (b) (6) Privacy. I live at (b) (6) Privacy (b) (6) Privacy, North Carolina, (b) (6) Privacy, (b) have lived at this address for (b) (6) Privacy, I own my home. I live in my home with my husband and my son. My (b) (6) Privacy, (b) (7)(C) P I (b) (6) Privacy, (b) (7)(C) P I P I. We have been married for 12 years. Our son, (b) (6) Privacy, (b) (7)(C), (b) (6) Privacy, (b) (7)(C) old and is graduating from high school this year.

Experience Living Near Hog Facilities

3. I have experienced (b) (6) Privacy, (b) (7)(C) since I lived at my previous address in (b) (6) Privacy North Carolina. I lived at that address for five years. There was a hog facility immediately behind the trailer park, as well as a poultry facility across the road from the trailer park. My old address and the surrounding hog facilities are shown in the map attached as Exhibit 1.

4. I am experiencing the same (b) (6) Privacy, (b) (7)(C) at my current address, which is near both hog and poultry facilities. The map attached as Exhibit 2 shows the proximity of the nearest facility to my home. The map attached as Exhibit 3 shows that there are at least ten permitted hog facilities operating within three miles of my home. My (b) (6) Privacy, (b) (7)(C) are so intense that I am forced to lie down until the pain passes. It is a terrible feeling that I cannot stand. I also have trouble (b) (6) Privacy, (b) (7)(C) P I P I. I experience these symptoms a lot, almost every other day. I like to work in my yard, but

my symptoms are worse when I go outside so I would rather stay inside. I see my doctor monthly for these problems. My doctor is in (b) (6) Privacy (b), which is 10-20 minutes from my home.

5. When we lived at (b) (6) Privacy, (b) (7)(C) Privacy my son and I were prescribed a (b) (6) Privacy, (b) (7)(C) Personal Privacy to treat our trouble (b) (6) Privacy, (b) (7)(C) Privacy (b) (6) These medications cost about $100 to fill, which was more than I could afford, so we did not fill the prescription. We still experience sinus problems, but we take over-the-counter medications recommended by my doctor, such as (b) (6) Privacy, (b) (7)(C) Privacy take the medication when my symptoms bother me. I do not like taking the medication, but I have to because it eases my (b) (6) Privacy and (b) (6) Privacy, (b) (7)(C) Privacy.

6. I am a caretaker for my husband (b) (6) Privacy (b). My husband was diagnosed with (b) (6) Privacy, (b) (7)(C) in 2010. He receives (b) (6) Privacy, (b) (7)(C) Privacy three times a week. I pay over $100 every week for gas to take my husband to (b) (6) Privacy, (b) (7)(C) Privacy. He also requires an (b) (6) Privacy, (b) (7)(C) Privacy. My husband also has (b) (6) Privacy and suffered a (b) (6) Privacy, (b) (7)(C) Privacy. I would like to take my husband outside for fresh air, but I cannot because I never know when it will smell and because we both have trouble breathing and do not enjoy being outside when it smells. I have noticed that the smell is the most intense in the late evening. I think that some of his health problems are related to the hog facilities. All of his health problems are harder to deal with because we live so close to the hog facilities.

7. My son, (b) (6) Privacy (b) has sinus problems and wears a (b) (6) Privacy, (b) (7)(C) Personal Privacy (b) (6) Privacy to go outside and cut grass in the yard. When (b) (6) Privacy goes outside to cut grass, his eyes itch and he has trouble breathing. One time, his symptoms were so bad that he

could not cut the grass in our yard anymore, so I hired someone to cut the grass for us. I do not have the money to bring him to the doctor for his symptoms, so this was the least expensive solution. He was prescribed a (b) (6) Privacy, (b) (7)(C) Personal Privacy, but I cannot afford to fill the prescription. Sometimes when my son's (b) (6) Pr are bothering him, (b) (6) Privacy, (b) (7)(C) Personal Privacy (b) (6) Privacy, (b) (7)(C) Personal Privacy I think it helps manage his symptoms.

8. I enjoy working in my yard, weeding and cutting the grass, and sitting on my porch. However, in the morning time there are biting flies and in the evening time there are mosquitos, so I would rather stay in my house and not be bothered by insects. I have noticed that there is a heavier presence of mosquitos in the evening. I believe that the mosquitos are attracted by the lagoons of hog waste at the hog facilities near my home. I must wear mosquito repellant spray and a mask to go outside.

9. The smell from the hog facilities is rank and unpleasant and it also stops me from spending time outside. I also sometimes smell poultry facilities. I know the different smells because I've noticed a difference when I am near hog and poultry facilities. I cannot spend time outdoors or have cookouts as often as I would like, or at the times I otherwise would, because of the smell from the hog and poultry facilities combined with all of the bugs.

10. Day and night trucks drive by my house. I think they are carrying live turkeys and hogs, turkey and hog feed, and dead animals. Some of the trucks carrying live turkeys and hogs are open on the sides and the animals are held in crates. I have had to pick up turkey feathers from my yard that have flown out of the trucks driving by. In the summer, I pick up the most feathers from my yard. I pick up about 20 feathers from

my yard every other week. I think that most of the live hogs are taken to a large processing plant in (b) (6) P i, North Carolina for Murphy-Brown. I think this because my husband drove trucks for Murphy-Brown for 5 years, and once I rode in the truck with him to the processing plant.

11. I also can estimate what a truck is carrying because I recognize the names on the sides of the trucks. I know that Johnson, Nash and Sons' Farms, Inc. supplies poultry feed, and I see their trucks driving by my home from their plant in (b) (6) P i carrying poultry feed. I also know that Valley Proteins, Inc. renders animal by-products and I see their trucks driving by my home to their plant in (b) (6) P i. I think that the Valley Proteins trucks are carrying dead hogs because when the truck passes it is a different smell from the smell of live animals or feed. It smells like something has died. I also think that Murphy-Brown trucks might be carrying live hogs and hog feed because my husband used to drive these trucks and I can recognize the trucks carrying live hogs and feed by sight and smell.

12. I usually see trucks on the road when I am driving. When I drive behind a truck that is carrying live hogs I often have to wash my car because sometimes the truck leaks what appears to be animal waste on my car. Sometimes, the waste covers my entire windshield and leaks all over the road. The smell of the waste from the trucks is terrible. I have also encountered trucks that are carrying dead hogs when I am driving. I recall a time that my mother and I were driving on (b) (6) P i (b) towards (b) (6) P i, and we pulled up next to a Valley Proteins, Inc. truck that I think was carrying dead hogs. The smell was so intense that we both started gagging. We had to stop driving and pull off onto the side of the road.

13. I also am affected by the smell of the trucks when I am at home. Sometimes the smell from the trucks is so bad that if I am sitting on the porch and a truck goes by, I have to run inside. The smell can linger for at least an hour.

14. I would like to sell my home because I cannot tolerate the smell of the hog and poultry waste. I cannot sell my home because I do not have the money to move. Neither my husband nor I are able to work. I used to work for a company grading wood and my husband used to drive trucks for Murphy-Brown. I had (b) (6) surgery in 2007 and afterwards I could not go back to work. My husband was diagnosed with (b) (6) Privacy, (b) (7)(C) in 2010 and cannot work, either.

Impact of Hog Facilities on Community

15. I know that hog facilities are concentrated in low-income communities of color. I believe that the companies that own these facilities, such as Murphy-Brown, have so much money that they can do what they want, and the people who do not have money cannot protect themselves. I also think that people have trouble breathing and sinus problems because the hog facilities pollute air that we breathe.

16. If I could change something at the hog facilities, I would make their operations better for the environment and for human health by getting rid of hog houses and housing less hogs in general. I would also change the way that the facilities manage the waste so that they are not held in large lagoons. I would like for the hog facilities to "go green" and not pollute the water or the air around them.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in (b) (6) Privacy, (b) (7)(C) Personal, County North Carolina, on Aug 12, 2015.

(b) (6) Privacy, (b) (7)(C) Personal Privacy

EXHIBIT 1

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

EXHIBIT 2

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

EXHIBIT 3

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

ATTACHMENT 4

DECLARATION OF (b) (6) Privacy, (b) (7)

1. My name is (b) (6) Privacy, (b) (7)(C). I am of legal age and competent to give this declaration. All of the information herein is based on my own personal knowledge unless otherwise indicated.

Background

2. I am African-American. I live at (b) (6) Privacy, (b) (7)(C) in (b) (6) Privacy, (b) (7)(C) Personal Privacy Carolina. (See Attached Map). I own my home and live near at least one hog farm.

3. I am (b) (6) Privacy, (b) (7)(C) Personal old and have lived in my home for over 30 years. I moved there in 1983.

4. I am (b) (6) Privacy, (b) (7)(C) Personal Privacy, a community revitalization project. A Step Forward works to educate seniors about nutrition and offers youth programs as well. Before (b) (6) Privacy, I worked as a nurse.

5. I live alone now, but I raised my niece in this home. She moved out about a year ago.

Concerns about Living Near Hog Facilities

6. I am concerned about how the hog farmers are raising hogs now. In the past, there were small farmers with hogs roaming outside in pens. Now, things are different. I see that they spray the hog waste on the sprayfields, then cows

graze on that grass. I worry about the steroids and antibiotics used in raising the pigs, and how those steroids and antibiotics affect the rest of the food chain.

7. I think my property value has gone down because of it being in close proximity to a hog farm.

8. I'm on city water, but I don't trust the water quality. Sometimes the water looks odd and does not smell clean. I am concerned that my drinking water might be negatively affected by my home being in close proximity to hog farms.

9. I am even skeptical of growing a garden because of how close I am to a hog farm. I don't know if my groundwater is safe, because of the hog farms and that may negatively affect garden.

10. The smell is a real problem for me. In addition to the smells from the hog farm, the paper plant smells bad too. I can smell the hog farms the most when it rains.

11. I am concerned about other hog farms in my community as well. When my [redacted] (b) (6) Privacy, (b) (7)(C) Personal Privacy, she was a cheerleader. I attended many football games between 2004 and 2007 and it was a real embarrassment to the home team to be near so many hog farms. There are at least three or four hog farms near the high school, and the air often smelled like hog waste during home games. We could smell the hog farm and the sprayfields on our way to the game, during the game, and after the game. It was awful. Other people attending the

games would talk about just how bad the smell was. I don't think the planners for the location of the school gave any consideration to placing a high school in the midst of those hog farms.

Activism around Hog Farming

12. I started advocating regarding the hog farms about a year ago. I am a former member of the (b) (6) Privacy, (b) (7)(C) Commission. While on the Commission I attended a brownfields conference and was reintroduced to Naeema Muhammad with the North Carolina Environmental Justice Network. I knew her because we worked together in my community to advocate against a landfill in (b) (6) Privacy (b) We started talking about the hog issues in my community.

13. If I could recommend a change in how the sprayfield system operates, I would at least ask that the farmers to let people know when spraying will occur.

14. I think that the hog farm issue is a civil rights issue because the sprayfields and farms are more often in Black communities. It bothers me and I think that it is not fair to us.

I declare, under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information and belief.

Executed in (b) (6) Privacy, (b) (7)(C) Personal Privacy North Carolina on August 26, 2014.

(b) (6) Privacy, (b) (7)(C) Personal Privacy

Signed: (b) (6) Privacy, (b) (7)(C) Personal Privacy

(b) (6) Privacy, (b) (7)(C) Personal

Address: (b) (6) Privacy [redacted]

Addressee: (b) (7)(C) Personal [redacted]

Map radius: Approximately 2 miles

Source: Google Maps

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

ATTACHMENT 5

DECLARATION OF [redacted]

1. My name is [redacted]. I am of legal age and competent to give this declaration. All of the information herein is based on my personal knowledge unless otherwise indicated.

Background

2. I am African American. I live with my grandson, [redacted] at [redacted], North Carolina. I am [redacted] old and my grandson is [redacted]. My late wife and I built our home in 1975 and lived there for many years until moving up north. In 2004, after living up north for several years, I moved back to the home we built together and I have been living there ever since.

Surrounded by Hog Facilities

3. My home is located within half a mile of two hog facilities and I can see one of the facilities from my back door. My home and the hog facilities are shown in the map attached as Exhibit 1. As is shown in the map attached as Exhibit 2, there are even more hog facilities within a three mile radius of my home.

4. The smell from the facilities is overpowering and can get so bad that it takes your breath away. I always keep my windows and doors closed in my house to block out the smell, but you can't avoid it when you go outside.

5. From my house I can see the large dumpsters where they store hogs that die off from injury or illness. The dumpsters with the dead hogs are disgusting, but even worse are the trucks that drive directly by my house to haul the dead hogs away. The smell from these trucks is horrible. As bad as live hogs smell, dead hogs smell much worse. It is disturbing and disgusting to witness the trucks collect the dead hogs and haul them away.

6. In the summer I like to take walks outside and do some gardening, but often the smell from the hog facilities is so bad that I am forced to stay inside.

7. In addition to the horrible sights and smells from the facilities, I am also disturbed by the smells and pollution from the hog facility trucks. Hog trucks are always driving by my house to haul away dead hogs or to transport the live ones to the slaughterhouse. The live hogs create a lot of waste and the waste runs out of the trucks and on to the road, where it washes down into the ditches. The smell is very bad and I am worried that the waste is being washed into my well water.

8. The hog trucks are also very noisy. At least one truck passes by my house every day, but the truck traffic greatly increases every three to four months when the hogs are taken from the farms to the slaughterhouse. During these times the trucks are hauling the hogs away all night long and the truck noise and the squealing from the pigs is unbearable. I have trouble sleeping already without additional noise, so when the trucks drive past at night it can ruin my sleep for the entire night.

9. My home is on well water and I am very concerned that the water is being contaminated by the nearby hog facilities. There are two hog facilities located within a half mile from my house, and often I see them spraying the hog waste all over the nearby fields. I am concerned that the waste from the sprayfields also is ending up in my water.

10. Even though I think my water could be contaminated, I still drink it and cook with it because I don't have easy access to cleaner water. Since 2004, I have been asking the county to hook my house up to the county water system, but they have refused.

11. I am also worried about how the air from the hog facilities is affecting my health. When the smell is particularly bad, I have sinus issues and I can't stop sneezing. This is uncomfortable, and I am worried that it might be causing long term health effects.

12. When my wife and I built our home in 1975, none of the nearby hog farms existed. Now my home is completely surrounded by hog farms and the whole area is smelly and polluted. It makes me very sad to see how the area has changed for the worse. I would like to move but my home is already paid off and it has a great deal of sentimental value because I built it myself with my late wife.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in (b) (6) Privacy, (b) (7)(C) County, North Carolina, on August 24, 2015.

(b) (6) Privacy, (b) (7)(C) Personal Privacy

(b) (6) Privacy, (b) (7)(C)

EXHIBIT 1

[redacted]

EXHIBIT 2

[redacted]

ATTACHMENT 6

DECLARATION OF (b) (6) Privacy, (b) (7)(C) Personal Privacy

1. My name i (b) (6) Privacy, (b) (7)(C) Personal I am of legal age and competent to give this declaration. All of the information herein is based on my own personal knowledge and experience unless otherwise indicated.

Background

2. I am a (b) (6) Privacy, (b) (7)(C) Personal Privacy I live at (b) (6) Privacy, (b) (7)(C) Personal Privacy (b) (6) Privacy, (b) (7)(C) Personal North Carolina with my husband of the past (b) (6) Privacy, (b) (7)(C) Personal. I own my home and have lived in it my entire life. I raised my daughter and two sons in this home, but they have all moved out. My daughter (b) (6) Privacy, (b) (7)(C) Personal Privacy. She has an 18-year-old son. One of my sons is (b) (6) Privacy, (b) and has a (b) (6) Privacy, (b) (7)(C) Personal Privacy. My other son is deceased. My home is stick-built and was insulated about 20 years ago.

Experience Living near Hog Facilities

3. There are several sprayfields off of NC Highway 117, which is (b) (6) Privacy (b) (6) Privacy, As is shown in the map attached as Exhibit 1, there are at least five hog facilities (b) (6) Privacy, (b) (7)(C) Personal of my home. There are many more hog facilities (b) (6) Privacy, (b) (7)(C) Personal as is shown in the map attached as Exhibit 2.

4. The hog facilities have not always been here. I think the facilities were built around 30 years ago. My children had left home before the facilities were built. When my children lived with me, they enjoyed playing outside. Now, when my grandchildren come to my house to visit me, they often cannot play outside because of the smell from the hog facilities and the bugs that are attracted by the hog waste lagoons. I do not feel comfortable allowing my grandchildren to play outside when it smells like hog waste.

5. Sometimes, when I am outside, the smell of hog waste makes me want to gag. I have to rub my eyes because it feels like something is in my eyes and my eyes start to burn. My skin is sensitive and it is itchy when I am outside. I believe that these symptoms are connected to the waste from the hog facilities because my symptoms are worse when I am near a hog facility.

6. The smell of hog waste is the worst in the summer months. It is the strongest in the early morning and in the late evening. It smells like something is rotten or dead. The smell of the hog waste often stops me from going outside; it can be so awful that it makes me want to throw up. I don't want to plan cookouts or host family reunions because the smell might be too bad. I used to enjoy sitting on my porch with friends before the facilities were built, but I cannot do that now because often the smell is just too bad. In the summer afternoons, I have noticed a dim, hazy look in the air. I believe that the haze is connected to the way that the hog facilities spray the hog waste on the fields.

7. In the warmer months, I would like to open my windows to air out my home, but I do not open my windows because I do not want the smell of hog waste to enter my home. My electricity costs me about $120 every month. I think that my electricity bill would be lower in the fall and spring if I were able to open my windows and not run my air conditioning. Sometimes, I can smell the hog waste inside my house even with the windows closed.

8. I enjoy working in my yard, but I am not able to be outside as much as I would like because of the bugs, like the flies, which are always buzzing around. I believe that there are more flies than there were before the hog facilities were built.

9. My husband, (b) (6) Privacy was diagnosed with (b) (6) Privacy, (b) (7)(C) Personal Privacy (b) (6) Privacy, (b) (7)(C) Personal Privacy ago. My husband goes to a doctor every three months in (b) (6) Privacy, (b) (7)(C) which is about 7 or 8 miles from our home. He sees a doctor for his (b) (6) Privacy, in (b) (6) Privacy, (b) (7)(C) once a year. His (b) (6) Privacy medication costs about $60 to $80 every month. My husband cannot go outside when it smells from the hog facilities because the smell makes his (b) (6) Privacy, -related symptoms worse. My husband also has muscle spasms, and his doctor prescribed medication that costs $16 every month.

10. Trucks drive by my home at all times of day and night and that also is a problem. The trucks are coming from the hog facilities and they smell terrible and are noisy. I think they might be carrying live or dead animals and sometimes I think they might even be carrying animal waste. If I am driving anywhere and a truck pulls up next to me, the smell can be really terrible. I even have had to stop driving and pull over onto the side of the road. I recall a time that my daughter and I were driving on Highway 117 towards Wallace, and we pulled up next to a Valley Proteins, Inc. truck that I think was carrying dead hogs. The smell was so intense that we both started gagging and had to pull over to recover. The smell could ruin your appetite if you are going somewhere to eat. It makes a person not want to drive anywhere. When a truck drives by my home, the smell can hang in the air for a while.

11. There are some poultry facilities near my home. The smell from the poultry facilities is not as intense as the smell from the hog facilities but it is not a good smell. There is a field near my home where large trucks drop off piles of poultry waste. I know this is poultry waste because it is solid, and not liquid like hog waste. The waste smells awful. The smell lasts for a day or two and makes me feel nauseous. The

combined smell of the poultry and hog waste makes me want to stay inside my home, away from the smell.

12. I do not believe that I can do or say anything to change my situation. I could not move if I wanted to because I do not have the money to do so. I would not want to live in any nearby town, such as Clinton, because they have problems with the hog facilities, too. There might not be hog facilities right in town, but in Clinton there's a hog processing plant that generates an awful smell a lot of the time.

Impact of Hog Facilities on Community

13. I know that hog facilities are concentrated in communities of color. I feel like because we are black and low income, they think they can do this to our community. Members of my community do not believe that they are able to do anything to change this situation. They do not believe that the hog industry will change anything.

14. If I could change the way the hog facilities do business, I would want them to stop spraying on the fields and find a different way to get rid of the hog waste. I want them to get rid of the odor from the hog facilities. Also, I would like their trucks to stop going through my neighborhood so frequently and so noisily.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in (b) (6) Privacy, (b) (7)(C) _____ County, North Carolina, on 8-12-2015, 2015.

(b) (6) Privacy, (b) (7)(C) Personal Privacy

(b) (6) Privacy, (b) (7)(C) Personal

EXHIBIT 1

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

EXHIBIT 2

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

ATTACHMENT 7

DECLARATION OF (b) (6) Privacy, (b) (7)(C) Personal Privacy

1. My name is (b) (6) Privacy, (b) (7)(C) I am of legal age and competent to give this declaration. All of the information herein is based on my personal knowledge unless otherwise indicated.

Background

2. I am a (b) (6) Privacy, (b) (7)(C) Personal Privacy. I currently reside at (b) (6) (b) (6) Privacy, (b) (7)(C) Personal Privacy North Carolina, less than one mile from my birthplace. I purchased my current home 45 years ago.

3. As is shown in the map attached as Exhibit 1, there are four large hog facilities (b) (6) Privacy, (b) (7)(C) Personal Privacy there are at least 10 hog facilities, as is shown in the map attached as Exhibit 2. I also have seen poultry facilities near my (b) (6) Privac.

4. Along with my late wife, I raised my four children in my current home. However, because of our concerns for the hog facilities' impact on our children's health, I have assisted my children in relocating to Maryland and Washington, D.C.

5. In 2004, I joined the Rural Empowerment Association for Community Help ("REACH") because I am frustrated with my lack of clean air and clean water. Soon after joining REACH, I became a board member. As a board member, I have supported REACH's work against the hog facilities, including REACH's work sampling local waters for contamination and screening schoolchildren for asthma.

Experience Living Near the Hog Facilities

6. My (b) (6) Privacy, (b) (7)(C) Personal Privacy. Even when I close all the windows and doors, I cannot keep the horrible smell from the hog facilities outside.

7. Every day, at least nine trucks carrying hogs travel back and forth to the hog facilities near my home. I also have seen other trucks going to or from the facilities. I think these other trucks might carry away dead hogs. All of the trucks carry an awful smell with them.

8. The trucks recently increased their presence during the morning hours. The stench carried by the trucks lingers, covering the clothing of schoolchildren waiting at bus stops. I know from my work with REACH and my own health challenges that the poor air also increases their risks for asthma and other respiratory diseases.

9. The roads in front of my home often are covered in a foul smelling liquid, which I think is hog waste that has been spilled from the trucks that drive by moving the hogs from one facility to another. The spilled liquid persists until the rain washes it off the road, but the horrible odor returns as soon as the ground is dry.

10. The trucks run at all hours of the day and are loud nuisances outside my home. The trucks can be heard in addition to the roaring fans at the hog facilities. The fans run at all hours of the day but more often in the summer.

11. The hog facilities (b) (6) Privacy, (b) (7)(C) sometimes spray the hog waste onto fields. The smell becomes noticeably stronger once the spraying begins. No warning is ever given before the hog facilities begin to spray the waste.

12. Because the smell from the hog waste and the trucks is so strong, I no longer can hang my clothing out to dry outside my home. Even when I wash and dry them indoors, I sometimes must rewash them and must use a special detergent to remove the smell.

13. I wish I had moved a long time ago because of the inconveniences of the hog facilities and the risks to me and my family's health when they lived here with me.

14. The smell from hog waste spray not only affects me at home, it also affects me when I visit my deceased relatives at (b) (6) Privacy, (b) (7)(C) P I P I, a private family cemetery located just over (b) (6) Privacy, (b) (7)(C) Personal Privacy. The cemetery is accessible only by taking an unmarked country road through the woods. I visit the gravesites of my grandmother, her mother, and other relatives who are buried there nearly every week. Because the cemetery is very close to a hog farm and near the fields where the waste is sprayed, it often smells of hog waste. I do not visit as often as I would like, and I frequently cut my visits to the cemetery short, because I cannot stand the unbearable smell from the hog facilities. My breathing problems also get worse if I am there for too long. A map showing the (b) (6) Privacy, (b) (7)(C) P I P I and the nearby hog farm is attached as Exhibit 3.

Outdoor Recreation Near the Hog Facilities

15. I am a hunter and a fisherman. I used to fish at Northeast Cape Fear River, but I had to stop eating the fish because I began seeing dead and deformed fish in the River. Some of the fish had boils and lesions on them. I was concerned that the problems in the River were caused by the hog facilities, so I stopped fishing in the area. I cannot fish in the creeks near me because I have noticed problems there, also.

16. I also enjoy walking through the woods behind my home. I cannot do so as often as I would like to because of the unbearable smell from the hog facilities on the other side of the woods.

Personal and Family Health

17. While stationed at (b) (6) Privacy, (b) (7)(C) Personal Privacy during the (b) (6) Privacy, (b) (7)(C), I was exposed to an experimental form of Agent Orange; my unit was asked to collect targets in an area where the Agent was exploded only two days earlier. As a result, and as doctors predicted, I lost my

full head of hair and all my teeth. My nose bled profusely and I developed a rash-like pattern of discolored pigment all over my skin.

18. Since my exposure to Agent Orange, I have had trouble breathing. My symptoms are worse when I am near the hog facilities. When I go to the beach where there is no spraying, my breathing problems are a bit better than when I am around the facilities when they are spraying.

19. I suffer from (b) (6) Privacy, (b) (7)(C) P I as well as (b) (6) Privacy, (b) (7)(C) Personal Privacy (b) (6) Privacy (b) Even though I do not drink or smoke, my conditions are worsening. My doctor in Faison diagnosed me with (b) (6) P I and prescribes four daily medications and three (b) (6) P I for my health problems, which cost me nearly $50 per month.

20. I began seeing my doctor in (b) (6) Privacy after I was dropped from the supplemental insurance to my Medicare plan. That plan provided for a nurse to transport me to the Veterans Affairs clinic. Since losing the coverage, I now must find someone willing to take me to the doctor in (b) (6) Privacy, nearly 20 minutes away. I don't like driving because I lost an eye in an accident a few years back.

21. I currently see my doctor every three months. Sometimes my conditions worsen and I need to go sooner, but it's hard to get an appointment. I have had to wait several weeks to get in to see the doctor.

22. Over the previous three years, I have sought emergency room care twice each year because I suffered sudden severe flare ups of my respiratory problems. I think my problems were related to the horrible stench and pollution from the hog facilities.

23. Now that I no longer have the supplemental insurance, I worry about the possible medical expenses I may face if I have to seek emergency care again in the future.

24. My oldest daughter also had health problems when she lived close to the hog facilities. She developed (b) (6) Privacy, (b) (7)(C) issues around the time she turned 16. While our other children played outside, my oldest daughter often had to stay inside because of her sinus issues. She suffered (b) (6) Privacy, (b) (7)(C) Personal Privacy and required five to six trips to the emergency room while in high school. No medical diagnosis was given and her symptoms persisted.

25. My oldest daughter currently works in education. She has missed a lot of work because of the health problems that might be related to the hog facilities. For example, sometimes, on her way to work, she gets caught behind trucks carrying the hogs and it makes it hard for her to breathe. Her symptoms improved, however, when she temporarily moved out of the area and out of state. I believe her symptoms improved because she moved away from the air pollution from the hog facilities.

26. I am thankful for life but it is useless without access to clean air and clean water. Though it may be too late to help me, I want to have clean air and water for my children and others. To have clean air and water, something must be done about the hog facilities.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in (b) (6) Privacy, (b) (7)(C) Personal Privacy County, North Carolina, on 7-29, 2015.

(b) (6) Privacy, (b) (7)(C) Personal Privacy

EXHIBIT 1

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

EXHIBIT 2

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

EXHIBIT 3

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

DECLARATION OF (b) (6) Privacy, (b) (7)(C) Personal

1. My name is (b) (6) Privacy, (b) I am of legal age and competent to give this declaration. All the information herein is based on my own personal knowledge unless otherwise indicated.

Background

2. I am a (b) (6) Privacy, (b) (7)(C) Personal Privacy I currently live at (b) (6) Privacy, (b) (7)(C) Personal Privacy (b) (6) Privacy, (b) North Carolina. Attached to this declaration as Exhibits 1 and 2 are satellite maps showing my home and surrounding swine facilities within a one and three mile radius, respectively. As you can see from Exhibit 1, there are at least 5 swine facilities located within a (b) (6) Privacy, (b) (7)(C) Personal Privacy Under their permits, these facilities could collectively house almost 20,000 animals and have eight lagoons. Looking within the (b) (6) Privacy, (b) (7)(C) of my home, the permitted facilities could collectively house over 80,000 hogs. There are at least 30 swine facilities within a (b) (6) Privacy, (b) (7)(C) Personal Privacy

3. I work part-time as a (b) (6) Privacy, (b) (7) (C) Personal Privacy I don't work many hours because of my disability. I have a pacemaker because of a heart condition which I understand to be related to sick sinus syndrome, which I believe was caused by pollution from the swine facilities, including the sprayed hog waste. I did not have trouble with my sinuses or with breathing before the industrial hog farms moved in near my home. I have had the pacemaker since about (b) (6) Privac I receive (b) (6) Privacy, (b) (7)(C) Personal Privacy benefits because of my condition.

4. I grew up in my house at (b) (6) Privacy, (b) (7)(C) Personal Privacy which my mother continued to live in when I moved to New Jersey in 1969. All of the surrounding land also was owned by black people at that time.

5. I came back to North Carolina in 1979, to take care of my mother after she had a heart attack. My mother died in 1994, and soon after that I moved back into (b) (6) Privacy, (b) (7)(C) Personal Privacy [redacted] and renovated it. As shown in attached Exhibit 3, my home is (b) (6) Privacy, (b) (7)(C) [redacted] from a sprayfield connected to a hog facility. When my family and I first lived in the area, we believe that some or all of the industrial hog facilities were not yet in existence. Across from my house were tobacco fields owned by an African American family. I believe construction of the industrial hog houses (b) (6) Privacy, (b) (7)(C) Personal [redacted] was completed in the mid-1990's.

Experience Living Near Hog Farms

6. (b) (6) Privacy, (b) (7)(C) Personal Privacy [redacted] At that time, there were no big industrial hog houses, but there was a much smaller hog house way back in the woods. I would carry the feed and have to put it in the bins.

7. The farms smelled back then too, but nothing like the smell the current industrial operations produce.

8. Today, as you can see on Exhibit 3, there are sprayfields (b) (6) Privacy, (b) (7)(C) Personal Privacy [redacted] (b) (6) Privacy, [redacted] The spray just shoots out when the mechanized, high-volume sprayer is running, at times getting waste on my lawn, car and home. Attached Exhibit 4 is a CD containing a video of the sprayers nearest my home.

9. They typically spray in the morning and again at night, but as far as I know there is no set spraying schedule. The hissing sound of the sprayer and the blinking light that is visible through my windows when they spray at night wakes me up at night.

10. The smell from the hog waste is like something has been dead for a while. Like the body's been dead and decomposed. It's a horrible odor like nothing else I've smelled before.

11. Once the odor gets on you, you have to keep washing and washing. If you walk past a hog truck, you don't have to touch it but the smell gets on your skin.

12. (b) (6) is the contractor grower for Murphy-Brown whose operations are (b) (6) Privacy, (b) (7)(C) to me (at least one of his sprayfields is (b) (6) Privacy, (b) (7)(C) Personal Privacy He has hogs (which I understand are owned by Murphy-Brown) and he also has poultry houses. I think he built about 9 or 10 poultry houses maybe a year ago. They are painted green and don't use lagoons but the poultry waste is spread around outside, too. The stench from the poultry houses and waste is not as bad as that from the hog facilities, but it still smells horrible.

13. The buzzards that congregate around my house because of the hog facilities are a problem, too. There are a lot of them on this road because of the dead box (where the facilities deposit the dead hogs) down the street, right by the cemetery. It's probably less than half a mile away. The odor from the dead boxes is even more horrible than from the sprayers and the facilities where the live hogs are kept.

14. In about (b) (6) P i I was diagnosed with (b) (6) Privacy (b) which is a bacteria that settles in the lungs. It's a chronic disease that I suffer from in addition to the sick sinus syndrome, and I have to take steroids to treat it. My lymph nodes and my chest swell. I get short of breath. I think this condition has something to do with the pollution from the hog facilities, particularly the sprayfields, because I never suffered these symptoms before the sprayfields came. I still take the prednisone now, since 2009. And lately, I have had to go to the eye doctor to get steroids for eye bacteria.

15. Before the facilities and sprayfields moved in near me, I used to have a garden and hang clothes on the line. I don't have a dryer, so now I have to either go into town to dry my

clothes or try to avoid times when the sprayer might be operating. The laundromat is ten to twelve miles away.

16. I used to have cookouts, but not anymore, because of the constant threat of the likelihood that there will be a stench from the hog facilities and sprayed waste so close to my home.
17. Now I keep my windows closed virtually all the time because of the spraying. I would rather have them open because I like a breeze, but the stench and the spray is too awful to bear.
18. I stay in the house now as much as I can because of the hog facilities and spraying. I would rather be able to walk and garden outside. If I go outside when they are spraying, I run to get in my car to go to work. There are so many sprayfields on this road that I smell the hog waste odor all the way to Warsaw.
19. Because of the pollution from the hog facilities, I feel like I don't have a life. I'm engaged to be married, and one day I would like to be walking outside with my husband and say "ooh, smell this fresh air!"

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in (b) (6) Privacy, (b) (7)(C) North Carolina on Oct 27, 2015.

(b) (6) Privacy, (b) (7)(C) Personal Privacy

(b) (6) Privacy, (b) (7)(C) Personal Privacy

EXHIBIT 1

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

EXHIBIT 2

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

EXHIBIT 3

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

ATTACHMENT 9

DECLARATION OF (b) (6) Privacy, (b) (7)(C) Personal Privacy

1. My name is (b) (6) Privacy, (b) (7)(C) Personal I am of legal age and competent to give this declaration. All of the information herein is based on my own personal knowledge and experience unless otherwise indicated.

Background

2. I am a (b) (6) Privacy, (b) (7)(C) Personal Privacy. Since 2002, I have lived at (b) (6) Privacy, (b) (7)(C) Personal Privacy North Carolina with my wife and my nine-year-old daughter. Before that, I lived in the Washington D.C. area. As a teenager, I split my time living between Washington, D.C. and (b) (6) Privacy, (b) (7)(C) Personal

Experience Living Next to Hog Facilities

3. My home is surrounded by hog facilities and sprayfields. The map attached as Exhibit 1 shows that there is a hog facility within a mile of my home. The map attached as Exhibit 2 shows that there are about two dozen hog facilities within a three-mile radius of my home.

4. I have been living near hog facilities and sprayfields since 2002. I don't currently work so I am at home most days and I experience the effects of the hog facilities frequently.

5. There often is a bad smell near my home from the hog facilities, sprayfields, and trucks that carry the dead animals from the hog facilities. The smell is strongest during the summer when it is hot outside or after a truck carrying dead hogs passes by. I see dead hog trucks every day. A foul smelling liquid frequently spills out of these trucks onto the road. Sometimes I see guts from dead hogs on the road.

6. Because of the smell, my wife, daughter, and I do not spend much time outside. We don't hang our clothes outside to dry because we are concerned the smell will get into the clothes and stay in them. We always keep the windows in the house closed and run the air conditioning as needed throughout the year so the smell doesn't get in our house. If we open the windows, the stink from the hog facilities can get inside and into our clothes.

7. I constantly see flies around my home. I think they are attracted to the stink from the hog facilities. All year, but even more in the summer, when it's hot and the smell from the hog waste is strongest, we have to use fly swatters and Raid insect spray against the bugs. I have cousins who live across from a hog facility and the flies there are so thick in the summer when the odor is the worst. They can't get rid of them.

8. I believe the hog facilities spray their waste in the morning, but I never can tell what time in the morning they are going to do it. The facilities don't notify us when they are going to spray. Sometimes I see a brown-colored fog and I think it is from the sprayfields shooting hog waste into the air.

9. My daughter has asthma. She has had it since she was born in 2006. She takes medication for the asthma. Her doctor hasn't told me what he thinks caused her asthma, but being around the sprayfields aggravates her symptoms. We don't let our daughter play outside at home even though she'd like to. She plays on the softball team at school and likes being outside. Her asthma isn't always a problem, but we ask her to stay inside at home to try to prevent her asthma from being triggered from the odor and hog waste in the air from the hog facilities and the sprayfields.

10. Before I moved back down here in 2002, I had some eye allergies, but now I have worse eye allergies and nasal allergies. I have to take a nasal spray and prescription medication to help with my allergies. I believe my new allergies developed because of the waste sprayed into the air. My wife also has allergies. I don't know how long she has had these allergies. She just takes over-the-counter medicine to help with them. The dust that is kicked up from the hog trucks also aggravates her allergies and she has to take more medicine.

11. I think the poultry facilities also contribute to the bad smell. It seems the poultry facilities are a (b) (6) Privacy, (b) (7)(C) Personal Privacy. I think they dump their waste less frequently than the hog facilities do, but when they do it smells terrible, too. With the smell from the poultry facilities and the hog facilities, it's very hard to find a time when my family can be outside.

12. We used to use a water pump to get my water, but now my home is hooked up to county water, which costs $23-$33 each month. The County did not explain why it made residents switch to their system, but I think it is because of hog waste seeping from unlined lagoons into the groundwater, getting into people's wells. I was concerned that the waste from the hog facilities could get into our water and make my family and people in my community sick.

13. The County puts a lot of chlorine in the water. I can smell and taste the chlorine in the water. At times, the water looks milky and it tastes like rust. I do not feel good drinking the water. Sometimes, I'll boil the water to get it to look and taste right. I think the County puts so much chlorine into the water to disinfect it. I'm not sure why they need to disinfect the water, but I am concerned that it might be because the water is

contaminated by the hog facilities. I believe that too much chlorine is not healthy for you.

14. A water cooler company salesperson came to my home recently. He was able to treat the water in some way to make it appear cleaner, but I decided not to purchase the company's services because I feared I would not be able to pay for it. I'd like to be able to provide clean water for my family, but it's just too expensive. I'm upset that I have to pay for County water that is not even good enough.

Experience Working for a Hog Facility

15. I used to worked (b) (6) Privacy, (b) (7)(C) Personal Privacy I transported dead animals. As part of that job, I had to lift hog boxes of dead hogs onto the trucks. I would go to the hog facility and go around to find the dead box. I would pull up to a box, and it would be full of dead hogs or sometimes chickens. I am not sure why chickens would sometimes be mixed in with the hogs. The boxes were made out of metal and were about the size of a full-size car. The boxes had holes in the bottom on it, so there were plenty of times where a foul-smelling liquid from the boxes would splash and drip onto me. When it rained, water and waste dripped out of the boxes. I would put chains on each side of the box and raise it up with a motor to empty the box into the truck. There was a net across the truck bed that catches the bodies of the dead hogs. The (b) (6) Privacy, (b) (7)(C) trucks were worse than the ones at (b) (6) Privacy, (b) (7)(C) because there was no shield on the sides of the trailer to keep any liquids from leaking onto the road.

16. Sometimes the companies I worked for hauling dead animals had me wear a uniform. They gave me a raincoat to protect against the rain. Other than rubber gloves or the raincoat, they gave me no protective equipment when I lifted the dead boxes.

17. When I transported the dead bodies of hogs, I delivered them to Valley Proteins, Inc., a rendering operation that has several North Carolina locations. Sometimes, if the dead hogs were too rotten, Valley Proteins would turn me away. If I was turned away, sometimes the dispatcher at the company I was working for directed me to dump the dead hogs into a particular open-air hole in Rose Hill, North Carolina. The hole was filled with the bodies of dead hogs, and it smelled so bad. I don't know who maintained that open-air hole.

18. The trucks I drove were always leaking with a foul-smelling liquid coming from the decaying hogs, which would fall out onto the road. I still regularly see foul-smelling liquids on the roads. I recognize it as liquids that have come out of trucks carrying dead hogs.

19. I believe there are some people in the hog industry and the government that are interested in keeping things the way they are. I also believe that the government does not inspect trucks carrying hog waste in the way they are supposed to. The police never inspected a truck I drove. If the police stopped me when I had a truck full with dead hogs, the state troopers would tell me to have a nice day and let me go, even if the truck was leaking.

20. I believe hog facilities are concentrated near communities of color, although I know other people are affected as well. I believe the people running these facilities feel that communities of color won't say or do anything to stand up to them. I think the effects from these hog facilities are making people here sick.

21. I don't believe the people running those hog facilities care about us. I think they're just worried about maintaining their way of life. I don't think they care about the people living here and who they're hurting.

I declare under penalty of perjury that the forgoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in (b) (6) Privacy, (b) (7)(C), North Carolina on 8-12, 2015.

(b) (6) Privacy, (b) (7)(C) Personal Privacy

EXHIBIT 1

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

EXHIBIT 2

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

ATTACHMENT 10

DECLARATION OF (b) (6) Privacy, (b) (7)(C) Personal

1. My name is (b) (6) Privacy, (b) (7)(C) I am of legal age and competent to give this declaration. All of the information herein is based on my own personal knowledge and experience unless otherwise indicated.

Background

2. I am an (b) (6) Privacy, (b) (7)(C) Personal Privacy. I live with my wife at (b) (6) Privacy, (b) (7)(C) Personal Privacy in (b) (6) Privacy (b) North Carolina. I am (b) (6) Privacy, (b) I have owned and lived in this home for four years.

3. I grew up in Snow Hill, North Carolina. I left Snow Hill in 1974 to go into the (b) (6) Privacy I retired from the (b) (6) Privac in 1996 and moved to Clinton, North Carolina following a divorce in 1999. In (b) (6) Privacy, (b) (7)(C) Personal Privacy with my second wife.

4. I have retired from military service and currently spend my time volunteering for my church, (b) (6) Privacy, (b) (7)(C) Personal Privacy. My volunteer duties include helping the elderly with yard care and outdoor maintenance. I also collect sweet potatoes that are left to rot in fields and help distribute them to the elderly of my church community. The fields are open to the public.

5. On Tuesdays, I babysit my youngest grandchildren. One is in preschool and the other is in kindergarten. I pick them up from daycare in (b) (6) Privacy and bring them to my home. My 11 year-old and 12 year-old grandchildren do not come over to my house because they don't like the smell from the hog facilities.

6. I travel about 40 minutes each way to (b) (6) Privacy, (b) monthly to visit the (b) (6) (b) (6) Privacy, there. I am on eight pills a day for various medical conditions, including sinus

problems. I have experienced sinus problems since (b) (6) Privacy, (b) (7)(C) Personal Privacy (b) (6) Privacy, (b) My symptoms include a runny nose, cough, and sore throat. My wife also has sinus problems. While we are in Fayetteville, we buy our groceries and our bottled water. If we don't buy our groceries in Fayetteville, we make a 20 minute trip to Clinton where groceries are more expensive.

Experience Living Near Hog Facilities

7. There are several hog facilities near my home and all over (b) (6) Privacy, (b) (7)(C) Personal As shown in the map attached as Exhibit 1, there are two hog facilities (b) (6) Privacy, (b) (7)(C) Personal from my home on (b) (6) Privacy, (b) (7)(C) Personal Living near these facilities impacts me negatively in several ways.

8. The hog facilities smell terrible. They have lagoons where the hogs' waste is kept. Every so often, they irrigate the fields around these hog houses with waste from the lagoons, leaving a horrible smell in the air. One of the fields is only a few yards from (b) (6) Privacy (b) (6) Privac and a (b) (6) Privacy, (b) (7)(C) Personal Privacy.

9. The smell from the hog facilities is worst in the summer. During the summer season, there are on average 3 days during the week where the smell is really powerful. It is impossible to predict the days when the smell will be bad and the days when it will be okay. I tend to keep the windows closed in the summer because I'm never sure when it will smell bad, and I don't want the smell of hog waste in my house. I like to open the doors to my house when it is cool so that the cool air comes through the screen storm doors. I rarely open the doors, though, because a strong wind can carry the smell of hog waste into my house. I keep my windows closed and the air conditioner running all summer long because of the heat and because I want to keep out the smell of hog waste.

10. During the summer months, I rarely am able to enjoy my front porch because of the smell from the hog facilities. Sometimes after it rains or on a rare cool night, my family can enjoy time on the porch, but otherwise the smell makes it unbearable.

11. When visitors come over, they usually suggest we go inside rather than stay on the porch. When I ask them why, they say that they would like to go inside because of the smell from the hog facilities.

12. On the Fourth of July, I like to host large gatherings of family and fellow church members. I have several grills and friers cooking food. In the past, I have hosted up to 40 people, but every year fewer people come because of the smell. One year, the smell from the hog facilities was quite bad—everyone complained of it. I want to keep hosting, but it's hard with the smell. Last year, people took the food and just left because of the smell, and it really upset me.

13. When I have smaller cookouts or visits from grandchildren and friends planned, I often have to cancel at the last minute because the smell would make such events unbearable. I simply tell my potential guests that it is not a good day, but the reason is always the smell from the hog facilities.

14. Sometimes I try to avoid going home completely because the smell that is there depresses me. This is especially true during the summer. I try to stay busy and inside all day so I don't have to return to my home because of the smell.

15. When I leave my home, I smell my clothes to see if I am carrying the smell of hog waste with me.

16. I used to gag, get nauseous, and vomit because of the smell of the hog facilities while I mowed my yard. Now I wear a mask and try to avoid mowing on days when the smell is bad.

17. There is a dumpster on the side of my road about 2 miles from my house. It is located about 50 feet off the road. I have seen dead hogs left there to rot, piled up for days. The smell is unbearable. The sight is ghastly. It attracts all sorts of animals, including buzzards.

18. I have a well on my property, but the water tastes and smells like metal and boiled eggs. I think the bad taste and smell might be related to pollution from the hog facilities. Because of the smell and the taste of the water, we don't even cook with the water, let alone drink it. We spend about $18 a week on bottled water. This adds up to over $900 dollars a year.

19. Part of the reason that I think my property value is affordable is because of the smell. Sometimes I wish that I could move, but I think I would have trouble selling my home because of the smell from the hog facilities. People don't want to live in a place that smells like hog waste. Besides, the smell from the hog facilities is all over (b) (6) Privacy, (b) (7)(C) Personal so there is nowhere in the County where I could relocate. (b) (6) Privacy, (b) (7)(C) Personal is very rural; if you don't live next to a hog facility, you live next to a field where they spray the hog waste. You can't escape it. I don't have the money to leave (b) (6) Privacy, (b) (7)(C) Personal

20. Occasionally I like to fish. The water relaxes me. I do not eat the fish that I catch, though, because I am concerned that the pollution from the hog facilities has infected the ponds and fish around here. I would eat the fish if fished them out of ponds from areas that are not near hog facilities. My wife and I enjoy eating fish, but now we buy our fish from grocery stores. I ate the fish that my father would catch from nearby ponds when I was a child, before the hog facilities were built.

Impact of Hog Facilities on Community Generally

21. I have noticed in my church and in my community in general that there are fewer and fewer young people. I attribute this in part to the smell. People don't want to live in (b) (6) Privacy, (b) (7)(C) Personal because of the smell from the hog facilities.

22. I have noticed that people do not do as many recreational activities outside like wash their cars, walk, spend time on their porches, or play basketball outside like they used when I grew up. It's clear to me that the smell from the hog facilities affects all those activities. People have to stay inside. I see this as a major problem, but I don't know what to do about it.

23. I have also noticed that African Americans are dying like never before from cancers. I don't think African Americans had cancers as much in decades past, and I think part of it is not only the hog facilities, but also the spraying of waste on crops and the spraying of other chemicals on crops.

24. I believe the health problems, like the cancer, obesity, and prevalence of sinus infections that I've seen in the African American community are caused by a lot of things that are all connected. If it's not the hog facilities, it's the facilities that raise chickens. If it's not those, it's the facilities that raise turkeys.

25. I also believe that the combined effects of the hog facilities, the chicken facilities, and the turkey facilities contribute to the allergy problems that my wife, my ex-wife, my grandson, the community, and I suffer from. My allergies used to be seasonal, but now I suffer from them all year.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed i (b) (6) Privacy, (b) (7)(C) Personal Privacy County, North Carolina on Oct 28, 2015

(b) (6) Privacy, (b) (7)(C) Personal Privacy

(b) (6) Privacy, (b) (7)(C) Personal Privacy

EXHIBIT 1

(b) (6) Privacy, (b) (7)(C) Personal Privacy

[redacted]

ATTACHMENT 11

(b) (6) Privacy, (b) (7)(C) Personal Privacy

I, (b) (6) Privacy (b) do hereby declare as follows:

1. My full name is (b) (6) Privacy, (b) (7) (C) Personal Privacy. I am of legal age and competent to give this declaration. All of the information herein is based on my own personal knowledge unless otherwise indicated.

2. From 1985 to present I have been a (b) (6) Privacy, (b) (7)(C) Personal Privacy (b) (6) Privacy, (b) (7)(C) Personal Privacy (b) (6) Privacy, (b) (7)(C) Personal Privacy is attached as **Exhibit 1**.

3. (b) (6) Privacy, (b) (7)(C) Personal Privacy has focused on the impact of swine confinement facilities, also known as confined animal feeding operations ("CAFOs") or industrial hog operations ("IHOs"), and on the well-being and quality of life of neighboring residents and workers.[1-22] I reviewed much of this research in a recent book chapter.[23]

4. Before industrialization of the hog industry, most North Carolina producers raised small numbers of hogs, commonly fewer than 25, on diversified farms where hogs were one of several commercial crops, or products.[24] Swine production in North Carolina changed dramatically during the last decades of the 20th century. Between 1982 and 2006 the number of hog operations in the state declined precipitously while the hog population increased from approximately 2 to 10 million (see Wing, 2014,[23] Figure 3.3). Industrial producers in North Carolina adopted a system of raising large numbers of hogs, often many thousands, in confinement structures that exhaust toxic gases and particles into the environment. While smaller, pasture-based hog farms were spread across the state, industrial facilities became spatially concentrated in North Carolina's eastern coastal plain.[25] This low-lying region, which

has sandy soils and shallow aquifers and is vulnerable to flooding, now has the top 10 ranked counties for numbers of hogs per land area in the entire United States.[26]

5. A large hog CAFO produces as much waste as a city of 50,000 or more people, but unlike cities, has no wastewater treatment plant. Instead, animal wastes are flushed into open cesspools and then sprayed on nearby fields (see Wing, 2014,[23] Figure 3.1). Industrial-scale animal waste sprayers capable of dispersing hundreds of gallons of waste per minute create mists that can easily drift downwind into neighboring communities (see Wing, 2014,[23] Figure 3.2). Hog CAFOs emit gases and particles from confinements, open cesspools, sprayfields, and bins of rotting carcasses that are stored on site prior to disposal.

6. Airborne emissions from hog CAFOs have demonstrated impacts on the health and quality of life of neighbors.[2,23,27,28]

7. Air pollution from hog CAFOs harms human health. Particles less than 10 microns in aerodynamic diameter (PM_{10}), including endotoxins, bacteria, yeasts and molds that are recognized toxins and inflammatory mediators,[29] can be inhaled deep into the respiratory tract. Hog CAFO gases can affect both the upper and lower respiratory tract. Hydrogen sulfide, a toxic compound produced by anaerobic decomposition of hog waste, travels off-site through the air to nearby communities, and is a useful marker of complex mixtures of gases and particles emitted by hog CAFOs.[30] Ammonia, which can irritate the eyes and mucous membranes, is also released by hog CAFOs. Humans absorb gaseous ammonia in the upper respiratory tract. When transformed into fine particles in the presence of humidity, ammonia can reach deeper into the lungs.[1,31]

8. Hog CAFOs emit a large number of volatile organic compounds that contribute to the offensive odors described by neighbors. These compounds may occur as gases or may be

adsorbed to fine particles. When fine particles are inhaled and settle onto the warm, moist mucous membranes of the nose, they release odorant compounds that are detected by the olfactory nerves.[1,31] Airborne emissions from hog CAFOs have pronounced impacts on the health and quality of life of neighbors.

9. The negative impacts of particles and gases inside swine confinements on worker health are well-documented.[1,32-39] A 2010 review notes that respiratory effects include "symptoms of acute and chronic bronchitis, nonallergic occupational asthma, mucous membrane irritation, and organic dust toxic syndrome."[29] These effects have been observed repeatedly in research in different countries with different study designs despite the healthy worker effect, a well-known phenomenon in occupational epidemiology. The healthy worker effect refers to the observation that workers tend to be healthier than the general population, which includes people too sick to work and people who are sensitive to hazards in the workplace.[40] Confinement workers are exposed to higher concentrations of particles, gases and microbes than are CAFO neighbors, however, communities near CAFOs include children, the elderly, people who are too sensitive to CAFO dusts and gases to work there, and people with chronic respiratory disease. Furthermore, nearby communities are exposed involuntarily to hog CAFO pollutants in and around their homes, where they have expectations to beneficial use of their property and freedom from substances that cause physical discomfort, annoyance, stress and anxiety.

10. An extensive body of peer-reviewed scientific evidence shows that hog CAFOs contaminate the air in neighboring communities where they affect the health and quality of life of neighbors.[2,32,41-50] There are some differences in the way North Carolina hog CAFOs operate compared to CAFOs in other areas. For example, in Iowa, hog waste is usually stored in pits under the confinements, whereas in North Carolina hog waste is typically stored in open-air

ponds known to the industry as "lagoons." Although studies of community impacts of hog CAFOs in other parts of the U.S.A. and Europe are relevant to the situation in North Carolina, in the following paragraphs I focus on studies conducted in North Carolina by our research group, including university faculty members, doctoral student research assistants, university research staff, members of community-based organizations, and government scientists.

11. With support from the North Carolina Department of Health and Human Services and the National Institute of Environmental Health Sciences, our research group conducted a survey of health and quality of life of residents of three eastern North Carolina communities with similar demographic and economic characteristics.[21] In one community, residents lived within two miles of a hog CAFO. One of the comparison areas had two cattle operations, and the other had no industrial livestock facilities. Residents living near the hog CAFO reported higher frequencies of headache, runny nose, sore throat, coughing, diarrhea, and burning eyes compared to residents of the community with no industrial livestock production. To evaluate quality of life we asked participants how often in the past six months they were unable to open their windows or go outside even in nice weather. Hog CAFO neighbors reported an average of 18.5 days in the past six months when they couldn't open their windows, and 15.4 days when they couldn't go outside, compared to 3.2 and 2.1 days, respectively in the community with no livestock production.[21] Our research was published in *Environmental Health Perspectives*, the peer-reviewed scientific journal of the National Institute of Environmental Health Sciences, National Institutes of Health, United States Department of Health and Human Services.

12. During the 1999-2000 school year, the North Carolina Department of Health and Human Services conducted a survey of respiratory symptoms, asthma diagnoses and asthma treatment among public middle school students across the State. Because this survey did not

include an evaluation of environmental exposures that could affect children's respiratory heath, we sent a questionnaire to rural school staff to assess environmental exposures including the frequency of occurrence of livestock odors at the schools. Because respiratory irritants and allergens are present in air emissions from hog and poultry CAFOs, we hypothesized that asthma symptoms would be more prevalent among children who attended schools affected by livestock air pollution. We found that children who attended schools where staff reported noticing livestock odor inside school buildings twice or more per month had a 23% higher prevalence of wheezing symptoms compared to children who attended schools where no livestock odor was reported. Children attending schools within three miles of a hog CAFO had more asthma-related symptoms, more doctor-diagnosed asthma, and more asthma-related medical visits compared to students who attended schools further away.[6] *Pediatrics*, the peer-reviewed journal of the American Academy of Pediatrics, published our findings.

13. In 2009 our research group monitored hydrogen sulfide on the grounds of three public middle schools in eastern North Carolina and evaluated relationships between detection and concentration of hydrogen sulfide and upwind hog CAFOs.[22] We used active monitors to record concentrations continuously over one to two months at each school. From aerial imagery we quantified the areas of hog confinement buildings within 5 km (approximately 3 miles) of each school. We linked hourly hydrogen sulfide concentrations at the schools with hourly wind direction measurements from airports near the schools. The areas of upwind hog confinements were weighted by 1/distance^2 to account for the attenuation of pollutants with increased distance of CAFOs from the schools. The log odds of detecting hydrogen sulfide increased, on average, 0.43±0.06 (about a 50% increase) for every 1,000 m^2 increase in upwind distance-weighted barn area.[22] Each school in this study had approximately 60,000 m^2 of swine barns within 5 km.[22]

This study shows that hydrogen sulfide, a toxic gas produced by hog CAFOs, can be measured at nearby schools, and the frequency of detection is higher when the wind is blowing from hog CAFOs towards the schools. Based on a more sensitive instrument that was available for one school, hydrogen sulfide was detected over half of the hours during two months of monitoring.[22] This study shows that hydrogen sulfide concentrations are related to hog CAFOs within 5 km of monitoring locations. Hydrogen sulfide is a marker of many gases and particles emitted by hog CAFOs. The schools in this study, which predominantly serve students of color, are exposed to hog CAFO pollutants that could disrupt educational experiences and affect children's physical, mental and social development.[22] Our paper has been accepted for publication in the *Journal of Exposure Analysis and Environmental Epidemiology*, published by Nature Publishing Group.

14. From 2003 until 2005 our research group conducted a repeated-measures study of air pollution, health and quality of life in 16 neighborhoods in eastern North Carolina. The neighborhoods, in three different counties, were located within 1.5 miles of between one and 16 hog CAFOs. For two to three weeks, we monitored concentrations of PM_{10} and hydrogen sulfide at a central location in each neighborhood (see Wing, 2014,[23] Figure 3.10). While we monitored air pollution, adult non-smokers living around the monitors participated in a study of health and quality of life. Participants had their odor sensitivity tested and chose times each morning and evening when they agreed to sit on their porch for 10 minutes to be exposed to the ambient air. For two to three weeks, twice a day, they used a structured diary to rate the strength of hog odor from none to very strong, rate their experience of irritation of the eyes, nose and respiratory symptoms, report disruption of routine activities of daily living, measure their lung function, and measure their blood pressure (see Wing, 2014,[23] Figure 3.9). One hundred and one study participants produced over 2,900 journal entries. This study was designed to evaluate the acute

effects of hog CAFO air pollution on neighbors. Rather than comparing exposed communities to unexposed communities in another location, we compared participants' symptoms, quality of life, lung function and blood pressure at times when they were exposed and times when they were unexposed. Thus, each person served as her or his own control. Unlike comparisons between exposed and unexposed communities which can be affected by differences between groups in medical history, diet, weight, occupational exposure, housing and other attributes, these other potential influences on health are essentially the same for a person for the two to three weeks of the study when they experienced time periods of higher vs. lower hog CAFO pollution. This design allowed us to determine whether exposures preceded the outcomes of interest and ensured that health differences between exposed and unexposed time periods were not due to typical so-called "confounding factors." The disadvantage of this design is that people were not in the study long enough to be able to examine the chronic effects of long-term exposures.[18]

15. Study participants reported hog odor outside their homes on more than half of days in the study and inside their homes on 12.5% of days.[30] Reported hog odor and measured hydrogen sulfide concentrations were highest in the mornings and evenings – times when people commonly like to engage in outdoor activities at home (see Wing, 2014,[23] Figure 3.11).[30] Participant reports of hog odor were strongly related to ambient concentrations of hydrogen sulfide, and to levels of fine particles at higher wind speeds (particles travel further in the wind than when the air is still).[30] The correspondence between participants' hog odor ratings and pollutant concentrations measured by air monitors provides objective validation of participants' odor ratings. Indeed, the relationship between odor and hydrogen sulfide in our study

corresponds closely to results of a chamber experiment in which participants were exposed to CAFO air.[49]

16. During the two-to-three weeks of the study, approximately one-third of participants reported cancelling or changing daily activities due to hog odor. As we explained in our paper published by *Environmental Health Perspectives*, "[t]ypical changes included closing windows, avoiding sitting in the yard and socializing with friends, cancelling plans to barbecue, not putting clothes out to dry, declining exercise via outdoor walks, not putting up Christmas lights, not being able to garden or mow the lawn, not washing the car, or not being able to sit on the porch."[30] Participants reported cancelling or changing their daily activities 11.3 times more often when average odor in the past 12 hours was rated as 5 or greater on the 0-8 scale compared to times when average odor was less than 1. Hog CAFO odors were highly disruptive of daily activities in this population despite the fact that three-quarters of participants indicated they grew up on a farm where they had experience with livestock odors.[30]

17. There is considerable evidence documenting the impact of malodor on annoyance.[4] In the case of odors from hog CAFOs, a broad range of mood impacts has been of interest. Authors of the first published study of impacts of hog CAFO odor on North Carolina residents concluded that, "[p]ersons living near the intensive swine operations who experienced the odors reported significantly more tension, more depression, more anger, less vigor, more fatigue, and more confusion than control subjects."[48]

18. As part of the repeated-measures study described in paragraph 14 above, our research group evaluated hog odor and measured pollutants as triggers of stress and negative mood.[4] Participants reported feeling more stressed or annoyed, nervous or anxious, gloomy or unhappy, angry or grouchy, and confused or unable to concentrate, during times when hog odors

were stronger. Participants also reported higher levels of stress and annoyance during times when air pollution monitoring instruments showed that concentrations of hydrogen sulfide and semi-volatile PM_{10} were higher in their neighborhoods.[4] The *American Journal of Public Health*, the peer-reviewed scientific journal of the American Public Health Association, published these findings.

19. Odorant chemicals have physiological as well as psychological effects in humans. Most people have experienced salivation in response to the pleasant smell of good food. Malodor also has physiological effects. Participants in the study described in paragraph 14 above measured their blood pressure after sitting outdoors for 10 minutes. To limit the possibility of errors in recording blood pressure values, each participant printed their blood pressure readings with a time stamp and pasted the print-outs in their diaries. Participants' diastolic blood pressures were higher at times when they reported stronger hog odor outside their homes than when there was less odor (see Wing, 2014,[23] Figure 3.12). Their systolic blood pressures rose with the concentrations of hydrogen sulfide, measured in a central location in their neighborhoods at the time they sat outside.[19] In addition to providing an objective measure of people's physiological response to odorant compounds that cause annoyance, physical symptoms, and disruption of daily activities, repeated acute elevations of blood pressure are a medical concern due to their potential to contribute to chronic hypertension.[19] The peer-reviewed scientific journal *Environmental Health Perspectives* published these findings.

20. Consistent with well-documented effects of ammonia, PM_{10}, and volatile organic compounds, as well as prior reports of human impacts of air pollution from hog CAFOs, participants in the repeated-measures study described in paragraph 14 experienced physical as well as mental discomfort in the presence of hog CAFO air pollution. After sitting outside for 10

minutes at their selected morning and evening times, participants reported more irritation of the eyes, nose, throat, skin and more coughing when hog odor was stronger compared to when it was weaker or absent.[9] Eye irritation was related to concentrations of hydrogen sulfide and PM_{10}. One or more respiratory symptoms were related to hydrogen sulfide, components of PM_{10}, endotoxin, and odor. A measure of lung function, forced expiratory volume in one second, which participants took following their ten-minute outdoor exposure, declined with increasing average concentrations of fine particles ($PM_{2.5}$) in the past 12 hours.[9] These physical effects of exposure to airborne emissions from hog CAFOs help explain the stress, annoyance, and inconveniences experienced by hog CAFO neighbors. *Epidemiology*, the peer-reviewed journal of the International Society for Environmental Epidemiology, published these findings.

21. Research based on qualitative interviews can help elucidate the influence of social factors in environmental health research.[51] Our research team therefore designed a study using in-depth interviews. After completing the repeated-measures study described in paragraph 14, 42 participants and seven other volunteers from the same neighborhoods participated in semi-structured interviews designed to obtain information about how odor from the hog CAFOs in their neighborhoods affected their enjoyment of life and beneficial use of property. The interviews were recorded and transcribed, and codes were assigned to participants' responses.[12]

22. Our study found that hog CAFO odor impacts neighbors' ability to engage in activities they enjoy the most and that they expect to be able to do inside and outside their homes. These include "cookouts, barbequing, family reunions, socializing with neighbors, gardening, working outside, playing, drying laundry outside, opening doors and windows for fresh air and to conserve energy, use of well water, and growing vegetables." We concluded that "[t]he types of activities that are restricted by hog odor are social interactions, physical activities,

energy- and cost-saving activities, relaxing outside or indoors, and sleeping." We further noted that restriction of these activities is important because they "have been shown to positively affect health, improve overall well-being, reduce stress, and strengthen social networks."[12] The peer-reviewed journal, *New Solutions: A Journal of Environmental and Occupational Health Policy*, published our findings.

23. Liquid contaminants from hog CAFOs are released to the environment through leakage from animal waste pits, runoff from land application of liquid wastes, atmospheric deposition (e.g. through rainfall), and failure of the earthen walls of waste pits.[52] Parasites, bacteria, viruses, nitrates, and other components of liquid hog CAFO waste pose threats to human health.[1]

24. In 2010 we conducted a study of fecal contamination of streams in an area of eastern North Carolina with a high density of hog CAFOs.[3] In many samples we found elevated levels of fecal indicator bacteria that are routinely used for public health protection. However, the presence of these organisms does not indicate whether the fecal contamination comes from livestock, wild animals, domestic pets, or humans. To determine whether fecal contamination of these streams could be traced to nearby hog CAFOs, we evaluated several candidate microbial source tracking markers. Microbial source tracking markers use DNA from microorganisms that have become adapted to the gastrointestinal tracts of particular species of animals, making them useful for identifying the type of animal that is responsible for fecal contamination. We found that two candidate markers, fecal *Bacteroidales* Pig-1-Bac and Pig-2-Bac, were present in 80% and 87%, respectively, of hog waste and wallow water samples, but were absent in chicken, turkey, goat, horse, cow, and human fecal samples. We found Pig-1-Bac and Pig-2-Bac to be more prevalent in samples taken downstream compared to upstream locations near hog CAFOs,

and we found that their prevalence increased following rain events that can transport fecal waste from hog CAFO sprayfields into streams. This study provides direct evidence that hog CAFOs contaminate nearby streams during routine operations. *Science of the Total Environment*, an international peer-reviewed journal for scientific research into the environment and its relationship with humankind, published this research.

25. Routine air and water pollution from hog CAFOs can be contrasted with pollution that occurs following storms. Overflow of waste pits during heavy rain events results in massive spills of animal waste into neighboring communities and waterways (see Wing, 2014,[23] Figures 3.6 and 3.7). For example, our research group identified 237 hog CAFOs with permit coordinates that were located in flooded areas identified from satellite imagery taken approximately one week after Hurricane Floyd hit eastern North Carolina in September, 1999 (see Wing, 2014,[23] Figure 3.8).[16] These findings were published in *Environmental Health Perspectives*.

26. North Carolina state-issued operating permits require hog CAFOs to maintain adequate freeboard in their fecal waste pits to protect the pits from overflowing during times of heavy rains or increased production of waste. Freeboard is the space between the liquid waste and the top of the earthen containment wall. However, the permit requirement to maintain freeboard sometimes conflicts with the permit requirements that hog CAFOs apply waste at agronomic rates and that they refrain from land application during rain or when the ground is frozen and unable to absorb waste. Over-spraying of waste can contaminate ground and surface water near hog CAFOs. The North Carolina Department of Environment and Natural Resources has, in the past, temporarily waived prohibitions against non-agronomic land application to allow hog CAFOs to protect their freeboard. The Department does not have adequate personnel and

other resources to surveil the thousands of sprayfields they have permitted, many of which are not visible from state roads, to evaluate how often non-agronomic land application occurs. Off-site dispersion of liquid wastes from fecal waste pits and sprayfields through routine leakage of waste pits, over-application, and storm events, threatens water quality of hog CAFO neighbors.

27. Extensive evidence shows that North Carolina hog CAFOs release toxic air and water pollution into surrounding neighborhoods where it directly impacts the health and well-being of neighbors. The affected communities are disproportionately composed of low-income people of color who have fewer protections from environmental hazards, less ability to leave their homes during high exposure periods, and less access to medical and clinical services than residents of higher income communities; these factors increase their vulnerability to the harmful impacts of hog CAFO emissions.[15,53] This evidence is consistent with evaluations of CAFO impacts in other locations[27] and understanding of the increased vulnerability of low income populations to environmental hazards.

[Signature page to follow]

I declare under the penalty of perjury that the foregoing is true and correct.

EXECUTED this 28rd day of March, 2016 in (b) (6) Privacy (b), North Carolina.

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ATTACHMENT 12

Industrial Hog Operations in North Carolina Disproportionately Impact African-Americans, Hispanics and American Indians

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Revised: October 19, 2015

Summary

Background: In 2014, the North Carolina Department of Environment and Natural Resources (NC-DENR) issued a swine waste management general permit (the General Permit) covering more than 2,000 industrial hog operations (IHOs). These facilities house animals in confinement, store their feces and urine in open pits or cesspools, and apply the waste to surrounding fields. Air pollutants from the routine operation of confinement houses, cesspools, and waste sprayers affect nearby neighborhoods, causing disruption of activities of daily living, stress, anxiety, mucous membrane irritation, respiratory conditions, reduced lung function, and acute blood pressure elevation. Prior studies showed that this industry disproportionately impacts people of color in North Carolina.

Methods: We obtained records on the sizes and locations of permitted IHOs from NC-DENR and calculated the steady state live weight (SSLW) of hogs as an indicator of the amount of feces and urine produced at each IHO. We obtained block-level information on race and ethnicity from the 2010 census of the United States. We compared the proportions of people of color (POC), Blacks, Hispanics, and American Indians living within 3 miles of an IHO to the proportion of non-Hispanic Whites. We quantified relationships between race/ethnicity, presence of one or more IHOs, and the SSLW of IHOs, using Poisson regression and linear regression to adjust for rurality.

Results: Analyses based on a study area that excludes the State's five major cities and western counties that have no presence of this industry show that the proportion of POC living within 3 miles of an industrial hog operation is 1.46 times higher than the proportion of non-Hispanic Whites. The proportions of Blacks, Hispanics, and American Indians living within 3 miles of an industrial hog operation are 1.50, 1.41, and 2.22 times higher, respectively, than the proportion of non-Hispanic Whites ($p<0.0001$). In census blocks with 80 or more percent POC, the proportion of the population living within 3 miles of an industrial hog operation is 1.81 times higher than in blocks with no POC. This excess increases to 3.01 times higher with adjustment for rurality. Adjusted for rurality, the SSLW of hogs within 3 miles of a census block increases, on average, 74, 47, 165, and 72 thousand pounds for every 10 percent increase in POC, Black, Hispanic, and American Indian population ($p<0.0001$).

Conclusions: IHOs in North Carolina emit air and water pollutants that can be measured in nearby neighborhoods where they adversely impact the health and quality of life of residents. Census blocks near IHOs re-permitted in 2014 are disproportionately populated by Black, Hispanic, and American Indian residents, a spatial pattern recognized as environmental racism.

Background

Swine production in North Carolina changed dramatically during the last decades of the 20th century. Between 1982 and 2006, the number of hog operations in the State declined precipitously while the hog population increased from approximately 2 to 10 million (Edwards and Driscoll 2009). Production became concentrated in eastern North Carolina (Furuseth 1997).

Traditional North Carolina producers raised small numbers of hogs, commonly fewer than 25, as one of several commercial crops on diversified farms (Edwards and Driscoll 2009). In contrast, industrial producers raise large numbers of hogs, often many thousands, in confinement houses that are designed to vent toxic gases and particles into the environment. Animal wastes are flushed into open cesspools and then sprayed on nearby fields. Pollutants emitted by IHOs include hydrogen sulfide, ammonia, a wide array of volatile organic compounds, and bioaerosols including endotoxins, bacteria, yeasts, molds, and other respiratory irritants (Cole et al. 2000) (Schiffman et al. 2001).

The negative impacts of particles and gases inside IHO confinements on worker health have been extensively described (Casey et al. 2015; Cole et al. 2000; Donham 1993; Donham et al. 1995; Donham 1990; Donham 2010). Environmental levels of IHO pollutants are lower than inside confinements, however, workers in physically demanding jobs tend to be less susceptible to pollutants than some members of exposed communities, which includes children, people with allergies, asthma, or other respiratory or cardiovascular conditions. An extensive body of peer-reviewed scientific evidence shows that IHOs release contaminants into neighboring communities where they affect the health and quality of life of neighbors. Many of these studies have been conducted in North Carolina. Hydrogen sulfide concentrations within 1.5 miles of IHOs in North Carolina are associated with neighbors' ratings of hog odor and inability to engage in routine daily activities (Wing et al. 2008), increased stress and anxiety (Horton et al. 2009), irritation of the eyes, nose and throat, respiratory symptoms (Schinasi et al. 2011), and acute elevation of systolic blood pressure (Wing et al. 2013). A study of North Carolina public middle school children who participated in an asthma survey, which was conducted by the North Carolina Department of Health and Human Services, found that children attending schools within three miles of an IHO had more asthma-related symptoms, more doctor-diagnosed asthma, and more asthma-related medical visits than students who attended schools farther away (Mirabelli et al. 2006). The same study reported a 23% higher prevalence of wheezing symptoms among children who attended schools where staff reported noticing livestock odor inside school buildings twice or more per month compared to children who attended schools where no livestock odor was reported (Mirabelli et al. 2006). Other studies in North Carolina (Tajik et al. 2008) (Wing and Wolf 2000) (Bullers 2005) (Schiffman et al. 1995) and elsewhere (Donham et al. 2007) (Thu et al. 1997) (Radon et al. 2007) also document negative impacts of IHO air pollution on neighbors' health and quality of life.

Liquid contaminants from IHOs are released to the environment through leakage of animal waste storage pits, runoff from land application of liquid wastes, atmospheric deposition, and failure of the earthen walls of waste pits (Burkholder et al. 2007) (Wing et al. 2002). A recent study of DNA from swine-specific bacteria found increased prevalence of a genetic marker of pig bacteria in surface waters downstream from IHOs, and increased prevalence of the marker

following precipitation that can transport fecal wastes from land application sites into surface waters (Heaney et al. 2015). Overflow of waste pits during heavy rain events results in massive spills of animal waste into neighboring communities and waterways. For example, in late September, 1999, 237 North Carolina IHOs were located in flooded areas identified from satellite imagery provided by the NC Division of Emergency Management (Wing et al. 2002). Parasites, bacteria, viruses, nitrates, and other components of liquid IHO waste pose threats to human health (Burkholder et al. 2007; Cole et al. 2000).

Routine use of sub-therapeutic doses of antibiotics to increase weight gain of hogs promotes antibiotic resistance, making infections in humans more difficult to treat (Silbergeld et al. 2008). Airborne bacteria, including antibiotic-resistant strains, have been isolated from IHO air emissions (Gibbs et al. 2006; Green et al. 2006; Schulz et al. 2012), and antibiotic-resistant bacteria are associated with animal vectors near industrial animal operations, including flies (Graham et al. 2009), rodents (van de Giessen et al. 2009), and migratory geese that land on North Carolina's IHO liquid waste pits (Cole et al. 2005). A recent medical records study from Pennsylvania shows that people living near IHO liquid waste application sites have elevated rates of infection with methicillin-resistant *Staphylococcus aureus* (Casey et al. 2013). North Carolina industrial livestock workers carry strains of *Staphylococcus aureus* that are associated with swine, including antibiotic-resistant strains (Rinsky et al. 2013). These bacteria could be spread by liquid waste and airborne particles.

Because of the well-documented ability of IHOs to degrade the environment and health of nearby communities, their disproportionate location in communities of color is an environmental justice issue. In an earlier study based on information from the United States Census of 1990 and locations of IHOs in 1998 reported by the NC-DENR, our research group showed that the State's IHOs were disproportionately located in areas where more POC, primarily African Americans, live (Wing et al. 2000). We concluded that their disproportionate location in communities of color represented an environmental injustice. Since 1998, additional IHOs have obtained permission to operate and others are no longer in business. Additionally, between 1990 and 2010 the State's population size and spatial distribution changed due to births, deaths, and migration. In this report, we update our previous findings (including an earlier version of this report filed with the US-EPA in September, 2014) by evaluating whether IHOs covered under the General Permit issued on March 7, 2014, disproportionately impact POC, Blacks, Hispanics, and American Indians.

Materials and Methods

On January 5, 2015, we downloaded a list of all industrial livestock operations from the NC-DENR website. From that list we excluded all non-swine operations and facilities that operate under individual permits or National Pollutant Discharge Elimination System general permits and facilities with certificates of coverage that expired prior to October 1, 2014. Following the protocol provided in our previous study, which we also followed in the 2014 Report, we excluded facilities operated by research institutions because they are subject to different location and management decisions than commercial operations (Wing et al. 2000). For facilities holding multiple permits, for example wean-to-feeder and feeder-to-finish, we combined counts for different stages of growth to obtain a total head count for each operation. To estimate the

potential pollution source from IHOs with different size animals (boars, farrow-to-wean, wean-to-feeder and feeder-to-finish), we calculated each facility's total steady state live weight (SSLW) of hogs based on the number and average weight of each growth stage of swine permitted at the facility. We corrected latitude and longitude for IHOs with geographic coordinates outside the county in which they were listed using the protocol developed for our previous study (Wing et al. 2000).

The vulnerability of people of any race/ethnicity to having polluting facilities nearby can be affected by the race and ethnicity of other people in their community. For example, African-Americans who live in areas primarily populated by non-Hispanic Whites may have, generally, a lower susceptibility to being near polluting facilities than African-Americans who live in areas primarily populated by Hispanics or American Indians. We therefore conducted our primary analyses of disproportionate impact using the POC category. We also conducted analyses for specific racial/ethnic categories. We defined the following racial/ethnic categories: non-Hispanic White (non-Hispanics who identified as White and no other race), POC (all people not categorized as non-Hispanic white), Black (people who identified themselves as African-American or Black with or without any other race), Hispanic of any race, and American Indian (people who identified themselves as American Indian with or without any other race). We used block-level race/ethnicity-specific population counts from the US Census of 2010.

As large-scale agricultural facilities, IHOs are not located in major cities. Following the protocol adopted in our prior research, we defined a study area for our primary analyses that excluded census blocks in the five major metropolitan areas of North Carolina (Charlotte, Winston Salem, Greensboro, Durham, and Raleigh) as well as 20 western counties that neither have an IHO nor border a county that has an IHO. We conducted additional analyses for the entire State.

We considered people to be within the potential impact zone of IHOs if they lived in census blocks whose block centroids were within three miles of an IHO re-permitted in 2014. Blocks were categorized as either having, or not having, an IHO within three miles. Additionally, we considered the total permitted SSLW of hogs within three miles of the centroid of each block as a measure of the total potential influence of pollutants from nearby IHOs on the residents.

As in our prior study, we also calculated the population density of each block, defined as the number of people per square mile. Population density is a measure of rurality, which is strongly related to the availability of land for agriculture and the price of land. Racial/ethnic groups in North Carolina differ in their urban versus rural residence, making them differentially susceptible to types of polluting facilities that locate in rural versus urban locations. For example, a larger proportion of non-Hispanic Whites in North Carolina live in remote rural areas than do Blacks, therefore the susceptibility of Whites versus Blacks to IHOs is affected by their differential residence in more rural versus more urban areas. By adjusting for population density (rurality), we compare racial vulnerability to IHOs for racial groups within each level of rurality. This adjustment is analogous to other statistical adjustments in epidemiology, as when the death rates of two countries are compared: even though death rates at every age may be higher in a poor than a rich country, the poor country may have a lower overall death rate because it has a younger age distribution. In that case, age-adjustment is used to compare mortality in the two

countries just as we use density-adjustment to compare the proximity to IHOs in areas with different racial/ethnic make-up.

We used weighted Poisson regression to quantify relationships between race/ethnicity and the presence of one or more IHOs within three miles of a block and weighted linear regression to quantify relationships between race/ethnicity and the SSLW of hogs permitted within three miles of a block. We used census block populations as weights. In density-adjusted models, we included variables for the natural log of population density raised to the first, second, and third power. As in our prior analysis (Wing et al. 2000), this cubic model fit the data well and additional power terms added little to the model fit. For the two largest racial/ethnic groups other than non-Hispanic Whites, POC, and Blacks, we categorized race/ethnicity in groups of blocks 20% in width compared to blocks with no POC using indicator variables. Due to smaller numbers in these categories, we did not fit models with indicator variables for Hispanics and American Indians. We also considered the percent of people of each race/ethnicity as a continuous variable, estimating the added burden of IHOs for a 10% increase in the population.

This study involves neither random sampling nor randomization of exposure to IHOs, therefore statistical significance testing is inappropriate and confidence intervals do not correspond to the probability that the true values of measures of association are within the interval. However, the US-EPA considers statistical significance in its assessment of environmental racism. We therefore report p-values for differences in proportions of each racial/ethnic group within 3 miles of an IHO using t-tests. We report 95% confidence intervals (CIs) as measures of precision of the associations estimated from regression models. 95% CIs that exclude the null value (1.0 for ratios and 0.0 for differences) are commonly considered to be statistically significant at $p<0.05$.

Results

Based on criteria enumerated above, 2,029 IHOs housing 1.29 billion pounds of swine are covered under the General Permit issued in March, 2014 (Table 1). The 155 (7.6%) IHOs permitted to house between 20 and 100 thousand pounds accounted for only 1% of the total permitted SSLW. The 343 (16.9%) IHOs permitted to house between 1 and 10.3 million pounds accounted for 46.7% of the total (Table 1).

Figure 1 shows counties included in the study area, counties and cities excluded from the study area, and the locations of IHOs covered under the General Permit issued in 2014 by NC-DENR. Figure 2 shows the proportion of POC in 2010 census blocks included in the study area and the total population in each of six categories.

There are over 6.5 million residents of the study area (Table 2). Approximately 961 thousand (14.8%) of these residents live in census blocks whose centroid is within 3 miles of an IHO covered under the 2014 General Permit. This includes 563,228 non-Hispanic Whites and 397,661 POC. 12.9% of non-Hispanic Whites and 18.7% of POC in the study area live in blocks within 3 miles of an IHO.

Based on the study area population in Table 2, Table 3 shows ratios of the percentages of POC living within 3 miles of an IHO compared to the percentages of non-Hispanic Whites living

within 3 miles of an IHO. The percentage of POC living within 3 miles of an IHO is 1.46 times higher than the percentage of non-Hispanic Whites. The percentages of Blacks, Hispanics, and American Indians living within 3 miles of an IHO are 1.50, 1.41 and 2.22 times higher, respectively, than non-Hispanic Whites. If residents of the study area had been randomized to live within 3 miles of an IHO, the probabilities of observing differences of these magnitudes or greater would be less than 0.0001; the observed differences are considered to be highly statistically significant.

We calculated these same ratios based on the entire State population of 9,535,483. The percentages of POC, Blacks, Hispanics, and American Indians living within 3 miles of an IHO are 1.38, 1.40, 1.26 and 2.39 times higher than the percentage of non-Hispanic Whites, respectively. These ratios are considered to be highly statistically significant.

Figure 3 shows the percent of people living within 3 miles of an IHO in relation to the percent of POC in blocks. The percent of people within 3 miles of an IHO is lowest in blocks with >0 to 20% POC (9.8%) and highest in blocks with >80% POC (23.9%).

Table 4 presents ratios of the percent of people living within 3 miles of an IHO in blocks with POC in the ranges of >0 to <20%, 20 to <40%, 40 to <60%, 60 to <80% and 80 to 100% compared to blocks with no POC. The population of these categories ranges from a low of 559,179 in blocks with no POC to a high of 2,383,810 in blocks with >0 to <20% POC. Ratios on the right side of Table 4 are adjusted for rurality. These ratios are significantly elevated in all categories with more than 20% POC. The highest ratio, indicating that 3.01 times as many residents live near IHOs compared to blocks with no POC, occurs for blocks with more than 80% POC.

Table 5 shows results of the same analyses for Blacks. They also show that the percent of people living within 3 miles of an IHO is statistically significantly elevated in all groups of blocks that are more than 20% Black, with or without adjustment for rurality. With adjustment for rurality, areas that are 80% or more Black, 2.74 times as many people live within 3 miles of an IHO compared to areas with no Blacks.

Table 6 shows the average increase in the population living within 3 miles of an IHO for a 10 percent increase in the population of POC, Blacks, Hispanics, and American Indians. This analysis is similar to the results in Tables 4 and 5, but rather than using categories, the relationship between race/ethnicity and proximity to IHOs is modeled as a linear function. For every ten percent increase in POC, the proportion of people residing within 3 miles of an IHO increases, on average, by 9.7%. These values are 8.6, 9.3, and 16.7 for Blacks, Hispanics, and American Indians, respectively. Adjusting for rurality, 14.5% more people reside within 3 miles of an IHO for each additional ten percent POC. Adjusted values are 12.3, 17.3 and 12.0 for Blacks, Hispanics, and American Indians, respectively. These linear relationships between race/ethnicity and living near IHOs are considered to be highly statistically significant.

Table 7 shows the difference in SSLW of hogs within 3 miles of residents of blocks with POC in the ranges of >0 to <20%, 20 to <40%, 40 to <60%, 60 to <80% and 80 to 100% POC compared to blocks with no POC. Blocks in categories with more than 20% POC have, on average,

between 58,000 and 341,000 pounds more hogs within 3 miles than blocks with no POC. Adjusting for population density, blocks with more than 60 percent POC have, on average, more than half a million pounds more hogs permitted within 3 miles than areas with no POC. These excesses are considered to be highly statistically significant.

Table 8 presents parallel results for percentage Black population. As for POC, areas with more than 20% Black residents have an excess SSLW of hogs compared to areas with no Black residents, and differences are greater with adjustment for rurality. Adjusted for population density, blocks with more than 40% Black residents have approximately 350,000 more pounds of hogs within 3 miles than areas with no Black residents. These excesses are considered to be highly statistically significant.

Table 9 provides the average additional SSLW of hogs permitted in areas with POC for each percent increase in specific racial/ethnic categories. Adjusted for population density, the permitted SSLW of hogs within 3 miles of blocks increases 74, 47, 165, and 72 thousand pounds for each ten percent increase in POC, Black, Hispanic, and American Indian population, respectively. These linear relationships between race/ethnicity and SSLW are considered to be highly statistically significant.

As shown in Figure 1, IHOs are concentrated in North Carolina's Coastal Plain Region, between the Piedmont and Tidewater. Figure 2 shows that this region has more people of color than other parts of the study area. The racial and ethnic disparities reported above would be larger if the counties of western North Carolina, which, with the exception of Cherokee County, have low proportions of POC, were included in the analysis.

Conclusion

IHOs operating under the NC-DENR General Permit in 2014 are disproportionately located near communities of color. These disparities are considered to be highly statistically significant for Blacks, Hispanics, American Indians, and all POC. IHOs pollute local ground and surface water. They routinely emit air pollutants that negatively impact the quality of life and health of nearby residents. In addition to their well-documented effects on physical, mental, and social well-being, residents of areas with a high density of IHOs, and especially residents of color, have been subjected to intimidation including threats of legal action, violence, and job loss (Wing 2002). The industry's close ties with local and state government officials help it to avoid regulation that could protect neighbors, and create barriers to democracy in rural communities of color (Thu 2001, 2003). These discriminatory impacts could be reduced by decreasing the density of production and use of technologies that prevent releases of pollutants.

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Figure 1
North Carolina Counties Included in the Study Area, Counties and Cities Excluded from the Study Area, and Locations of IHOs operating under the 2014 General Permit

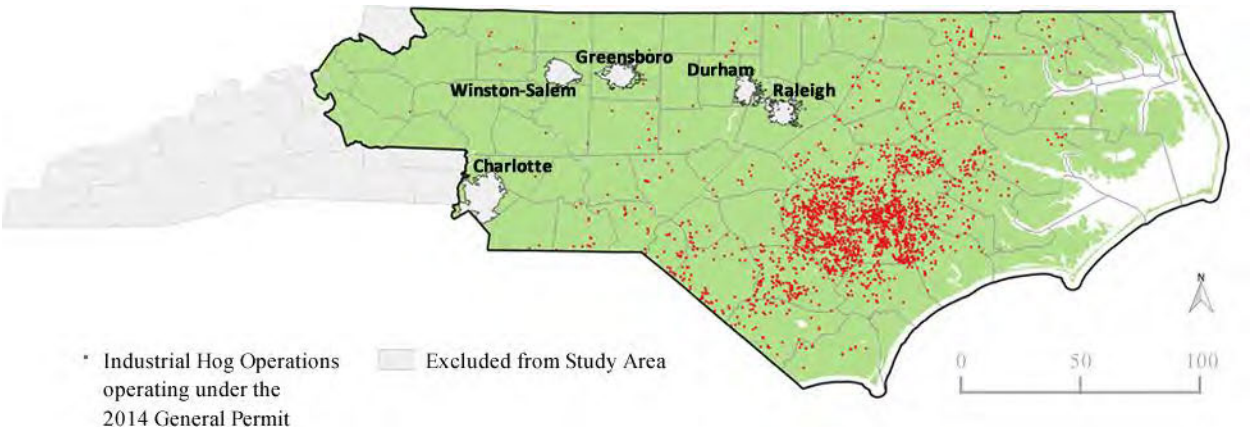

Figure 2
Percentage of People of Color in North Carolina Census Blocks, 2010

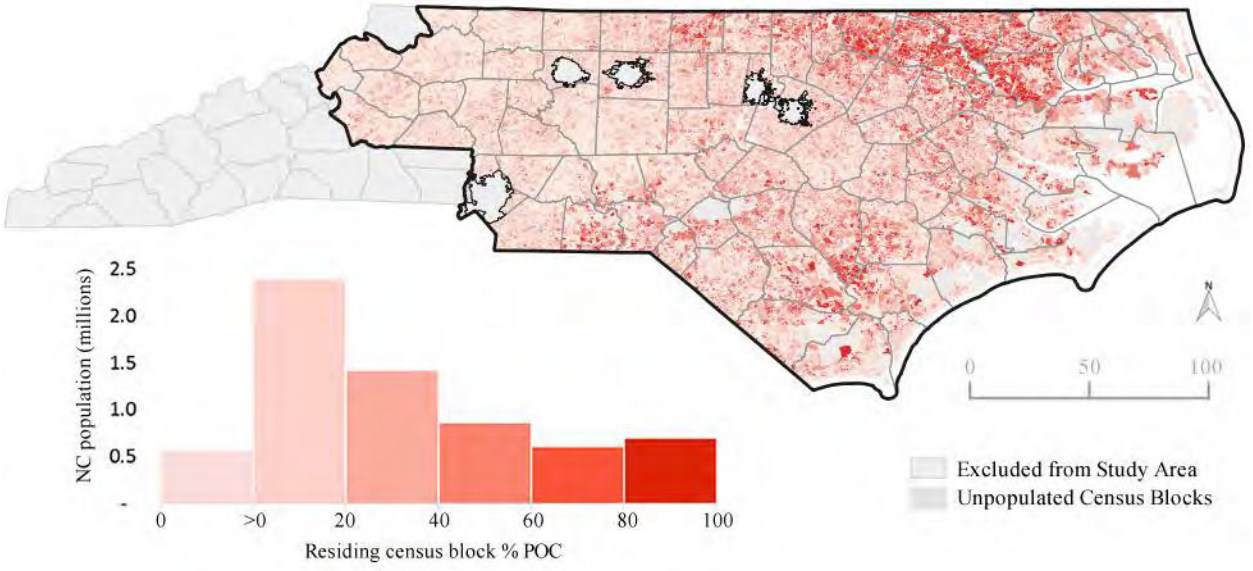

Figure 3
Percent of Population Living Within 3 miles of an IHO Covered under the North Carolina General Permit, 2014 in Relation to Percent People of Color

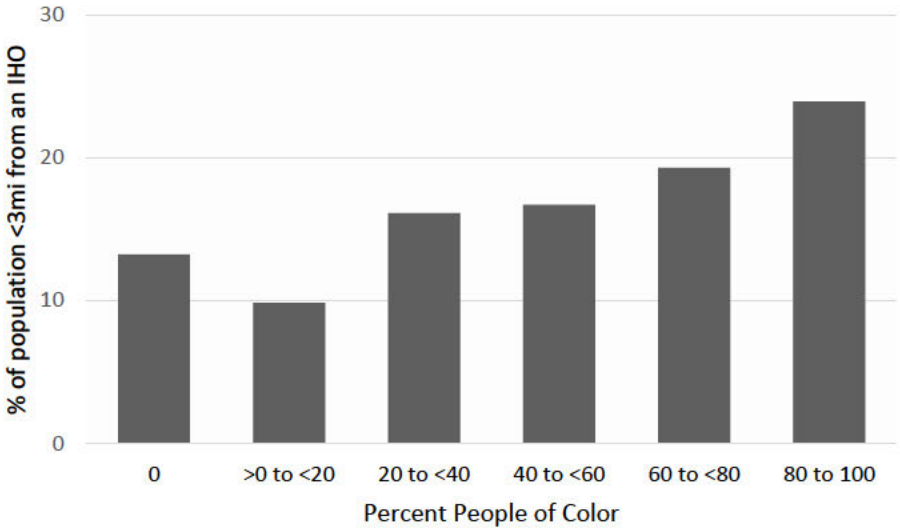

Table 1
Steady State Live Weight of IHOs Operating under the General Permit, NC, 2014

Permitted SSLW[1]	Number of IHOs	Percent of IHOs	Total SSLW[1]	Percent of total SSLW
21-	155	7.6	12,226	0.9
100-	439	21.6	75,135	5.8
250-	570	28.1	219,812	17.1
500-	522	25.7	379,414	29.4
1,000-10,260	343	16.9	601,988	46.7
Total	2,029	100.0	1,288,575	100.0

[1]Thousands of pounds

Table 2
Racial/Ethnic Composition of NC Census Blocks Less than and More than 3 Miles of an IHO Operating Under the 2014 General Permit

	≤3 miles from an IHO		>3 miles from an IHO		
Racial Category	Number	Percent	Number	Percent	Total[1]
Non-Hispanic white	563,228	12.9	3,817,835	87.1	4,381,063
POC	397,661	18.7	1,724,393	81.3	2,122,054
Black	264,272	19.3	1,105,923	80.7	1,370,195
Hispanic	92,204	18.1	416,938	81.9	509,142
American Indian	40,578	28.5	101,599	71.5	142,177
Total[1]	960,889	14.8	5,542,228	85.2	6,503,117

[1]POC can be counted in more than one racial/ethnic category. The total population is equal to the number of non-Hispanic Whites plus the number of POC.

Table 3
Ratios of POC Compared to Non-Hispanic Whites Living within 3 Miles of an IHO Operating under the 2014 General Permit

Racial/ethnic		≤3 miles from an IHO			
Category	Population	Number	Percent	Ratio[2]	p-value[3]
Non-Hispanic white	4,381,063	563,228	12.9	1.00	--
POC*	2,122,054	397,661	18.7	1.46	<0.0001
Black	1,370,195	264,272	19.3	1.50	<0.0001
Hispanic	509,142	92,204	18.1	1.41	<0.0001
American Indian	142,177	40,578	28.5	2.22	<0.0001
Total	6,503,117	960,889	14.8		

[1]People of color can be counted in more than one racial/ethnic category. The total population is equal to the number of non-Hispanic Whites plus the number of POC.
[2]Ratio of the percent of people of other racial/ethnic groups to percent of non-Hispanic Whites living within 3 miles of an IHO
[3]A difference in proportions of this magnitude or greater would be expected to occur less than one time in ten thousand if people of different racial/ethnic groups had been randomized to live within 3 miles of an IHO.

Table 4
Ratios Comparing the Percent of People Residing within 3 Miles of an IHO in Blocks with POC Compared to Blocks without POC

Percent POC	Population	Unadjusted Prevalence Ratio	95% CI	Adjusted[1] Prevalence Ratio	95% CI
0	559,179	1.00		1.00	
>0 to <20	2,383,810	0.75	0.74, 0.75	0.91	0.90, 0.92
20 to <40	1,410,751	1.22	1.21, 1.23	1.79	1.77, 1.80
40 to <60	858,568	1.26	1.25, 1.28	2.04	2.03, 2.06
60 to <80	597,258	1.46	1.45, 1.47	2.38	2.35, 2.40
80 to 100	693,551	1.81	1.80, 1.83	3.01	2.99, 3.04

[1]Adjusted for rurality using a cubic polynomial of the natural log of population density

Table 5
Ratios Comparing the Percent of People Residing within 3 miles of an IHO in Blocks with Blacks Compared to Blocks without Blacks

Percent Black	Population	Unadjusted Prevalence Ratio	95% CI	Adjusted[1] Prevalence Ratio	95% CI
0	1,288,564	1.00		1.00	
>0 to <20	2,931,777	0.92	0.91, 0.92	1.18	1.17, 1.19
20 to <40	1,043,183	1.43	1.42, 1.44	2.05	2.04, 2.07
40 to <60	534,792	1.51	1.50, 1.53	2.18	2.16, 2.19
60 to <80	333,780	1.55	1.54, 1.56	2.15	2.13, 2.17
80 to 100	371,021	1.79	1.77, 1.80	2.74	2.71, 2.76

[1]Adjusted for rurality using a cubic polynomial of the natural log of population density

Table 6
Average Percent Difference in the Percent of People Residing within 3 miles of an IHO for a Ten Percent Increase in Each Racial/Ethnic Group

Racial Group	Unadjusted Percent	95% CI	Adjusted[1] Percent	95% CI
POC	9.7	(9.6, 9.8)	14.5	(14.5, 14.6)
Black	8.6	(8.5, 8.6)	12.3	(12.2, 12.3)
Hispanic	9.3	(9.2, 9.5)	17.3	(17.2, 17.5)
American Indian	16.7	(16.5, 16.8)	12.0	(11.9, 12.2)

[1]Adjusted for rurality using a cubic polynomial of the natural log of population density

Table 7
Average Difference in SSLW of hogs within 3 miles of residents of blocks with POC compared to blocks without POC

Percent POC	Unadjusted SSLW[2]	95% CI	Adjusted[1] SSLW[2]	95% CI
0	0	-	0	-
>0 to <20	-82	-110, -54	55	27, 82
20 to <40	58	28, 88	287	257, 316
40 to <60	123	90, 156	395	363, 427
60 to <80	284	249, 320	560	525, 595
80 to 100	341	307, 375	625	591, 658

[1]Adjusted for rurality using a cubic polynomial of the natural log of population density

[2]1,000s of pound

Table 8
Average Difference in SSLW of Hogs within 3 Miles of Blocks
with Blacks Compared to Blocks without Blacks

Percent POC	Unadjusted SSLW[2]	95% CI	Adjusted[1] SSLW[2]	95% CI
0	0	-	0	-
>0 to <20	-46	-66, -26	96	76, 116
20 to <40	96	71, 121	283	259, 308
40 to <60	195	164, 227	379	349, 410
60 to <80	186	149, 223	356	319, 392
80 to 100	141	105, 176	348	313, 383

[1]Adjusted for rurality using a cubic polynomial of the natural log of population density
[2]1,000s of pounds

Table 9
Average Difference in SSLW of Hogs within 3 Miles of Residents of Blocks for a
Ten Percent Increase in Each Racial/Ethnic Group

Racial/Ethnic Group	Unadjusted SSLW2	95% CI	Adjusted1 SSLW2	95% CI
POC	48	46, 51	74	71, 76
Black	30	27, 33	47	44, 50
Hispanic	127	121, 133	165	159, 171
Am. Indian	94	85, 102	72	64, 81

[1]Adjusted for rurality using a cubic polynomial of the natural log of population density
[2]1,000s of pound

ATTACHMENT 13

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