

Biogas Production,
Waste Management &
Industrial Hog
Operations in North
Carolina: The Case to
Protect Environmental
Justice Communities



Concentrated Animal Feeding Operations

- An operation where at least 2,500 swine weighing 55 pounds or more are confined on site for more than 45 days during the year (U.S. EPA)
- Regulated by EPA under Clean Water Act



Lagoon & Sprayfield System

- Waste from confined animals periodically flushed into earthen lagoons for storage
- Liquid content sprayed onto fields
 - Note: solids (sludge) also land applied
- NC DEQ authorizes use of the system under state water quality permits



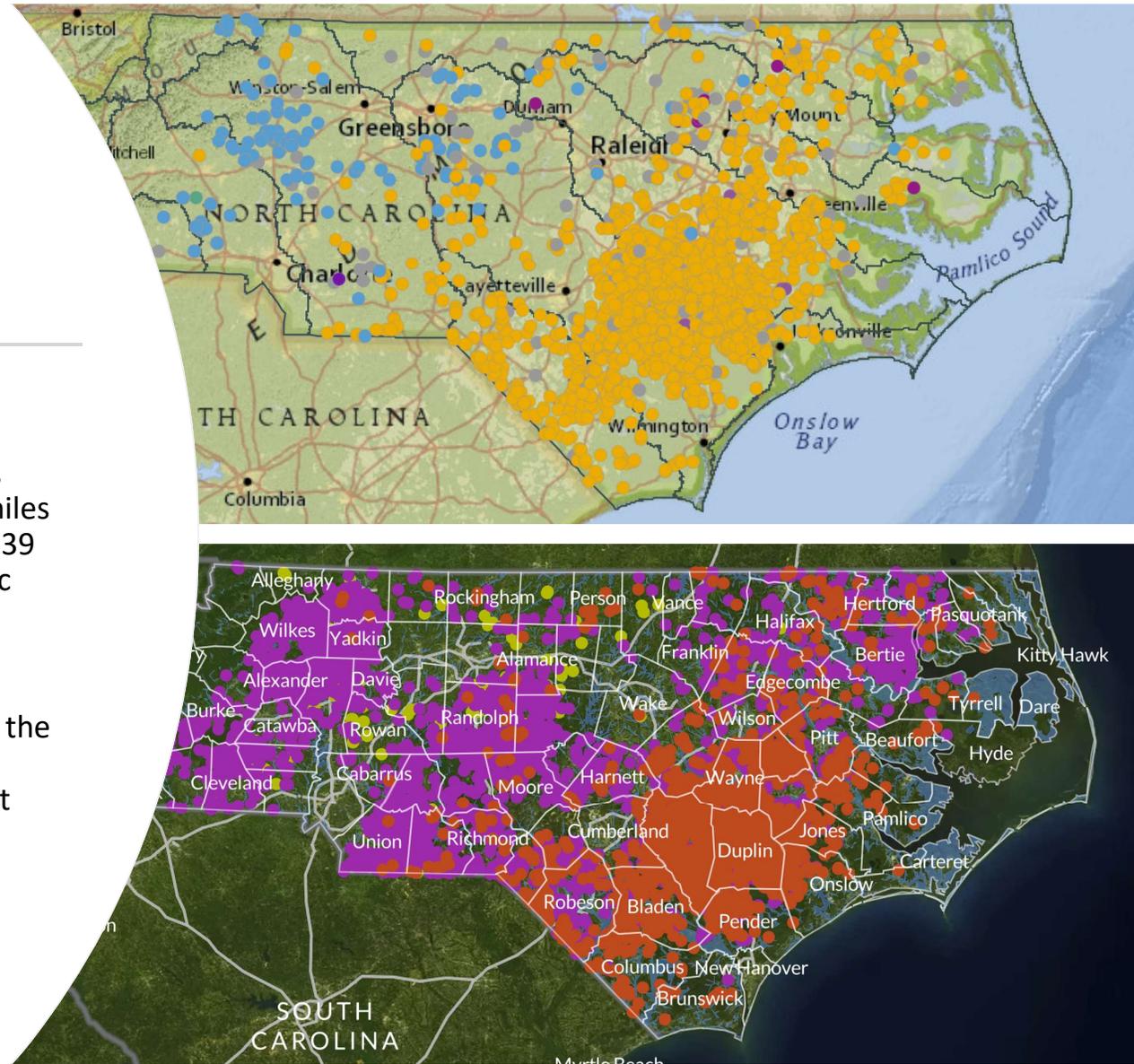
Adverse Impacts

- Surface Water
- Groundwater
- Air
- Odor
- Soil
- Public Health
- Quality of Life



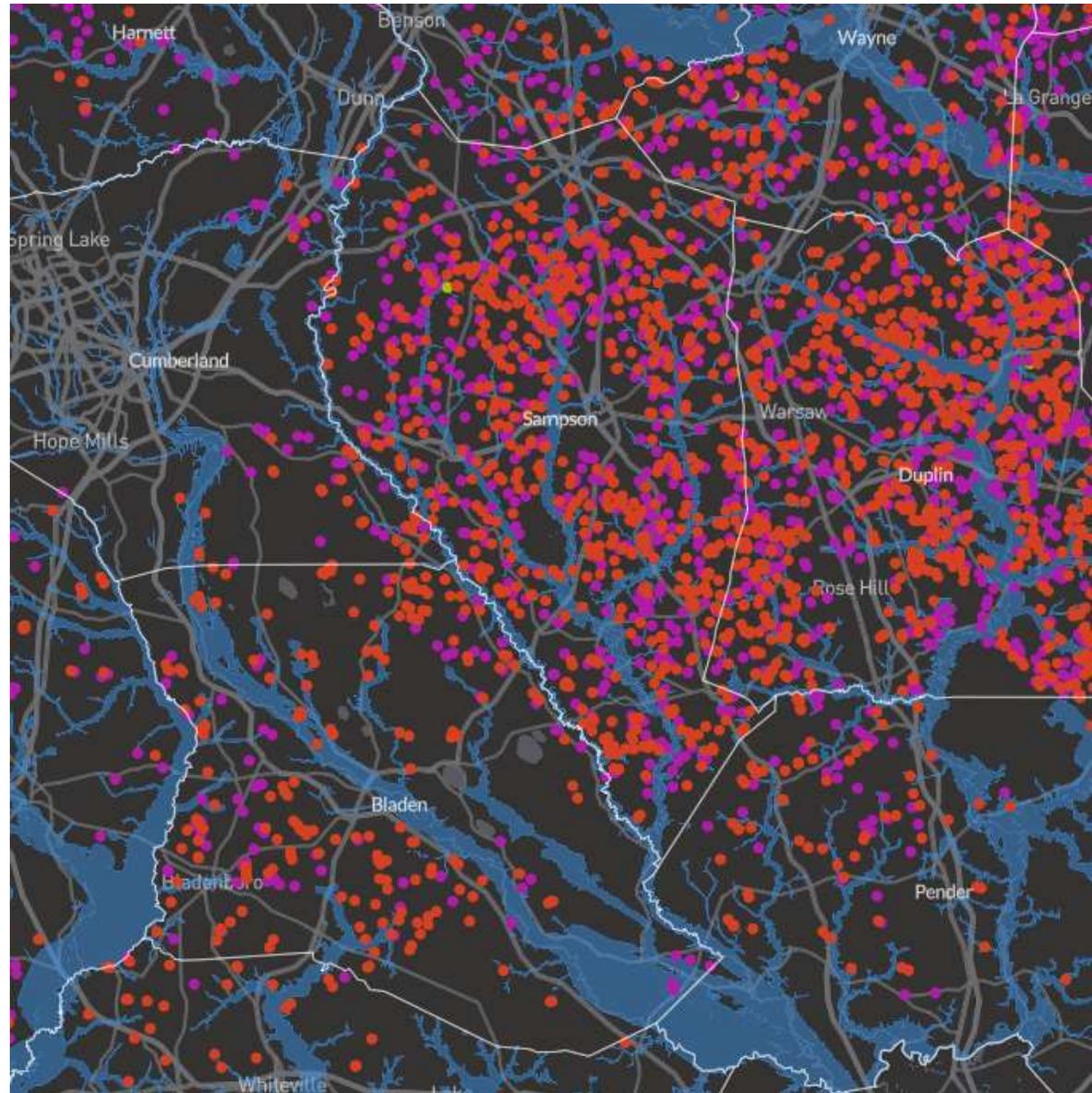
Disparate & Cumulative Impacts

- The proportions of African Americans, Latinos, and Native Americans statewide living within 3 miles of an industrial swine facility are 1.4, 1.26, and 2.39 times higher than the percentage of non-Hispanic Whites, respectively. (Wing & Johnston, 2014)
- Cumulative impacts are those that result from the incremental effects of the original direct impact combined with the impacts of other past, present and reasonably foreseeable projects in the area.



Mapping CAFO Operations in North Carolina

- **Red dots represent swine CAFO operations



America's Top 20 Pig Counties - 2019

Rank	County	Inventory
1	Duplin	1,957,364
2	Sampson	1,844,585
11	Bladen	713,011
17	Wayne	548,561



EXCERPT FROM NEW YORK TIMES JUNE 25, 1995

Huge Spill of Hog Waste Fuels an Old Debate in North Carolina

Published: June 25, 1995

The worst hog-waste spill in state history sent 25 million gallons of waste gushing into the New River this week, killing fish and taking the battle over the hog industry to a new level.

A dike surrounding an eight-acre receptacle for hog waste at Oceanview Farms in Onslow County collapsed on Wednesday afternoon. Knee-deep red, soupy waste rushed over roads and tobacco and soybean fields and into two nearby tributaries of the New River until the waste lagoon, which is 12 feet deep and held waste from more than 10,000 hogs, was virtually empty.

"A lagoon is something a beautiful girl swims in on Fantasy Island," said Don Webb, a spokesman for the Alliance for a Responsible Swine Industry. "This was a cesspool. Twenty-five million gallons of feces and urine. We've been telling them that things like this happen."

But others argued that the spill was an isolated accident. In the long run, they said, chemicals

Failures Spur Demands for Change

- 1995- NCGA Blue Ribbon Study Commission on Agricultural Waste Formed
- 1996- Based on Commission Input, NCGA requires *new or expanding* industrial hog operations to:
 - (1) Eliminate the discharge of animal waste to surface water and groundwater through direct discharge, seepage, or runoff.
 - (2) Substantially eliminate atmospheric emission of ammonia.
 - (3) Substantially eliminate the emission of odor that is detectable beyond the boundaries of the parcel or tract of land on which the swine farm is located.
 - (4) Substantially eliminate the release of disease-transmitting vectors and airborne pathogens.
 - (5) Substantially eliminate nutrient and heavy metal contamination of soil and groundwater.

Recent History

In just the last five years:

- The EPA expressed “grave concern” about the disproportionate adverse impact on communities of color in North Carolina;
- Increasingly frequent and severe rain events, including two 1,000-year storms (Hurricanes Matthew and Florence) led to widespread flooding and the structural failure of hog waste lagoons;
- Public health researchers added to the large body of research showing residents living near industrial hog operations have higher rates of deadly diseases; and
- Five juries found that operation of the lagoon and sprayfield system created nuisance conditions that deprived neighbors of protected property rights. The juries awarded millions of dollars in compensatory and punitive damages. A federal appeals court affirmed liability.

Development of Waste Management Technology on NC Swine CAFOs

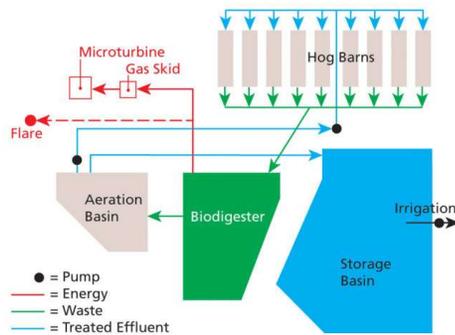
- 2000- Smithfield Agreement obligates industry to invest in research & install new tech on *existing* operations if it meets statutory criteria and is “economically feasible”
- 2007- NC legislature creates Lagoon Conversion Program to Invest in tech meeting NCGA criteria
- 2007- NC legislature requires utilities to eventually generate some energy from swine
- 2009- NCSU evaluation of multiple technologies concludes they meet NCGA criteria; none deemed “economically feasible”
- 2018- Smithfield and Dominion form Align RNG, commit to installing anaerobic digestors as part of “biogas” projects throughout Eastern NC

“Biogas”

- Use of L&S System creates/increases methane emissions from pork production
- EPA: “When manure is stored or treated as a liquid (e.g., in lagoons, ponds, tanks, pits), it tends to decompose anaerobically and produce a significant quantity of methane. When manure is handled as a solid . . . it tends to decompose aerobically, producing little or no methane.”
- Methane can be burned to generate energy



Biogas In General vs. Align RNG's Directed Biogas

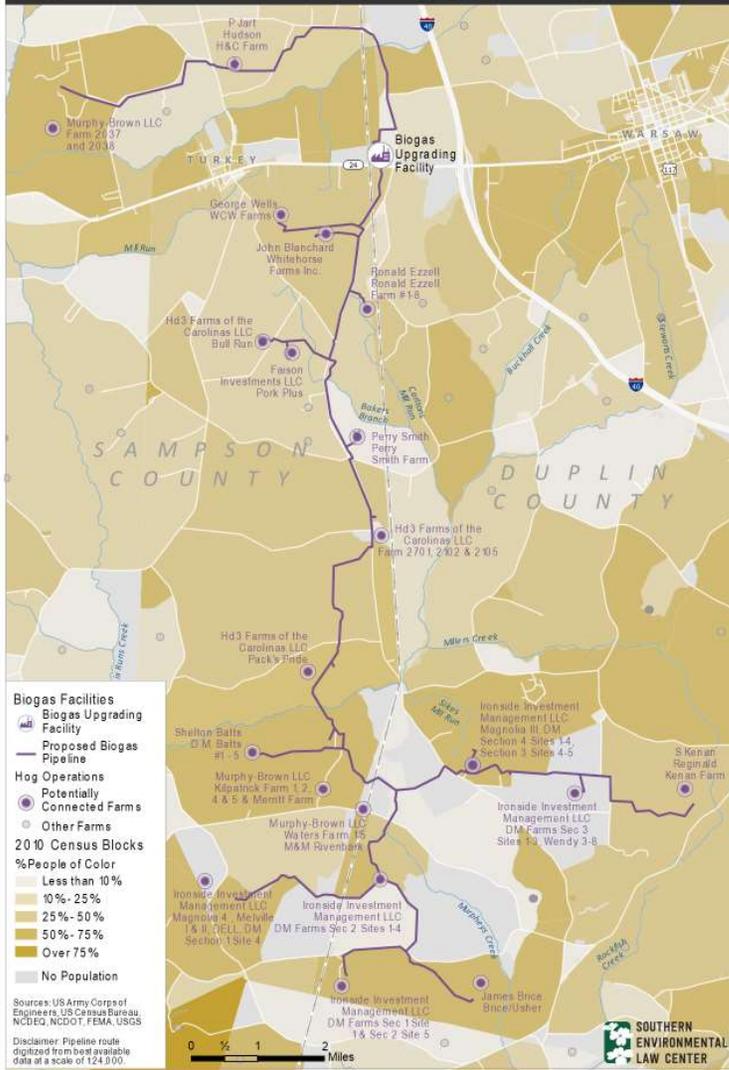


Directed biogas projects—like those proposed by Align RNG—involve covering a hog waste lagoon, trapping the methane (and other gas) generated under the cover, then:

- *transporting the gas through a maze of new pipelines*
- *processing it at a central, utility-owned facility, and*
- *injecting the refined gas into natural gas pipelines.*



Align RNG Grady Road Project Biogas Pipeline and Potentially Connected Hog Operations



Concerns About Directed Biogas as Proposed by Align RNG

- Does not meet critical performance standards and will further entrench the lagoon and sprayfield system
- May make impacts of the lagoon and sprayfield system worse
- Disproportionate impacts on communities of color
- Lack of transparency and failure to consider community input/impacts
- Not designed to benefit host communities

Minimum Protections for Environmental Justice Communities

- Air and Water Monitoring
- Data Collection and Analysis
- Consideration of Cumulative Impacts



Recommendations for Meaningful Engagement During the General Permit Development Process



- Conduct at least four public meetings. At least two of those should be public face-to-face meetings in the most affected counties – one in Duplin County and one in Sampson County.
- Provide at least a 60-day notice of any planned public meeting to allow impacted communities to plan their participation.
- Extend the period for public comment on the draft permit for at least 90 days to allow adequate time for local community members to provide comments for consideration by DEQ.
- Provide Spanish interpretation services for participants with limited English proficiency. Based on demographic data Hispanic residents are 1.39 times more likely to live near CAFOs than their white counterparts.

- Provide Spanish translation of draft permits, EJ analyses and related notices, as well as interpretation of hearing dialogue.
- Contract an independent facilitator to enable dialogue between stakeholders and agency staff at all meetings.
- DEQ should respond in writing to community concerns expressed during the permitting process so that agency decision-making is transparent and reflects consideration, not merely invitation, of public input.
- DEQ should consult with the NC Department of Health and Human Services to evaluate the health impacts of existing swine CAFOs including but not limited to those employing directed biogas technology.
See Wing, supra note 1.