

Title VI: Increasing Equity, Transparency, and Environmental Protection in the Permitting of Swine Operations in North Carolina



Executive Summary

As the nation's second largest pork producing State, with approximately 9 million hogs, North Carolina has long faced the challenge of ensuring that the State's swine operations manage their waste in a manner that complies with environmental standards and protects public health. In 1997, North Carolina created what would become the most stringent permitting program for swine operations in the country. Later that year, the environmental impacts from swine operations led the General Assembly to pass a moratorium on construction of new or expanded hog waste lagoons. However, environmental impacts from the swine industry have continued to be a source of significant public concern in North Carolina, particularly for the communities that live near these operations and have the greatest exposure to environmental impacts.

Throughout the years, the North Carolina Department of Environmental Quality ("NCDEQ") and its Division of Water Resources ("DWR") have received numerous complaints relating to environmental and public health impacts from swine operations. Some of these complaints have stated that impacts from swine operations, such as degraded water quality and objectionable odors, are disproportionately borne by minority communities, including African Americans, Latinos, and Native Americans. The complaints state that one of the contributing factors to these impacts is NCDEQ's failure to appropriately exercise its regulatory authority with respect to these operations.

Title VI of the Civil Rights Act of 1964 and Environmental Protection Agency ("EPA") regulations prohibit recipients of federal funding from discriminating on the basis of race, color, or national origin in any of their activities. Recipients are further required to maintain nondiscrimination programs that include a nondiscrimination policy, grievance procedures, and designation of a person to coordinate efforts to comply with the agency's nondiscrimination obligations. Under EPA regulations, anyone who believes a state agency has failed to administer its permitting program in a nondiscriminatory manner may file an administrative complaint with EPA.

On September 3, 2014, the North Carolina Environmental Justice Network, Rural Empowerment Association for Community Help, and Waterkeeper Alliance, Inc. ("Citizen Groups") submitted a complaint to the EPA Office of Civil Rights, now called the External Civil Rights Compliance Office, alleging that NCDEQ issued a general permit for swine operations ("Swine General Permit") in violation of Title VI and EPA implementing regulations, 40 C.F.R. Part 7. On February 20, 2015, EPA accepted the Complaint for investigation.

In 2017, pursuant to a directive from Secretary Michael S. Regan, NCDEQ identified enhancement of its Title VI and environmental justice program as a top priority for the agency. As part of this effort, NCDEQ committed to engaging with communities affected by operations permitted under NCDEQ's Swine General Permit, including the Citizen Groups and their members, to identify a path towards resolution of the issues identified in the Complaint.

On May 3, 2018, NCDEQ entered into a Settlement Agreement with the Citizen Groups designed to improve regulatory oversight of swine operations and better protect neighboring communities from health and environmental impacts. Under the Settlement Agreement, NCDEQ committed to undertake several efforts including (1) proposing revisions to the Swine General Permit for

stakeholder consideration; (2) enhancing public outreach and community involvement procedures associated with the Swine General Permit; (3) undertaking an air quality monitoring program to evaluate air quality impacts from swine operations; (4) undertaking a water quality monitoring program to evaluate water quality impacts from swine operations; and (5) making changes to its Title VI and environmental justice programs, including development of an environmental justice mapping tool to better understand how sources of pollution collectively impact communities throughout the State and ensure meaningful involvement of all affected parties in NCDEQ's decision-making.

NCDEQ and the Citizen Groups agreed that the actions required under the Settlement Agreement would “result in full resolution of the Title VI Complaints filed with EPA.” EPA reviewed the Settlement Agreement and concluded that its terms constitute a reasonable resolution of the issues that EPA accepted for investigation.

As part of the Settlement Agreement, NCDEQ is required to conduct a review of activities carried out pursuant to the Settlement Agreement, including its renewal of the Swine General Permit in 2019, and to assess the overall compliance of the Swine General Permit program with Title VI and EPA's implementing regulations.

This Report provides an overview of the efforts NCDEQ has undertaken to increase equity, transparency, and environmental protection in its permitting of swine operations; assesses compliance of NCDEQ's Swine General Permit program with Title VI and EPA implementing regulations; and identifies additional actions that NCDEQ will take in this arena to further NCDEQ's mission of providing science-based environmental stewardship for the health and prosperity of *all* North Carolinians.

Part I of the Report provides background for the Settlement Agreement and actions taken by NCDEQ with respect to the Swine General Permit.

Part II describes actions taken by NCDEQ to increase equity, transparency, and environmental protection in the permitting of swine operations, including but not limited to actions taken pursuant to the Settlement Agreement. Part II.A describes NCDEQ's revisions to the Swine General Permit. Part II.B describes changes to NCDEQ's complaint investigation procedures with respect to animal feeding operations. Part II.C describes NCDEQ's development of an initial draft of a Violations Point System Rule to potentially assist the Department in ensuring compliance with the Swine General Permit. Part II.D describes actions by NCDEQ to address odor from swine operations and provides historic perspective on the volume of odor-related complaints since the inception of the Swine General Permit program.

Part II.E describes measures NCDEQ is taking to enhance its Title VI and environmental justice program and ensure meaningful public involvement in NCDEQ's decision-making including: (1) implementation of a strong nondiscrimination policy that is effectively communicated to the public; (2) appointment of a Title VI and Environmental Justice Coordinator; (3) development of a Title VI complaint process; (4) development of enhanced public involvement and language access plans; (5) development of an anonymous comment tool; (6) development of a “sunshine

list” of interested individuals and organizations; and (7) development of the North Carolina Community Mapping System and Environmental Justice Tool (“NCCMS”).

Part III discusses the water quality and air quality monitoring studies conducted by NCDEQ pursuant to the Settlement Agreement to assess adverse impacts from swine operations on the environment and public health.

Part IV discusses NCDEQ’s analysis of five communities in Duplin and Sampson Counties using the Environmental Justice Tool.

Part V of the Report evaluates the Swine General Permit program’s overall compliance with Title VI. This Part concludes that, with the exception of the water quality monitoring report which requires additional investigative action to finalize, NCDEQ has completed all of the actions required under Settlement Agreement, which the parties agreed would “result in full resolution of the Title VI Complaints filed with EPA.” Part V further concludes that the actions described in this Report will significantly reduce the potential for adverse impacts associated with swine operations and put NCDEQ in a position to better identify and address impacts that fall within NCDEQ’s regulatory authority. In addition, Part V concludes that NCDEQ’s enhancements to its Title VI and environmental justice program will ensure that affected communities have the opportunity to be meaningfully involved in decision-making related to the Swine General Permit program. Based on this analysis, this Part concludes that the Swine General Permit program is in compliance with Title VI and EPA’s implementing regulations.

Part VI identifies additional actions that NCDEQ is undertaking or will undertake with respect to swine operations and NCDEQ’s Title VI and environmental justice program. DEQ is well-positioned to carry out these additional actions.

With respect to the Title VI and environmental justice program, these actions include:

- establishment of the Secretary’s Environmental Justice and Equity Advisory Board;
- expanded use of the NCCMS in NCDEQ’s decision-making process;
- evaluation of use of disparate impact analysis methods; and
- outreach to local governments, community groups and industry groups regarding use of the NCCMS for local decision-making processes in areas such as zoning and land use.

With respect to swine operations, these actions include:

- evaluation of groundwater monitoring data and annual reports from swine operations to inform future regulatory actions;
- evaluation of use of individual permitting for swine operations;
- continuation of NCDEQ’s water quality monitoring study to identify sources of impacts on water quality, including collaboration with researchers at North Carolina universities to implement enhanced source identification tools, and release of a final water quality monitoring study report after public notice and comment; and
- reassessment of the community analysis once the 2020 Census Data are available to inform community engagement with respect to the next permit cycle.

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I. Background

A. Title VI of the Civil Rights Act of 1964

Title VI of the Civil Rights Act of 1964 prohibits recipients of federal financial assistance from discriminating against or otherwise excluding individuals on the basis of race, color, or national origin in any of their activities.

EPA has adopted regulations implementing Title VI at 40 C.F.R. Part 7. When a state agency receives financial assistance from EPA, it must accept the obligation to comply with EPA's Title VI implementing regulations. These regulations not only prohibit recipients of EPA funding from participating in intentional discrimination, they also prohibit recipients from using "criteria or methods of administering its program or activity which have the effect of subjecting individuals to discrimination."¹

In addition to requiring recipients to refrain from discrimination, EPA's Title VI regulations require recipients to maintain nondiscrimination programs with certain key components such as a statement of nondiscrimination,² grievance procedures,³ and designation of a person to coordinate efforts to comply with nondiscrimination obligations.⁴

Persons, or their authorized representatives, who believe a state agency has failed to administer a regulatory program in a nondiscriminatory manner may file an administrative complaint with EPA.⁵

B. Swine Operations in North Carolina and Historic Impacts on Nearby Communities

North Carolina is the second largest pork-producing state in the country and has long faced the challenge of ensuring that farmers manage hog waste in a manner that complies with environmental standards and protects public health. The majority of North Carolina's swine operations are concentrated in the southeastern part of the State.

Waste from swine operations is typically managed using earthen basins, or lagoons, in which anaerobic bacteria in the lagoon break down the animal waste. Once this process is complete, the liquid waste can be safely sprayed onto crops as fertilizer provided it is properly managed and applied at agronomic rates—no more than the amount that can be productively used by the crops to which it is applied.

In 1996, the North Carolina General Assembly required the development of a permitting program to prevent the discharge of waste from animal operations, including swine operations with 250 or more swine. NCDEQ established the first general permit for controlling swine waste management systems in 1997. In the same year, the General Assembly enacted a moratorium on new or

¹ 40 C.F.R. § 7.35(b).

² 40 C.F.R. § 7.95.

³ 40 C.F.R. § 7.90.

⁴ 40 C.F.R. § 7.85(g).

⁵ 40 C.F.R. § 7.120.

expanded lagoon and sprayfield waste management systems at swine facilities.⁶ This moratorium was extended multiple times before being made permanent in 2007.

NCDEQ has issued multiple iterations of the Swine General Permit since that time. Approximately 2,100 swine operations are covered under the Swine General Permit. All of these operations were in existence prior to the moratorium.

North Carolina's Swine General Permit has long been the strongest program of its kind in the country. The Swine General Permit contains performance standards, operation and maintenance requirements, monitoring and reporting requirements, authority for inspections and entry to the farms, and other general condition requirements. Each permittee is issued a Certificate of Coverage that is permittee-specific and designates, among other things, the permitted number of animals. Each facility covered by the General Permit must be inspected by NCDEQ on an annual basis.⁷

All permitted facilities are also required to have a Certified Animal Waste Management Plan ("CAWMP") developed by a Certified Technical Specialist. The CAWMP is incorporated into the permit by reference and defines the fields to which the waste is applied, the crops to be grown, and other details of the operation. All waste must be applied at no greater than agronomic rates—the amount that can be used productively by the crops to which it is applied.

Notwithstanding the moratorium and the robust requirements that have existed in the Swine General Permit for years, environmental and public health impacts from swine operations have continued to be a source of significant public concern in North Carolina, particularly for nearby communities that face the greatest exposure to these impacts.

Community Concerns

Through complaints lodged with NCDEQ's regional offices, at stakeholder meetings, and during in person meetings with community groups, NCDEQ has heard from North Carolina residents that swine operations impact their lives and communities in negative ways.

Some residents have attested that odors from swine operations have forced them to keep doors and windows closed and significantly limit their outdoor activity. In addition, residents have described increases in cases and severity of asthma and other respiratory illnesses, nausea, headaches and other health conditions. While the rate of complaints associated with odors from swine facilities, discussed later in this Report, does not reflect widespread instances of objectionable odors, it is evident that odors from swine operations remain a serious concern for nearby communities.

In addition, residents have expressed concerns related to swine operations' impacts to surface waters. For example, residents complain that excessive application of waste to sprayfields causes runoff and surface water pollution. NCDEQ has also received complaints alleging that swine

⁶ See N.C. Gen. Stat. § 143-215.10I.

⁷ N.C. Gen. Stat. § 143-215.10F ("[T]he Division shall conduct inspections of all animal operations that are subject to a permit under G.S. 143-215.10C at least once a year to determine whether the system is causing a violation of water quality standards and whether the system is in compliance with its animal waste management plan or any other condition of the permit.").

operations illegally spray waste on fields preceding large storm events in violation of the Swine General Permit, which prohibits spraying within 48 hours of the issuance of a hurricane watch or severe thunderstorm warning.

Residents whose drinking water is supplied by private wells have raised concerns that pollutants from lagoons leach into groundwater and contaminate drinking water supplies.

NCDEQ has also heard from residents that the adverse environmental and public health impacts associated with swine operations are disproportionately borne by African-Americans, Latinos, and Native Americans. These residents contend that these communities are more likely to live near swine operations covered under the Swine General Permit and, therefore, are more likely to be exposed to adverse impacts from these operations.

Community concerns relating to swine operations have led to multiple lawsuits in federal court alleging that swine operations create a nuisance for nearby residents. Over the last two years, these cases have resulted in nearly \$100 million in compensatory and punitive damages for plaintiffs residing near swine operations in Eastern North Carolina.⁸

Academic and Government Research

Numerous peer-reviewed studies have explored the historic impacts of swine farm waste management on nearby residents and the environment.⁹ Some studies have focused on public health impacts, assessing, for instance, the lung function, blood pressure, and other health outcomes in residents living in eastern North Carolina in the vicinity of swine operations.¹⁰ Others have focused on environmental impacts, such as the impacts of lagoon breaches on water quality in the wake of hurricanes, or the impacts of swine waste management practices on groundwater.¹¹ NCDEQ has contributed to some of this research.¹²

⁸ See *McKiver v. Murphy-Brown LLC*, No. 7:14-CV-180-BR (E.D.N.C.), now on appeal in the Fourth Circuit, Case No. 19-1019 (4th Cir.).

⁹ See, e.g., Letter of Concern from Lilian S. Dorka to William G. Ross at Attachment A (citing studies) (Jan. 12, 2017), available at https://www.epa.gov/sites/production/files/2018-05/documents/letter_of_concern_to_william_g_ross_nc_deq_re_admin_complaint_11r-14-r4_.pdf.

¹⁰ Kravchenko, Julia et al., *Mortality and Health Outcomes in North Carolina Communities Located in Close Proximity to Hog Concentrated Animal Feeding Operations*, NC Medical Journal, 79 (5) (Sept. 2018), available at <https://www.ncmedicaljournal.com/content/79/5/278>; Leah Schinasi et al., *Air Pollution, Lung Function, and Physical Symptoms in Communities Near Concentrated Swine Feeding Operations*, 22 Epidemiology 208, 208 (2011); Wing, Steve, et al., *Air Pollution from Industrial Swine Operations and Blood Pressure in Neighboring Residents*, 121 Env'tl. Health Perspectives 92 (2013).

¹¹ See, e.g., Wing, Steve, et al., *The Potential Impact of Flooding on Confined Animal Feeding Operations in Eastern North Carolina*, 110 Env'tl. Health Perspectives 387,387 (2002); Anderson, M.E. & Sobsey, M.D. *Detection and Occurrence of Antimicrobially Resistant E.coli in Groundwater on or near Swine Farms in Eastern North Carolina*, 54 Water Sci. & Tech. 211 (2006).

¹² Harden, Stephen L., USGS Prepared in cooperation with the North Carolina Department of Environment and Natural Resources. Division of Water Resources, *Surface-Water Quality in Agricultural Watersheds of the North Carolina Coastal Plain Associated with Concentrated Animal Feeding Operations*, Scientific Investigations Report 2015-5080 (2015).

In addition to independent academic research, EPA's Office of Research and Development recently reviewed seven reports published by or with federal agencies on this topic.¹³ EPA has stated that these reports provide consistent support for the occurrence of potential health hazards (e.g., eye, nose, and throat irritation; headaches; respiratory effects including asthma exacerbation; waterborne disease) from swine operations. While EPA has acknowledged the significant uncertainty associated with the levels of exposure to the identified contaminants in nearby communities and the risk of health effects attributable to those exposures, EPA has identified potential health hazards associated with swine operations as a concern.¹⁴

C. The Citizen Groups' Title VI Complaint

On September 3, 2014, the Citizen Groups submitted a complaint to EPA's Office of Civil Rights, now called the External Civil Rights Compliance Office, alleging that NCDEQ's operation of its Swine General Permit program violated Title VI and EPA's implementing regulations. On February 20, 2015, EPA accepted the Complaint for investigation with respect to the issue of whether "North Carolina [DEQ]'s regulation of swine feeding operations discriminates against African Americans, Latinos, and Native Americans on the basis of race and national origin in neighboring communities and violates Title VI and EPA's implementing Regulation."¹⁵

On March 6, 2015, the Citizen Groups and NCDEQ agreed to engage in Alternative Dispute Resolution ("ADR") and EPA placed its investigation on hold pending the outcome of the ADR process. The Parties commenced the ADR process but did not reach resolution, and EPA reinitiated its investigation on May 5, 2016. On July 11, 2016, Citizen Groups filed a second complaint with EPA alleging that NCDEQ, directly and through the actions of third parties, engaged in and failed to protect Citizen Groups from intimidation, which is prohibited by Title VI and EPA regulations, 40 C.F.R. § 7.100. On August 2, 2016, EPA accepted for investigation the Citizen Groups' second complaint, finding that the second complaint also met EPA's jurisdictional requirements.

On January 12, 2017, EPA sent NCDEQ a letter of concern providing preliminary information on its investigation and making a series of recommendations.¹⁶ EPA's letter of concern reflected information gathered by EPA during on-site visits to interview residents; EPA's review of information submitted by the Citizen Groups including declarations prepared by residents and other witnesses; and EPA's review of scientific and other literature. EPA's letter detailed numerous concerns expressed by residents who live near permitted swine operations. These concerns substantially echo those that NCDEQ staff have heard from these communities, described above.

In addition, in its letter of concern, EPA stated its belief that NCDEQ's nondiscrimination program did not contain all of the required elements specified in EPA's Title VI implementing regulations. These requirements included a notice of nondiscrimination, grievance procedures, and the

¹³ Letter of Concern, *supra* note 9, at Attachment B.

¹⁴ *Id.* at 6-7.

¹⁵ Letter re Notification of Acceptance of Administrative Complaint from Velveta Golightly-Howell to Donald R. van der Vaart (Feb. 20, 2015).

¹⁶ Letter of Concern, *supra* note 9.

designation of at least one person to coordinate its efforts to comply with its nondiscrimination obligations.

In 2017, pursuant to a directive from Secretary Michael S. Regan, NCDEQ identified enhancement of its Title VI and environmental justice program as a top priority for the agency. As part of this effort, NCDEQ committed to engaging with communities affected by operations permitted under NCDEQ's Swine General Permit, including the Citizen Groups and their members, to identify a path towards resolution of the issues identified in the Complaint. On March 8, 2017, EPA suspended its investigation upon notification from the Citizen Groups and NCDEQ that the parties intended to recommence the ADR process.

D. Title VI Settlement

On May 3, 2018, NCDEQ reached a Settlement Agreement with the Citizen Groups with the assistance of a mediator.¹⁷ The Settlement Agreement is intended to improve regulatory oversight of swine operations and better protect nearby communities from health and environmental impacts.

Under the Settlement Agreement, NCDEQ committed to undertake several efforts including but not limited to: (1) proposing revisions to the Swine General Permit for stakeholder consideration; (2) enhancing public outreach and community involvement for the Swine General Permit; (3) undertaking an air quality monitoring study; (4) undertaking a water quality monitoring study; and (5) making changes to its Title VI and environmental justice programs, including development of an environmental justice mapping tool.

The parties agreed that implementation of the Settlement Agreement would “result in full resolution of the Title VI Complaints filed with EPA.”¹⁸ The Settlement Agreement was submitted to EPA for review. EPA concluded that the Agreement constituted a reasonable resolution of the issues accepted by EPA for investigation and, on May 7, 2018, issued a letter closing its investigation of the Complaint without further action.¹⁹

¹⁷ The Settlement Agreement is attached to this Report as Attachment A.

¹⁸ Settlement Agreement § IX.

¹⁹ Letter re Closure of Administrative Complaint from Lilian S. Dorka to Michael S. Regan (May 7, 2018), *available* at https://www.epa.gov/sites/production/files/2018-05/documents/2018-5-7_ncdeq_reach_closure_letter_per_adr_agreement_11r-14-r4_recipien.pdf.

II. NCDEQ Actions to Increase Equity, Transparency, and Environmental Protection in the Permitting of Swine Operations

As a result of the Settlement Agreement and pursuant to the Secretary's directive to prioritize enhancement of NCDEQ's Title VI and environmental justice program, NCDEQ has taken several actions to increase equity, transparency and environmental protection in its permitting of swine operations.

These actions are described in Part II of this Report. Part II.A describes NCDEQ's revisions to the Swine General Permit.²⁰ Part II.B describes changes to NCDEQ's complaint investigation procedures to improve consistency, timeliness, and transparency in the agency's responses to citizen complaints. Part II.C describes NCDEQ's development of an initial draft of a Violations Point System Rule to potentially assist the Department in ensuring compliance with the Swine General Permit. Part II.D describes actions by NCDEQ to address odor and provides historic perspective on the volume of odor-related complaints since the inception of the Swine General Permitting Program. Part II.E describes measures NCDEQ is taking to enhance its Title VI program and ensure meaningful public involvement in NCDEQ's decision-making processes, including development of the North Carolina Community Mapping System and Environmental Justice Tool.

A. Revisions to the Swine General Permit

As part of the Settlement Agreement, NCDEQ committed to submitting for stakeholder consideration a draft permit ("Stakeholder Draft") based in substance on an agreed upon set of draft revisions.²¹ The Stakeholder Draft included possible revisions to the 2014 General Permit designed to ensure more robust environmental protections and compliance assurance measures for permitted facilities.

NCDEQ undertook a comprehensive outreach effort to ensure that affected communities as well as the regulated industry had the opportunity to provide meaningful input regarding the Stakeholder Draft. In addition to requesting comments from the public at large, NCDEQ held two stakeholder meetings to gather input from interested parties at the Sampson County Exposition Center. A public notice regarding the stakeholder process was issued on November 13, 2018 at which time a copy of the Stakeholder Draft was posted online. The stakeholder sessions were held under the supervision of an experienced non-partisan facilitator unaffiliated with the Citizen Groups, the swine industry, or NCDEQ.

The first stakeholder meeting was held during the day on November 27, 2018. This meeting was attended by over 100 individuals. Attendees included representatives from local community groups, including individuals identified by the Citizen Groups for participation, as well as

²⁰ As of May of 2020, a contested case challenging the Swine General Permit is pending in the North Carolina Office of Administrative Hearings. *See North Carolina Farm Bureau Federation Inc. v. North Carolina Department of Environmental Quality, Division of Water Resources*, 19 EHR 02739 (N.C.O.A.H.).

²¹ As the Settlement Agreement makes clear, NCDEQ was not obligated to adopt the provisions set forth in the Stakeholder Draft in the final permit. NCDEQ was free to make whatever changes were necessary and appropriate during the permitting process pursuant to applicable statutes and regulations.

representatives from industry, academia, and other public agencies. Attendees were split into five working groups, each of which included individuals from varying backgrounds and perspectives. These five working groups rotated through five different moderator-led discussion sections focused on specific sections of the Swine General Permit. Each working group was given the opportunity to provide comments and recommendations regarding each section of the Stakeholder Draft and participated in open dialogue with a diverse group of stakeholders. NCDEQ staff attended each discussion section and took notes on the contents of the discussion.

The second stakeholder meeting took place during the evening of November 27, 2018. This meeting was open to the public. Attendees were provided with an overview of the Stakeholder Draft by NCDEQ staff and given the opportunity to share comments. Spanish-speaking staff from NCDEQ attended the meeting to provide any necessary interpretation services.

At the request of the Citizen Groups, the opportunity for stakeholder involvement was expanded to include a period to submit written comments through December 21, 2018, to ensure that commenters could take into account information exchanged at the stakeholder meetings.

After considering the input received during the stakeholder process, DWR prepared a draft General Permit and released it for public notice on January 30, 2019 (“Public Notice Draft”). DWR held public hearings on the Public Notice Draft in Kenansville, NC on February 19, 2019 and in Statesville, NC on February 26, 2019. Approximately 300 people attended the public hearing in Kenansville, NC and approximately 60 people attended the public hearing in Statesville, NC. Over 75 people provided oral comments at the two meetings.

The Division received approximately 6,676 public comments.²² The hearing officer prepared a Hearing Officer’s Report summarizing public comments and responses. The Hearing Officer’s Report also recommended several changes to the Public Notice Draft based on those comments.

The 2019 Swine General Permit was finalized on April 12, 2019, with an effective date of October 1, 2019.²³ Certificates of coverage (“COCs”) for the Swine General Permit were issued to swine operations that applied for renewal. While the 2019 Swine General Permit contains many of the requirements previously contained in 2014 Swine General Permit, the 2019 Swine General Permit includes important changes designed to significantly reduce environmental impacts from swine operations. Changes include but are not limited to the following:

Groundwater monitoring for lagoon/waste storage structures in the 100-year flood plain

Conditions III.11-14 of the 2019 Swine General Permit require facilities with lagoon/waste storage structures in the 100-year flood plain to install groundwater monitoring wells up-gradient and down-gradient of each lagoon/waste storage structure and to conduct quarterly groundwater sampling for chloride, fecal coliform, ammonia, nitrate, pH, phosphorous, sodium, total dissolved

²² Some of these comments pertained to the Poultry General Permit and the Cattle General Permit that were publicly noticed at the same time as the Swine General Permit. However, the vast majority of comments focused on the Swine General Permit.

²³ The final version of the 2019 Swine General Permit is attached to this Report as Attachment B.

solids, and water level. Wells must be installed and initial sampling commenced no later than six months after DWR notifies the farm of the requirement and identifies well locations.

This requirement was not included in the Stakeholder Draft referenced in the Settlement Agreement. Rather, this condition was added by DWR to enable the agency to better assess potential groundwater impacts from animal waste lagoons located in environmentally sensitive areas.

In addition to requiring groundwater monitoring for lagoons in the 100-year flood plain, the 2019 General Permit retains the provision allowing DWR to require any facility to conduct groundwater or surface water monitoring on a case-by-case basis.

Annual Reporting

Condition III.18 of the 2019 Swine General Permit requires permittees to submit an annual report to NCDEQ. The annual report must be submitted in accordance with the form included as Attachment A to the Permit. Annual reports will be kept on file by NCDEQ and made available for public review, consistent with the Public Records Act, upon request.

The annual report form requires the permittee to provide data regarding land application, lagoon management, soils, and animal production. The form also requires the permittee to affirm that the facility remained in compliance with various permit requirements and to provide an explanation for any instances of noncompliance.

This annual report, along with DWR's annual inspections, will enhance the Division's efforts to monitor and ensure compliance with the Swine General Permit. These reports will also enhance the transparency of the permitting program because the annual reports will become available for public review, consistent with the Public Records Act, upon submission to DWR.

Phosphorous Loss Assessment

Condition I.9 of the 2019 Swine General Permit provides that any land application field with a soil analysis phosphorus index (also known as a "P-index") of 400 or higher must be evaluated using the North Carolina Phosphorus Loss Assessment Tool ("PLAT"). Based on the results of the PLAT analysis, the permittee may be required to limit the application of waste to particular fields. For example, for fields with a "HIGH" PLAT rating, land application must be limited to a rate that does not exceed the established crop removal rate for phosphorus. For fields with a "VERY HIGH" PLAT rating no waste may be applied.

An analysis of over 40,000 soil samples from 2018 showed that a P-index of 400 represents the 95th percentile of highest P-index values. These data coupled with PLAT results from animal feeding operations covered by NPDES permits from 2003-2007 indicate that a P-index value of 400 or more is likely to be found in soils where additional phosphorous loading should be limited to protect surface water and groundwater. This condition will assist the agency in ensuring that waste is not applied in a manner that leads to phosphorus loading to surface water.

Mortality Management Condition Update

Condition II.10 of the 2019 Swine General Permit requires permittees to dispose of dead animals within 24 hours and in a manner approved by the State Veterinarian. It further requires mortality management plans that utilize burial to include maps of burial locations with setbacks from surface waters, wells and property lines. In addition, the condition provides that DWR may require groundwater monitoring for permittees that continue to use burial sites in their mortality management. The condition also imposes additional requirements for disposal that addresses catastrophic mortality.

The revisions to this condition will ensure that dead animals are disposed in a manner that minimizes impacts to groundwater and surface water and minimizes objectionable odors offsite.

Rainbreakers

Condition II.24 now requires permittees to install, operate and maintain devices on all irrigation pumps/equipment designed to automatically stop irrigation activities during precipitation events. These devices are also known as “rainbreakers.” In the alternative, a permittee can commit to provide for the presence of the operator in charge or the designated backup operator in charge at all times during the land application of waste so that, in case of a precipitation event, the irrigation activities will be stopped immediately.

This condition will significantly reduce instances of land application during precipitation events and thus reduce the potential for waste to be carried into surface waters by runoff from storm events.

Clarification of DWR Authority to Conduct Unannounced Inspections

The 2019 Swine General Permit clarifies that the permittee is subject to inspections at any time, without announcement, by NCDEQ.

Unannounced inspections are an important investigative tool for the Department, particularly for the investigation of illegal discharges. While the Department had the authority to conduct unannounced inspections prior to this change in the permit language, this revision provides needed assurance to the public and clarity to the permittee regarding the Department’s authority.

Requirements for Amendments, Revisions and Major Changes to the CAWMP

Condition I.4 of the Swine General Permit now provides that “major changes,”²⁴ “revisions,”²⁵ and “amendments”²⁶ to the CAWMP must be documented, signed and dated by the permittee and a technical specialist, and included as part of the CAWMP. Major changes require recertification

²⁴ The General Permit defines a “major change” to a CAWMP as a change “in the number of animals, type of operation (feeder to finish to wean to feeder), retrofit of a lagoon, installation of a digester, installation of a new irrigation system, and similar type changes.”

²⁵ The General Permit defines a “revision” to a CAWMP as a “a change to an entire CAWMP to meet current applicable standards.”

²⁶ The General Permit defines an “amendment” to the CAWMP as “a minor change and/or addition to a part(s) of the plan and does not require pre-approval from the Division to implement.”

of the CAWMP by a technical specialist or other appropriate professional. The new CAWMP and the recertification must then be submitted with a request that the COC be amended to reflect the changes. In addition, the facility is prohibited from making the changes until they are approved by DWR and a new or amended COC has been issued.

This condition further provides that while revisions and amendments do not trigger a recertification requirement, such changes must adhere to the current applicable standard and be submitted to DWR within thirty calendar days. Finally, the provision requires that the permittee revise its CAWMP if the operation cannot utilize all nitrogen generated by the animal production in accordance with the existing CAWMP.

Prior to these changes, only major changes and revisions were required to be submitted to DWR. In addition, amendments were not required to be submitted to DWR at all. DWR believes that these changes will improve oversight and transparency in the permitting and compliance process.

Updated Odor Control Checklist

In July of 2019, DWR updated and significantly expanded the Swine Farm Waste Management Odor Control Checklist for the first time since 1996.²⁷ The Odor Control Checklist identifies potential odor sources and lists potential site-specific, cost-effective remedial best management practices to minimize odors. Pursuant to N.C. Gen. Stat. § 143-215.10C(e)(1) the Odor Control Checklist is a required component of a facility's CAWMP, which is incorporated into the permit by reference in Condition I.3. Failure to follow measures that have been selected for implementation in the Odor Control Checklist constitutes a violation of the Permit.

The Odor Control Checklist was revised in consultation with scientists at NC State University and the SB 1217 Interagency Committee to include additional management practices to minimize odors and remove outdated measures that are no longer considered best practices.²⁸ DWR believes that implementation of the odor reduction measures set forth in the updated Odor Control Checklist will assist swine operations in reducing the occurrence of objectionable odors.

B. Changes to NCDEQ's Complaint Investigation Procedures

NCDEQ has also made changes to its complaint response protocols to better ensure consistency, timeliness, and transparency in its investigation of complaints associated with swine operations.

On December 15, 2017, in a parallel settlement with NCEJN, Waterkeeper Alliance, Inc., and Cape Fear River Watch relating to a contested case filed in the Office of Administrative Hearings, NCDEQ committed to adopting new standard operating procedures for the investigation of

²⁷ The updated Odor Control Checklist is attached to this Report as Attachment C.

²⁸ The SB 1217 Interagency Committee was created by the General Assembly in 1996 to address questions from technical specialists and provide uniform interpretations to technical specialists regarding the requirements of the animal waste management rules. The SB 1217 Interagency Group consists of two representatives from each of the following agencies: the Division of Soil and Water Conservation, the Division of Water Resources, the Department of Agriculture, and Cooperative Extension Service, and the Natural Resources Conservation Service of the United States Department of Agriculture.

complaints relating to animal operations (“Complaint Response SOP”).²⁹ The Complaint Response SOP is used by DWR staff to provide consistent procedures for the assessment and investigation of third-party complaints related to animal operations. The Complaint Response SOP will help the regulated community better understand DWR’s procedures for responding to such third-party complaints and provide members of the public who live and work near animal operations with more information regarding DWR’s efforts to protect their health, safety, and the environment.

Most significantly, the Complaint Response SOP provides guidance to DWR staff with regard to conducting investigations in response to complaints. The SOP directs staff to conduct site visits in accordance with specified timeframes when necessary and practicable considering weather conditions, activities at the animal operation, and other conditions occurring at the time of the complaint. Specifically, the SOP provides: (1) for complaints alleging facts that present an immediate threat to the environment or human safety or health, inspectors shall initiate an investigation and conduct any site visit within 24 hours of DWR’s receipt of the complaint; and (2) for all other complaints, inspectors shall initiate an investigation within one business day of DWR’s receipt of the complaint and conduct any site visit within five business days of the completion of the initial investigation of the complaint. The SOP also describes the factors that staff should consider in determining whether an immediate threat to the environment or human safety or health exists.

The Complaint Response SOP also provides staff with guidance to ensure compliance with N.C. Gen. Stat. § 143-215.9D. This statute, enacted by the General Assembly in 2014, provides that complaints against “agricultural operations” and all other records accumulated in conjunction with the investigation of these complaints shall be considered confidential records unless and until “a determination of a violation” has occurred. In light of this statute, it is imperative that NCDEQ have a consistent system in place for tracking the complaints that have resulted in a “determination of a violation” in order to determine whether documents associated with those complaints must remain confidential. The SOP describes the method by which staff are required to log third-party complaints using DWR’s Basinwide Information Management Systems or “BIMS” database and document the various steps of the investigation including a determination of a violation. Through documentation of the investigation in accordance with the SOP, DWR will be able to generate a complaint tracking number and provide a reference for requesting public records relating to a complaint.

In addition to adoption of the SOP, as part of the settlement of the contested case, NCDEQ committed to regularly post public information related to agricultural operation complaints. For agricultural operation incidents where a violation has been determined, NCDEQ will now post the following information on its website:

- Incident number
- Date Received
- County

²⁹ The Complaint Response SOP is attached to this Report as Attachment D.

- Regional Office
- Address of Incident
- Permit or deemed permit number

Aggregate data will also be posted on NCDEQ’s website with respect to all complaints including:

- Total number of complaints received
- Total number of complaints investigated
- Total number of complaints where a violation was determined

NCDEQ believes that the Complaint Response SOP as well as NCDEQ’s commitment to post aggregate data related to complaints will enhance consistency, timeliness, and transparency in NCDEQ’s investigations of complaints.

C. Development of a Point System Rule for Stakeholder Consideration

In Section III.C of the Settlement Agreement, NCDEQ committed to preparing a draft rule designating a system of points to be assigned to operators under the Swine General Permit for violations in accordance with N.C. Gen. Stat. § 143-215.6E. In this statute, the General Assembly directed the Environmental Management Commission to develop a “Violation Points System” to be used for enforcement purposes against swine operations. The statute requires that, in developing the point system, the Commission consider such factors as the degree of harm to the environment and the degree of willfulness or negligence associated with the violation. The statute further contemplates that the accumulation of points could result in the revocation of a permit.

NCDEQ has developed an initial draft of a Violations Point System Rule³⁰ providing for the point system contemplated by N.C. Gen. Stat. § 143-215.6E. The text of the initial draft provides for the assignment of point totals for specific categories of violations as well as additional points for repeat violations, willful violations, and violations which result in serious harm to the environment. The initial draft also describes the circumstances under which the DWR Director will issue a notice of intent to revoke a facility’s permit, and the measures that a facility must take upon receiving such a notice. The initial draft also provides for appeal rights and procedures for a former permittee to reapply for a permit.

NCDEQ is currently in the process of designing a stakeholder process for this initial draft. Based on feedback from the stakeholder process, NCDEQ will evaluate whether or not it is appropriate to present the draft along with any appropriate modifications to the Environmental Management Commission for consideration.

D. Addressing Odor Impacts from Swine Operations

North Carolina was among the first states to develop comprehensive rules for controlling odors from animal operations. The Environmental Management Commission adopted temporary odor rules in February 1999 and the rules became final later that year.

³⁰ An initial draft of the Violations Point System Rule is attached to this Report as Attachment E.

Odor rules applicable to animal operations using liquid animal waste management systems are set forth at 15A NCAC 2D .1801 *et seq.* Under these rules, all animal operations are required to implement management practices to control odors including a requirement that waste from wastewater spray systems must be applied “in such a manner and pursuant to such conditions to prevent drift from the irrigation field of the wastewater spray beyond the boundary of the animal operation.”³¹ In addition, when the rules were initially adopted, existing swine operations that had certain thresholds of steady state live weight and were located in close proximity to a property with an occupied structure were required to submit “odor management plans” describing how odors are being controlled and will be controlled in the future.³²

Under 15A NCAC 2D .1802(f), the Division of Air Quality (“DAQ”) accepts complaints relating to odor from animal operations and is required to investigate the complaint as expeditiously as possible and respond within thirty days. To register odor complaints, individuals may contact their local DAQ regional office. Upon receiving the complaint, DAQ staff members will fill out detailed complaint forms to help determine the source of the odors and identify an appropriate response. Typically, DAQ inspectors will respond and, where possible, conduct a field investigation on the same day that a complaint is received. In the event that the inspector is unable to verify the existence of an “objectionable odor,” defined under 15A NCAC 2D .1801(9), the inspector will typically request that the complainant keep a logbook to assist DAQ staff in their investigation. These logbooks include dates, times, temperatures, wind direction, duration and intensity of odors, and suspected farm and operation (barn, lagoon, sprayfield) causing the problem.

If DAQ makes an objectionable odor determination, the animal operation is required to submit a “best management plan” in accordance with 15A NCAC 2D .1803, providing detailed description of the control measures to be applied to animal houses, wastewater lagoons, waste application lands, waste conveyances and temporary accumulation points, and any other possible sources of odor. If DAQ ultimately determines under 15A NCAC 2D .1802(j) that the odor management plan fails to prevent objectionable odors, DAQ will require the animal operations to install additional control technology to control odor from the animal operation and to operate such controls in compliance with a permit issued by DAQ. The control technology selected must represent technology that results in “the greatest reduction of odors considering human health, energy, environmental, and economic impacts and other costs.”³³

When the odor rules were first being developed in the 1990s, DAQ’s regional offices received hundreds of odor complaints per year relating to animal operations. Since that time, odor complaints have dramatically decreased partly due to successful implementation of odor management plans and waste management practices required under the Swine General Permit. A query of DAQ’s complaint database does not provide evidence of widespread or frequent odor problems associated with swine operations. DAQ has received fewer than thirty odor complaints in the last five years relating to swine operations. However, DAQ acknowledges that the low rate of complaints received by the agency does not necessarily reflect the extent of odor issues

³¹ 15A NCAC 2D .1802(c).

³² 15A NCAC 2D .1802(d)

³³ 15A NCAC 2D .1802(l).

associated with swine operations. It is possible that some potential complainants are unaware of DAQ's regulatory program and the fact that complaints can be directed to DAQ. Other potential complainants may believe that lodging a complaint will not address the problem.

DAQ recently updated and recommenced an annual training program for regional office staff to ensure that staff across the entire State are properly trained in the most current protocols for conducting odor investigations and making objectionable odor determinations. In addition, DAQ is in the process of making changes to its website and creating outreach materials to better inform the public regarding the rules governing odors from animal operations and how to lodge an odor complaint with DAQ.

E. Title VI and Environmental Justice Program Enhancements

NCDEQ is committed to operating a robust nondiscrimination program that complies with EPA's Title VI regulations and serves as a model for other States. NCDEQ has committed to several initiatives to enhance its Title VI and environmental justice programs including:

- ensuring that the agency maintains and implements a strong nondiscrimination policy that is effectively communicated to the public;
- appointment of a Title VI and Environmental Justice Coordinator;
- development of a Title VI complaint process;
- adoption and implementation of enhanced public involvement and language access policies;
- development of an anonymous comment tool;
- development of a "sunshine list" of interested stakeholders and community members; and
- development of the North Carolina Community Mapping System and Environmental Justice Tool to empower and inform the public and local governments regarding sources of pollution in their communities.

i. Nondiscrimination Policy, Title VI Coordinator, and Title VI Complaint Process

Under EPA's Title VI implementing regulations, recipients of EPA funding are required to implement certain core nondiscrimination program components.

First, recipients are required to provide ongoing notice of nondiscrimination, which must be made available in languages other than English where appropriate.³⁴ NCDEQ's nondiscrimination policy is posted on its website in English and Spanish. It provides in full:

It is the policy of the North Carolina Department of Environmental Quality (NCDEQ) that no person shall, on the ground of race, color, national origin, sex, age or disability be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving federal financial assistance as provided by Title VI of the Civil Rights Act of 1964, the Civil Rights

³⁴ 40 CFR 7.95.

*Restoration Act of 1987, the Rehabilitation Act of 1973, and all other related nondiscrimination laws and requirements.*³⁵

Second, recipients are required to adopt “grievance procedures that assure the prompt and fair resolution of complaints which allege violation of [EPA’s Title VI regulations].”³⁶ NCDEQ complaint procedures are laid out in English and Spanish on NCDEQ’s website³⁷ along with a complaint form.³⁸

Third, recipients are required to designate at least one person to coordinate its efforts to comply with its obligations under EPA’s Title VI regulations.³⁹ NCDEQ has appointed a Title VI Coordinator. NCDEQ’s Title VI Coordinator:

- facilitates communication between the public, community organizations, Federal and State recognized tribes, industries and government agencies regarding NCDEQ’s Title VI program;
- tracks and responds in a meaningful and timely manner to allegations of civil rights violations and environmental injustice against the Department, its employees, and its contractors;
- updates complainants on the progress of their complaints filed with NCDEQ under federal nondiscrimination statutes and any determinations made;
- provides information internally and externally regarding rights to services, aids, benefits, and participation regardless of race, national origin, color, sex, disability, age or actions protected under non-discrimination laws;
- ensures that NCDEQ provides public notice of NCDEQ’s grievance processes and the ability to file a discrimination complaint;
- conducts semiannual reviews of all complaints filed with NCDEQ under federal nondiscrimination statutes in order to identify and address any patterns or systemic problems;
- provides appropriate training for NCDEQ’s employees on the agency’s nondiscrimination policies, procedures and obligations to comply with federal nondiscrimination statutes; and
- conducts periodic evaluations of the efficacy of NCDEQ’s efforts to provide services, aids, benefits, and participation in any of NCDEQ’s programs or activities regardless of race, national origin, color, sex, disability, age or actions protected under non-discrimination laws.

³⁵ NCDEQ’s Title VI Nondiscrimination Policy Statement is attached hereto as Attachment H and is available at <https://files.nc.gov/ncdeq/EJ/Title-VI-Policy-Statement-English.pdf> (English) and <https://files.nc.gov/ncdeq/EJ/Title-VI-Policy-Statement-Spanish.pdf> (Spanish)

³⁶ 40 C.F.R. 7.90.

³⁷ NCDEQ’s Title VI Complaint Process document is attached here to as Attachment I and is available at <https://files.nc.gov/ncdeq/EJ/Title-VI-Complaint-Process-4-22-2019.pdf> (English) and <https://files.nc.gov/ncdeq/EJ/Title-VI--Complaint-Process.Espa-ol-4-22-2019.pdf> (Spanish)

³⁸ NCDEQ, Title VI Complaint Form, <https://files.nc.gov/ncdeq/EJ/Title-VI-Complaint-Form.pdf> (English); <https://files.nc.gov/ncdeq/EJ/Title-VI-Complaint-form-Espanol-4-22-2019.pdf> (Spanish);

³⁹ 40 C.F.R. 7.85.

ii. Enhanced Public Involvement and Language Access Plans

Under Section VI.C of the Settlement Agreement, NCDEQ committed to updating its public participation and language access policies after public notice and comment. NCDEQ's goal in this process is to further its commitment to ensuring that all North Carolinians, regardless of race, color, national origin, limited English access, or disability, are engaged respectfully and can safely participate during rulemaking, permitting and other events that involve public engagement.

Public Participation Plan

NCDEQ released its draft Public Participation Plan for public comment on August 21, 2019 for a period of thirty days. In preparing this draft Public Participation Plan, NCDEQ considered EPA's environmental justice guidance documents, EPA's Title VI Public Involvement Guidance for Recipients Administering Environmental Permitting Programs,⁴⁰ EPA's Check List for Procedural Safeguards for Recipients: Federal Non-Discrimination Obligations, as well as United States Department of Justice regulations pertaining to the public dissemination of Title VI information.⁴¹ NCDEQ also conducted comparative research on policies adopted by other States and government agencies.

NCDEQ's final Public Participation Plan is available on NCDEQ's website.⁴² While the plan is no longer in "draft" form, it is intended to be a living document. NCDEQ intends to reevaluate the Plan every two years and update to reflect changes in communication technology and new information regarding effective community engagement strategies.

The overarching purpose of the Public Participation Plan is to fulfill NCDEQ's obligation to ensure that all North Carolinians have an opportunity for meaningful involvement in the Department's decision-making. Ensuring "meaningful involvement" means that:

- people have an opportunity to participate in decisions about activities that may affect their environment and/or health;
- the public's contribution can influence the regulatory agency's decision;
- community concerns will be considered in the decision-making process; and
- decision-makers will seek out and facilitate the involvement of those potentially affected.⁴³

The Public Participation Plan further aims to ensure consistency across the Department and its Divisions in both the understanding and implementation of public participation, outreach, and engagement strategies. By applying the guidance and best practices presented in this Plan, DEQ aims to:

⁴⁰ EPA, *Title VI Public Involvement Guidance for EPA Assistance Recipients Administering Environmental Permitting Programs (Public Involvement Guidance)*, 71 Fed. Reg. 14207 (Mar. 21, 2006).

⁴¹ 28 C.F.R. 42.405(b)(c).

⁴² The Plan is attached to this Report as Attachment J and available at <https://files.nc.gov/ncdeq/EJ/Public-Participation-Plan.pdf>.

⁴³ EPA, *EJ 2020 Glossary*, <https://www.epa.gov/environmentaljustice/ej-2020-glossary>; see also EPA, *Public Involvement Guidance*, 71 Fed. Reg. at 14210

- create better opportunities and mechanisms to receive public input;
- promote respectful and meaningful dialogue between community members, organizations, regulated industry, and the Department.
- educate the public about the Department’s programs;
- build trust with the public to strengthen community ties and partnerships;
- work with community organizations to identify shared goals and opportunities for collaboration. Provide consistent communication about state law and DEQ’s regulatory authority;
- work with the public on strategies to improve future public engagement; and
- identify underserved communities, as needed, and develop tailored communication plans that best serve their specific cultural and logistical needs.

To fulfill these goals the Public Participation Plan (1) describes NCDEQ’s process for determining the appropriate level of public engagement for various decision-making processes; (2) describes a variety of public engagement methods that may be considered; (3) describes methods for disseminating information to the public based on the needs of the particular communities involved; and (4) describes enhanced engagement methods to reach underserved communities and screening tools for determining when enhanced engagement methods are appropriate.

Limited English Proficiency Language Access Plan

NCDEQ released its draft Limited English Proficiency Language Access Plan (“LEP Plan”) for public comment on August 21, 2019. In preparing this draft LEP Plan, NCDEQ reviewed similar policies of other states and considered EPA’s Guidance To Environmental Protection Agency Financial Assistance Recipients Regarding Title VI Prohibition Against National Origin Discrimination Affecting Limited English Proficient Persons,⁴⁴ as well as EPA’s Check List for Procedural Safeguards for Recipients: Federal Non-Discrimination Obligations and Best Practices.⁴⁵

NCDEQ’s LEP Plan is available on NCDEQ’s website.⁴⁶ In drafting its Limited English Proficiency Plan, NCDEQ adopted a two-step framework based on EPA Guidance.

The first step of the framework, entitled “Program Assessment,” involves a four-factor assessment of NCDEQ’s programs to determine appropriate LEP Plan elements. These factors include: (1) the number or proportion of LEP persons eligible to be served or likely to be encountered in NCDEQ’s programs; (2) the frequency of contact with LEP individuals; (3) the varying nature of NCDEQ programs; and (4) resources available.

The second step of the framework is to develop a plan with steps designed to achieve NCDEQ’s LEP goals. NCDEQ’s LEP Plan contains five elements to be implemented on a case-by-case basis

⁴⁴ 69 Fed. Reg. 35602 (June 25, 2004).

⁴⁵ EPA, Check List for Procedural Safeguards for Recipients: Federal Non-Discrimination Obligations and Best Practices (Jan. 2020), *available at* https://www.epa.gov/sites/production/files/2020-02/documents/procedural_safeguards_checklist_for_recipients_2020.01.pdf

⁴⁶ The LEP Plan is also attached to this Report as Attachment K and is also available at <https://files.nc.gov/ncdeq/EJ/Limited-English-Proficiency-Plan.pdf>.

in accordance with needs of the program in question: (1) identifying LEP individuals who need language assistance; (2) language-assistance measures; (3) training of NCDEQ staff; (4) providing notice to LEP Persons; and (5) monitoring and updating the LEP Plan.

Like the Public Participation Plan, DEQ anticipates that the LEP Plan will be subject to further evaluation and revision over time based on NCDEQ's actual experience and feedback from the public on this initiative. NCDEQ's goal is to implement steps based on its best judgment, and then to refine those steps to advance the success of its LEP language-assistance program.

iii. The NCDEQ Anonymous Comment Tool

NCDEQ has developed a tool to provide a meaningful opportunity for members of the public to provide anonymous suggestions, inquiries or complaints. The tool is designed to ensure that the process is entirely confidential. Submittals made using the comment tool will be emailed to a NCDEQ email address and the sender will be listed using a generic email address that is not associated with the actual sender. Submitting a comment using the tool will not associate the commenter's computer IP address with the comment, inquiry, or complaint. However, the commenter will have the option of providing additional personal information if the commenter chooses to do so. NCDEQ anticipates that the Anonymous Comment Tool will be available for public use by May 15, 2020.

iv. The NCDEQ Sunshine List

Under Section VI.E the Settlement Agreement, NCDEQ committed to creating and maintaining a database of contacts who have shown or might show interest in participation in program events as stakeholders. Pursuant to this commitment, the NCDEQ Title VI Coordinator has developed an expanded "Sunshine List"⁴⁷ used by NCDEQ to invite participants to stakeholder processes for permits. The list includes, but is not limited to, environmental networks, organizations, grassroots groups and activists, commissions, federal agencies, state agencies, county officials, and community members. The list also includes individuals identified for inclusion by the Citizen Groups. The database is reviewed and updated by the Title VI Coordinator on an annual basis for accuracy.

v. North Carolina Community Mapping System and Environmental Justice Tool

Under Section VI.B of the Settlement Agreement, NCDEQ committed to developing "an EJ geographic information tool that will allow DEQ programs to conduct environmental justice analyses."

Pursuant to this commitment, NCDEQ has developed the North Carolina Community Mapping System and Environmental Justice Tool ("NCCMS"). In releasing the NCCMS to the public, NCDEQ described the goals of the system as follows

The system will improve the Department's ability to provide fair treatment and meaningful involvement for all North Carolinians regardless of race, color, national origin, or income.

⁴⁷ DWR also maintains a sunshine list that is specific to stakeholders interested in the Swine General Permit.

The system will help DEQ increase local outreach and public participation by improving transparency and presenting information in an easy to understand visual manner.

In May of 2019, NCDEQ released a beta version of the NCCMS. To develop the beta version of the NCCMS and accomplish the Department's stated goals, NCDEQ completed the following steps:

- *Conducted Comparative Research:* NCDEQ performed extensive research on similar efforts developed by other states. After compiling this material, NCDEQ selected aspects that would be most beneficial for North Carolina's mapping system.
- *Conducted Interviews and Focus Groups with Academics:* In the winter of 2018, NCDEQ conducted interviews and focus groups with academic institutions in the state. The goal was to hear from the academic community about the technical feasibility of proposed efforts as well as any other relevant statewide work.
- *Hosted an Online Survey:* NCDEQ posted a survey online for individuals to provide comments on the NCCMS' development. This online survey continues to be available for individuals to share feedback and suggestions.
- *Held Community Meetings:* NCDEQ held community meetings in Goldsboro, Winston-Salem and Spindale to discuss the creation of the NCCMS with the public as well as to gather suggestions.
- *Met with Non-Governmental Organizations:* NCDEQ participated in informal discussions with more than fifteen nongovernmental organizations to understand their data needs and what they saw as information gaps.

NCDEQ held a public comment period on the beta version of the NCCMS between June 10 and July 11, 2019. NCDEQ received comments from 108 individuals and organizations. As a result of many of those comments, the beta version was updated to make the NCCMS more responsive to the needs of the public. NCCMS Version 1.0 was released on March 19, 2020.

The NCCMS has two main features. The first feature is the Permit and Incident Map which allows users to visually locate or identify on a map permitted facilities and environmental incidents in their communities, including the following:

- Air quality permits
- Mining permits
- Animal operation permits
- NPDES stormwater permits
- NPDES wastewater treatment facility permits
- Solid waste septage permits
- Coal ash structural fills
- Permitted solid waste landfills
- Land clearing and inert debris notifications
- Contaminated dry cleaning sites
- Inactive hazardous sites

- Brownfield program sites
- Hazardous waste sites
- Underground storage tank incidents
- Petroleum contaminated soil remediation permits
- Land use restrictions or notices

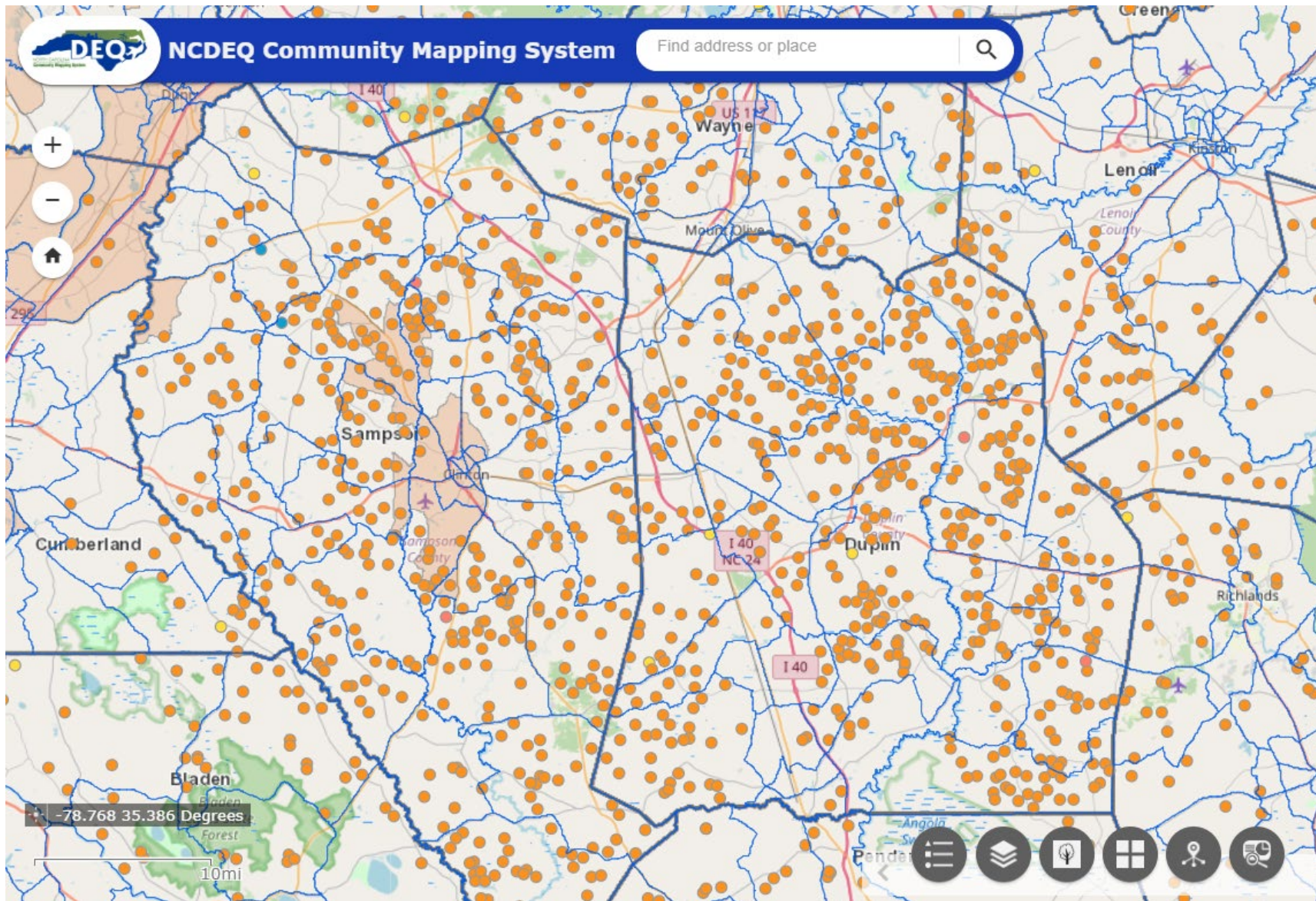


Figure 1 depicts a screenshot from Permit and Incident Map showing the location of animal operations in and around Duplin County and Sampson County, NC. The orange dots represent swine operations covered under the Swine General Permit.

The second feature of the NCCMS is an Environmental Justice Tool and Demographics Dashboard (“EJ Tool”), which allows users to view the sociodemographic and health characteristics of communities across North Carolina. The EJ Tool uses demographic data at the census block group level (the smallest level for which most demographic indicators are available through the US Census Bureau). The EJ Tool displays the following socioeconomic data:

- Race and Ethnicity
- Annual Income
- Median Household Income
- Homeowner Status,
- Dependent populations (certain age groups), and
- Limited English Status.

The EJ Tool displays the following health data at the county level:

- Asthma Hospitalization
- Cancer Deaths
- Cardiovascular Disease Deaths
- Child Mortality Rate
- Diabetes Deaths
- Heart Disease Deaths
- Infant Death Rate
- Preterm Birth Rate
- Primary Care Physicians
- Stroke Deaths

The EJ Tool allow users to compare the data displayed for a particular block group with state averages. In addition, the EJ Tool allows users to view important sensitive receptors such as hospitals, schools, churches, and elder care facilities.

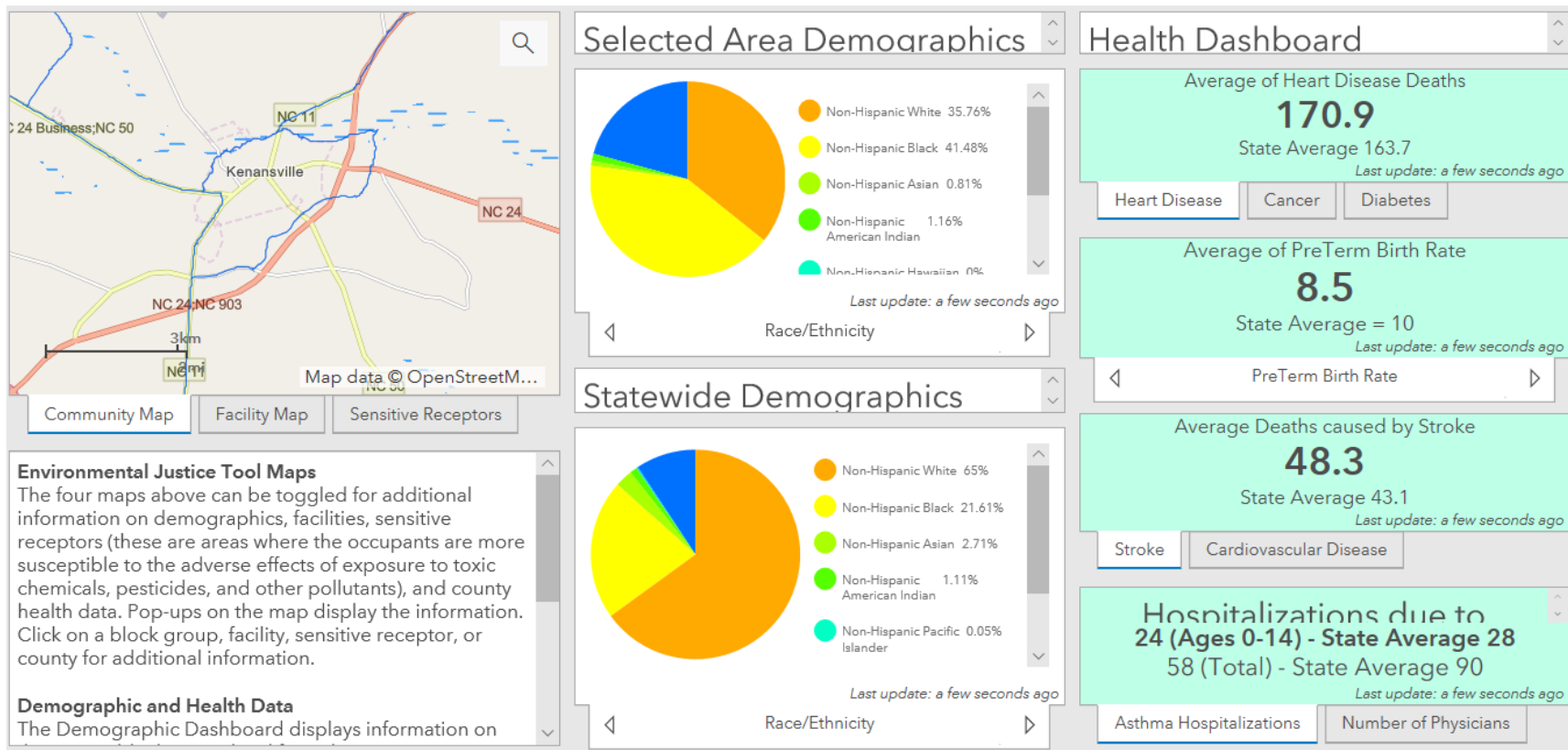


Figure 2 depicts a screenshot of a census block group located in the vicinity of Kenansville in Duplin County, NC.

The NCCMS can be used by all interested parties, including NCDEQ staff and other state agencies, community organizations, academia, local and Tribal governments, city and county officials/planners, and industry stakeholders.

The spatial representation of data allows users to type in an address to access information and better understand the role that NCDEQ decisions and permitting play in their communities.

NCDEQ aims for the NCCMS to be dynamic and evolve as more data sets become available and are integrated into the system. As changes are made to the system, NCDEQ will continue to release updated versions of the NCCMS and associated documentation. The online survey referenced above remains active so that users can provide feedback that can be considered as NCDEQ updates the NCCMS.

A complete report detailing the process used by NCDEQ to develop the NCCMS and its components is attached to this Report as Attachment L.

III. Assessing Environmental Impacts from Swine Operations

Under the Settlement Agreement, NCDEQ committed to conducting two studies designed to assess adverse environmental impacts from swine operations: an air quality monitoring study and a water quality monitoring study. Each of these studies was developed by qualified NCDEQ staff experts in consultation with the Citizen Groups. As described below, while the air quality monitoring is complete, NCDEQ has determined that further actions are required before the water quality monitoring study can be finalized.

A. Duplin County Air Monitoring Study

Under Section IV and Exhibit B of the Settlement Agreement, NCDEQ committed to designing and implementing a temporary ambient air quality monitoring study in and around Duplin County, North Carolina (“Duplin County Air Monitoring Study”). The study was intended to determine the degree of air pollution in the Duplin County area airshed of three pollutants of specific concern: particulate matter (“PM2.5”), hydrogen sulfide, and ammonia.

DAQ conducted the Duplin County Air Monitoring Study in two phases.

Phase 1 of the Study occurred from June 1, 2018 to August 31, 2018.⁴⁸ This phase utilized two monitoring stations: one at the Cowan Museum in Kenansville, NC and another in Candor, NC outside of the main study area. Phase 1 had three main objectives: (1) to “bridge” the PM2.5 data set from a retired PM2.5 monitoring site in Kenansville with the data collected at the Cowan Museum site; (2) to establish a data set outside the study area in Candor, NC for comparison, and (3) to provide a test period to ensure proper functioning of the hydrogen sulfide and ammonia instrumentation.

Phase 2 of the Study occurred from October 1, 2018 to October 31, 2019. Phase 2 was performed to monitor ambient concentrations of PM2.5, hydrogen sulfide, and ammonia in the Duplin County area and compare those to reference values to determine the degree of air pollution in the study area.

Phase 2 was conducted at two monitoring sites in Duplin County, NC. These sites were selected using EPA’s siting criteria for PM2.5 monitors,⁴⁹ EPA Guidance for Network Design and Optimum Site Exposure for PM2.5 and PM10,⁵⁰ and the concepts of “community-oriented monitoring” and “neighborhood scale monitoring” as the terms are defined in EPA Guidance. In addition, DAQ was guided by the language in the Settlement Agreement stating that the monitors will be located at “non-source oriented sites.”

Finding sites that meet all of the above criteria, accounting for prevailing seasonal wind directions for this region, and finding readily available sources of power for the instruments proved to be a

⁴⁸ Phase 1 and Phase 2 of the study are referred to in the Duplin County Air Monitoring Study Report as the “continuity phase” and the “12-month phase,” respectively.

⁴⁹ 40 C.F.R. Part 58, Appendix E (“Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring”)

⁵⁰ EPA, *Guidance for Network Design and Optimum Site Exposure for PM2.5 and PM10* (Dec. 1997), available at <https://www3.epa.gov/tnamt1/files/ambient/pm25/network/r-99-022.pdf>.

considerable challenge. Over forty potential sites were considered and the sites that were chosen were those that best met the criteria described above.

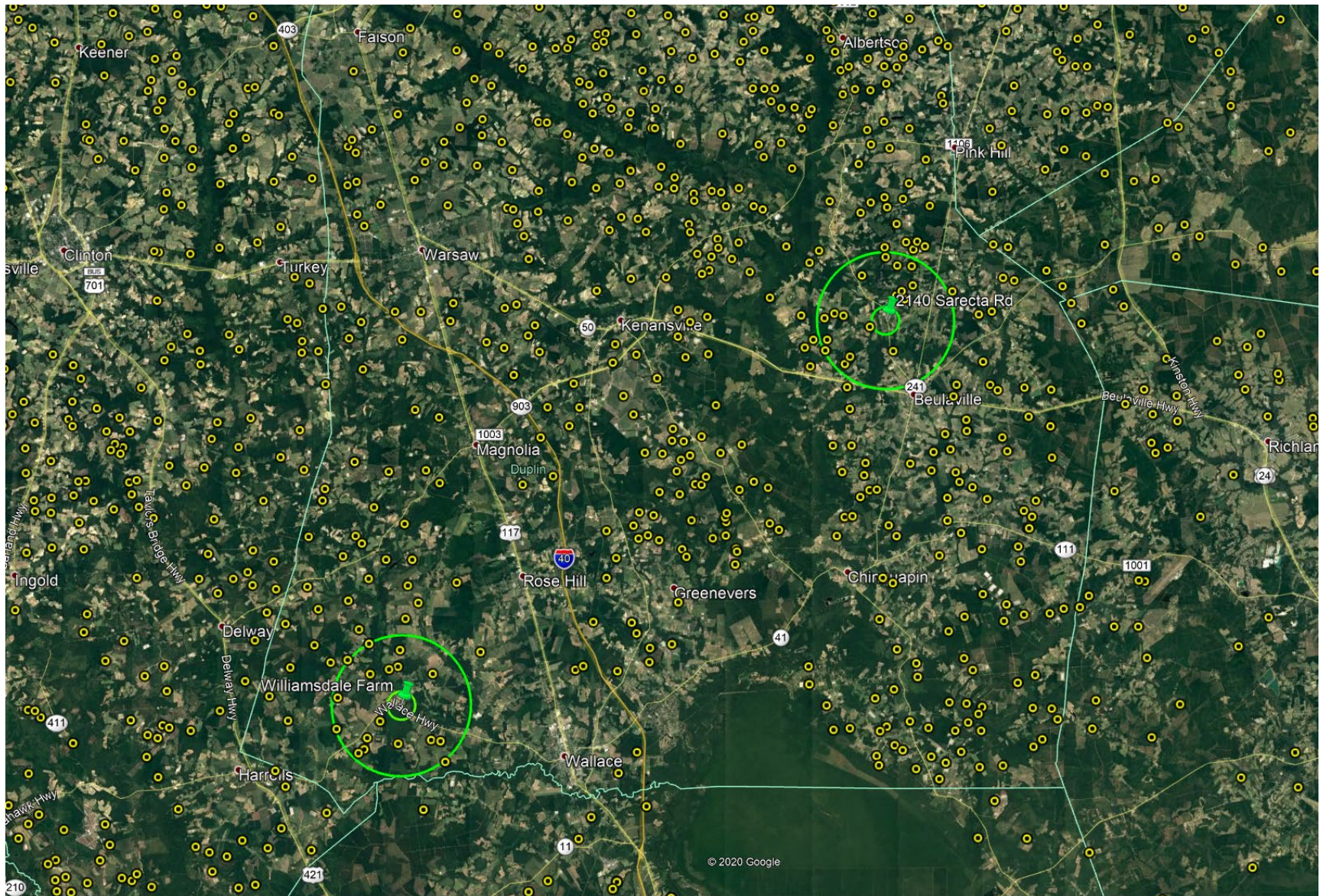


Figure 3 shows the monitoring site locations for phase 2 of the study surrounded by circles representing the neighborhood scale boundaries (0.5 miles to 2.5 miles). The yellow dots in the picture identify permitted 2016-19 CAFO locations and their associated activities such as land application areas including spray fields in Duplin and surrounding counties.

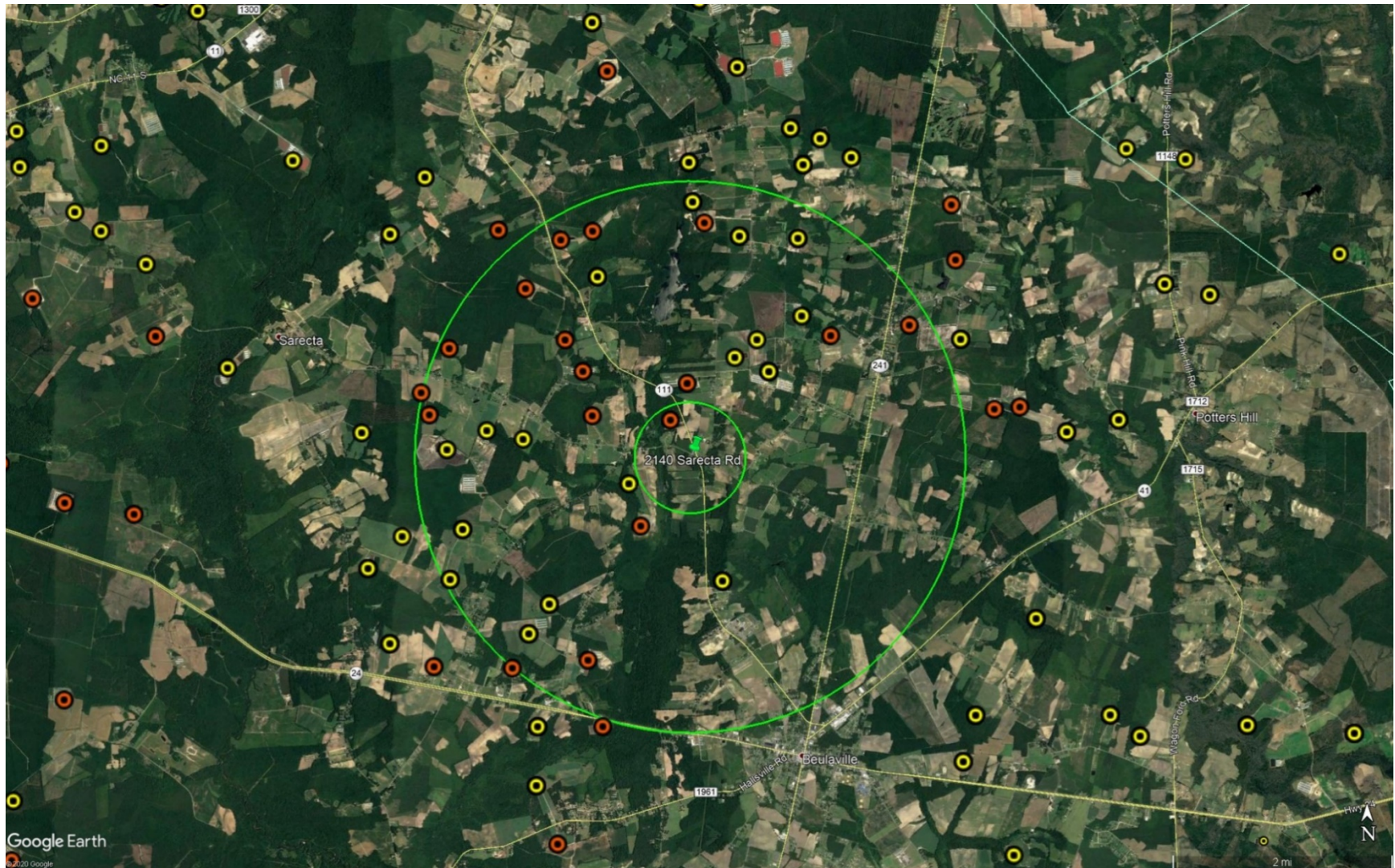


Figure 4 shows an enlarged view of the area near the Sarecta Road site surrounded by circles representing the neighborhood scale boundaries (0.5 miles to 2.5 miles). The yellow dots in the picture identify permitted 2016-19 CAFO locations and their associated activities such as land application areas including spray fields in Duplin and surrounding counties. The orange dots are other animal operations whose locations are readily discernable in the Google Earth view from July 9, 2018.

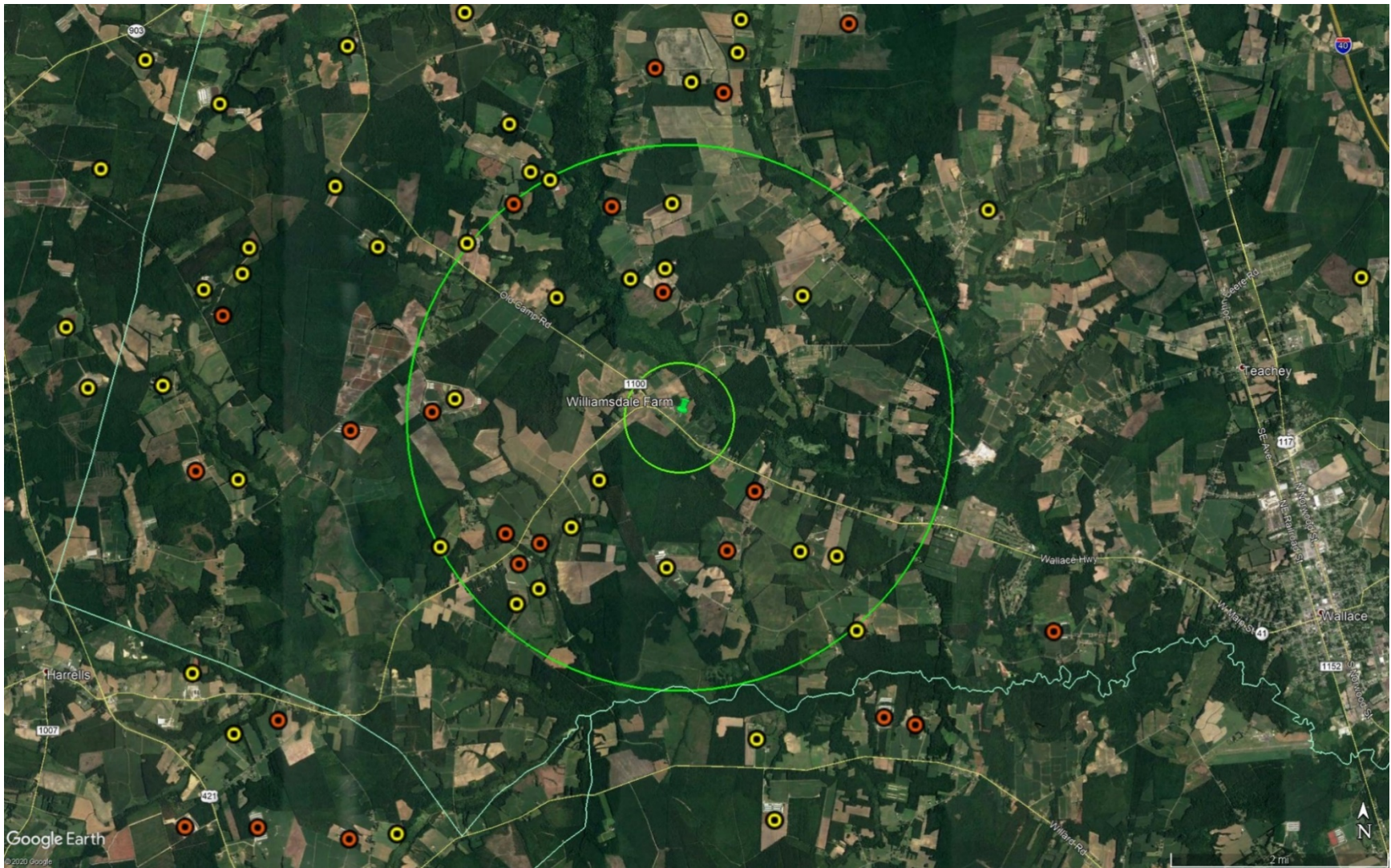


Figure 5 shows an enlarged view of the area near the Williamsdale Farm site surrounded by circles representing the neighborhood scale boundaries (0.5 miles to 2.5 miles). The yellow dots in the picture identify permitted 2016-19 CAFO locations and their associated activities such as land application areas including spray fields in Duplin and surrounding counties. The orange dots are other animal operations whose locations are readily discernable in the Google Earth view from July 9, 2018.

DAQ consulted with the Rural Empowerment Association for Community Help (“REACH”) early and often throughout the site selection process and the data collection phase of the monitoring study. DAQ identified the criteria that the agency would be using, identified the various siting locations that the agency was considering, and shared the sites that were selected. DAQ also invited REACH to identify potential locations where air quality monitors could be located. During the consultation process, REACH did not raise any objections to DAQ’s siting criteria or the sites that were selected for monitoring.

As provided for under the Settlement Agreement, in May of 2019 DAQ consulted with REACH about whether to move any of the monitoring equipment to other monitoring locations. Based on the limited availability of sites and the appropriateness of the selected sites, DAQ did not propose to relocate any of the equipment. REACH did not raise any objection to DAQ’s proposal.

DAQ released a draft version of the Duplin County Air Monitoring Study report for public notice and comment on December 16, 2019. The final Duplin County Air Monitoring Study report, which contains a thorough description of DAQ’s siting process, data collection procedures, and data analysis, is attached to this Report as Attachment F. The Duplin County Air Monitoring Study report’s main findings are summarized below.

PM2.5

In evaluating the PM2.5 data collected during the Study, DAQ utilized the 24-hour primary National Ambient Air Quality Standard (“NAAQS”) for PM2.5 as a reference value. The 24-hour primary NAAQS for PM2.5 is 35 $\mu\text{g}/\text{m}^3$. During the study period, the value was only exceeded at one site on two days.⁵¹ As described in greater detail in the Air Quality Monitoring Report, DAQ’s analysis of the PM2.5 data collected on these two days indicates that the PM2.5 exceedances in question were most likely the result of a transient smoke plume. The data collected do not provide a basis for concluding that PM2.5 from swine operations is a contributor to poor air quality in the study area.

Hydrogen Sulfide

The reference value selected for the hydrogen sulfide data was the Acceptable Ambient Level (“AAL”) for a 24-hr chronic toxicant of 0.086 ppm (85.9 ppb) established by the Environmental Management Commission.⁵² The hydrogen sulfide data collected during the monitoring study

⁵¹ It is important to note that a violation of the NAAQS only occurs if the 98th percentile of air quality concentrations averaged over 3 years exceeds 35 $\mu\text{g}/\text{m}^3$. The data collected during the monitoring study do not support a finding of a NAAQS violation.

⁵² While this value is a modeling increment that is not directly comparable to the monitored concentrations, DAQ frequently uses this value as a conservative bench mark for determining whether further investigation is warranted. DAQ also considered published odor threshold values such as the World Health Organization’s mean odor threshold value of .008 ppm (8ppb). However, because an odor threshold value is merely the concentration at which the odorant in question is first noticeable by sensitive individuals and not a level at which an odor is considered to be objectionable for any segment of the population, DAQ determined that odor threshold values are not appropriate reference value for purposes of evaluating environmental harm. For instance, while the Occupational Safety and Health Administration (“OSHA”) has recognized an odor threshold range of 0.01-1.5 ppm (10-1500 ppb), the

showed that the hydrogen sulfide reference value was never exceeded and the 24-hour average hydrogen sulfide concentrations were consistently 10 times lower than the reference value at both sites throughout the study. These results indicate that hydrogen sulfide is not a significant contributor to poor air quality in the study area.

Ammonia

The reference value for the ammonia data was the AAL for a 1-hr acute irritant of 3.87 ppm (3870 ppb).⁵³ For most of the study the ammonia concentrations were below detectable levels with five events with measurable ammonia concentrations. Only one event reached a level that approached the AAL reference value for a short period at the Williamsdale Farm site. These results indicate that ammonia is not a significant contributor to poor air quality in the study area.

Conclusion

Based on DAQ's analysis of data collected at neighborhood scale and comparison of the data to reference values for the three pollutants of interest, DAQ concluded that concentrations of these pollutants did not surpass the reference values. Therefore, the data do not support a finding of a significant air quality issue in the study area for these pollutants. Based on these results, NCDEQ does not propose to continue the study.

NCDEQ is mindful of the concerns of community members who throughout the years have consistently reported instances of odor impacts from swine operations. Given the limited geographic scope of this study, NCDEQ certainly has not ruled out the existence of impacts in other areas. NCDEQ believes that the revisions to the Swine General Permit as well as updates to the Odor Control Checklist will help address those concerns. In addition, DAQ is committed to provide further resources to communities on its website to ensure that residents know where to direct their complaints pertaining to odor.

B. Cape Fear River Animal Feeding Operations Monitoring Study

Under Section V and Exhibit C of the Settlement Agreement, NCDEQ committed to undertaking a focused surface water quality monitoring study to assess water quality impacts in areas with swine operations. The central components of NCDEQ's Cape Fear River Animal Feeding Operations Monitoring Study ("Cape Fear Study") include:

- Collection of water quality data from eleven different monitoring stations;
- Inspection of swine operations located within a three-mile radius of monitoring locations;

agency recognizes that odors associated with hydrogen sulfide become more offensive at 3-5 ppm, a level that is 300 times OSHA's minimum odor threshold of .01 ppm and more than 30 times higher than the AAL of .086 ppm.

⁵³ While this value is a modeling increment and, therefore, is not directly comparable to the monitored concentrations, DAQ frequently uses this value as a bench mark to determine if further investigation of a situation may be warranted. Additional reference values are odor threshold values published by OSHA for a range of 5-50 ppm (5000-50,000 ppb) and ATSDR at 5 ppm. As discussed above, an odor threshold is typically defined at the concentration at which the distinct odor of a compound is first noticeable by sensitive individuals and is not a level at which odors are considered objectionable.

- Statistical analysis to evaluate potential correlations between water quality sampling data and waste application; and
- Collaboration with researchers at North Carolina universities to conduct enhanced source identification analysis to better understand the sources of pollution and determine whether further study and/or pollution reduction measures are necessary.

Thus far, the data collected from the monitoring stations in the Cape Fear Study indicate elevated levels of nutrient parameters and fecal coliform compared to samples taken from the reference site. DWR's investigation of the sources of pollution is ongoing.

Site selection and data collection

Ten water quality monitoring locations and one reference/background site were identified for the study. Seven sites were located in the Stocking Head Creek watershed and three others were located along Sikes Mill Run, Murpheys Creek, and Muddy Creek, respectively. The study sites were selected based, in part, on historic water quality monitoring data indicating impacts to these watersheds, the fact that these watersheds have medium to high densities of animal feeding operations, and site access constraints. A reference site was also established at Harrisons Creek.

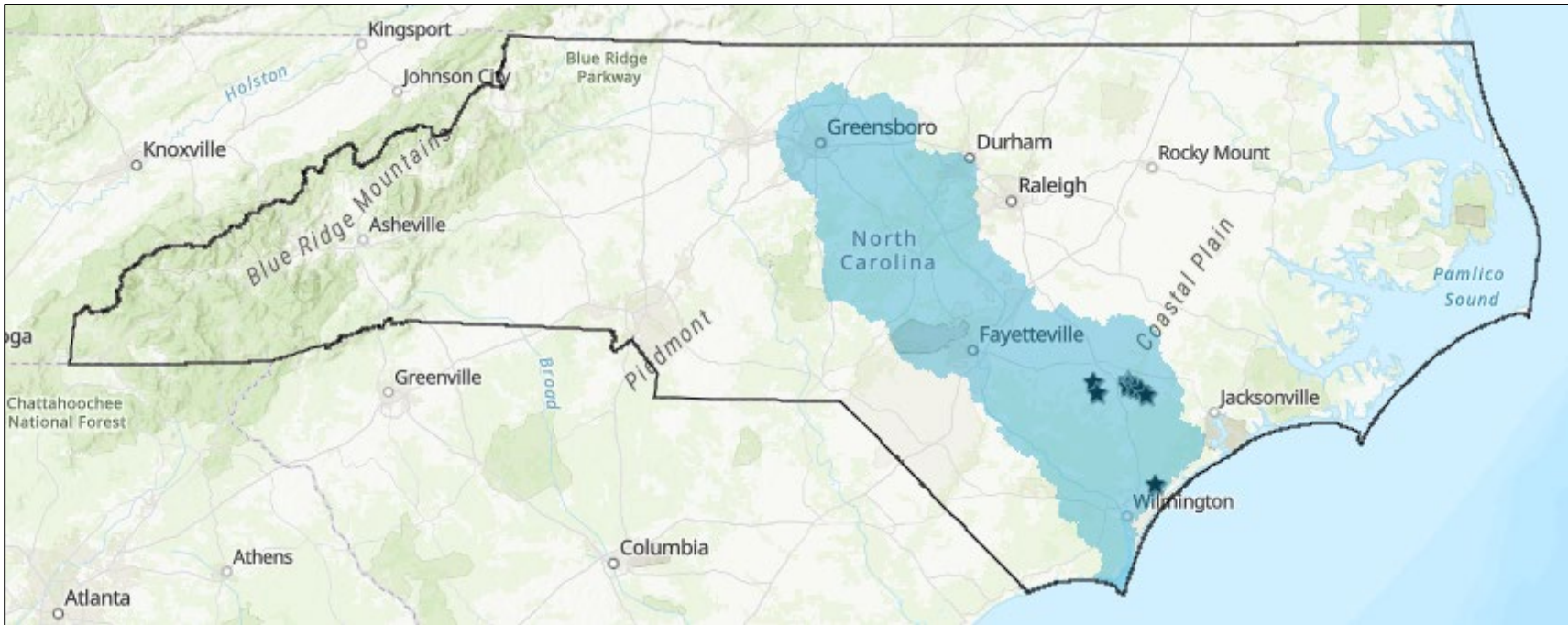


Figure 6 depicts the locations of water quality monitoring sites.

Water samples from the study sites were collected and analyzed on a monthly basis beginning on April 2018. Water samples were stored and transported from monitoring stations following approved monitoring standard operating procedures.

Data analysis and investigation

DWR’s analysis of the data shows that nutrient and fecal coliform levels were consistently higher at the study sites when compared to the reference site. Of particular concern to DWR were the fecal coliform results, which contained several data points in excess of North Carolina’s fecal coliform standard for class C waters of 200/100mL (MF Count).⁵⁴ The sampling data collected thus far as part of this study are available on NCDEQ’s website.⁵⁵

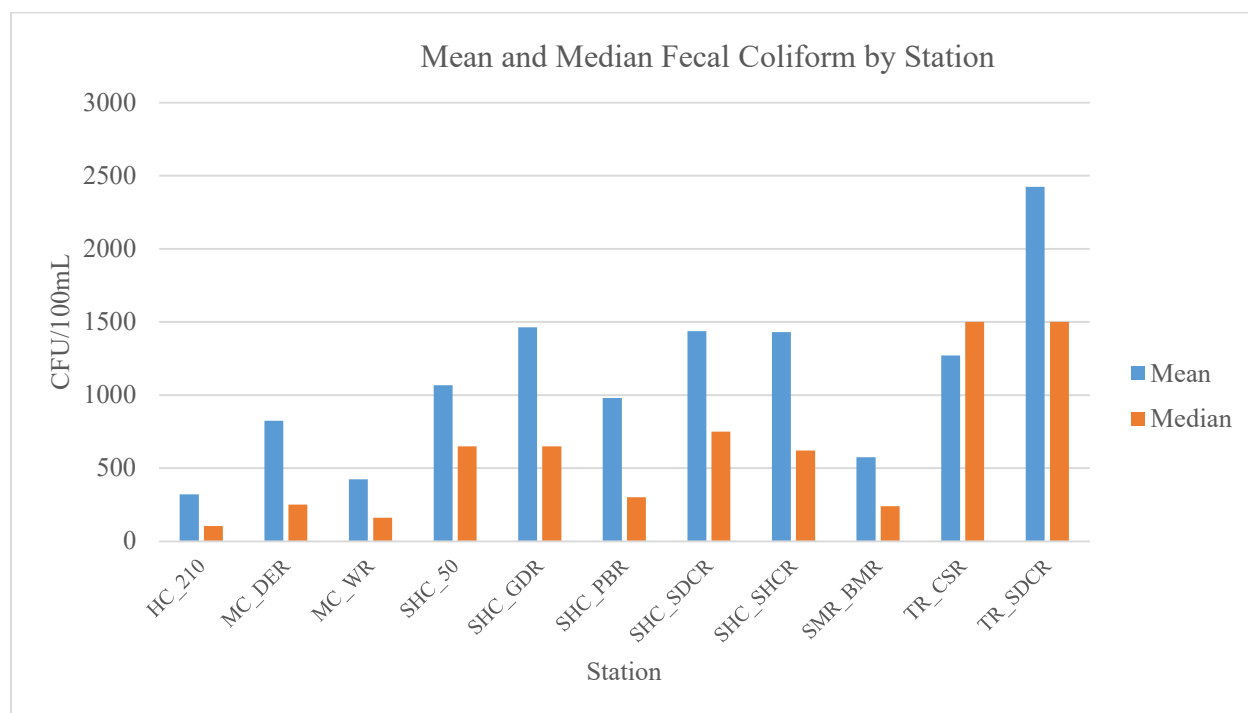


Figure 7. Mean and Median fecal coliform results from Cape Fear Study (April 2018-October 2019).

Results for all parameters are also summarized in a preliminary report attached to this Report as Attachment G.

⁵⁴ It is important to note that the fecal standard requires specific monitoring to measure against the 200 cfu/100 mL standard (sampling 5 days in a 30-day period). While this study did not sample at that frequency, a study was conducted by researchers at the University of North Carolina at Wilmington in the 2016 on the Stocking Head Creek stations that met the monitoring frequency. As a result, DWR recommended addition of those stations to the 303(d) list for impaired waters. NCDEQ’s 303(d) list proposal was approved by the United States Environmental Protection Agency on May 22, 2019. See EPA, Decision Document for Approval of the North Carolina Department of Environmental Quality 2018 Section 303(d) List Submitted on April 2, 2019 (May 22, 2019), available at <https://files.nc.gov/ncdeq/Water%20Quality/Planning/TMDL/303d/2018/20190522-NC-208-303d-Approval-Package.pdf>.

⁵⁵ NCDEQ Stocking Head Creek Watershed Study, <https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/shc-study>.

DWR is implementing three primary approaches for determining the potential sources of nutrient and pathogen pollution detected at the monitoring locations.

1. Inspections of swine operations within a three-mile radius of the sampling locations: DWR has conducted focused inspections of swine operations located within a three-mile radius of the sampling sites. During the inspections, DWR inspectors looked for evidence of discharges from waste storage structures, sprayfields, and drain tiles.
2. Statistical analysis of sampling data and waste application data: This approach involves conducting statistical analyses to determine potential correlations between waste application and water quality monitoring data. These includes evaluation of data related to spray irrigation events, plant available nitrogen, precipitation events, and the presence of drain tiles at swine operations.
3. Enhanced analysis of surface water samples for nutrient and pathogen source identification: DWR is pursuing two enhanced analyses in an effort to identify nutrient (nitrogen) and pathogen sources. For nutrient source identification, analytical techniques such as stable isotope and excitation-emission matrix (“EEM”) fluorescence analyses are used to identify nitrogen sources in ambient waters. Nitrogen sources such as wastewater effluent, fertilizers and animal wastes have different ranges of isotope ratios. These ratio ranges can act as fingerprints for identifying sources of the nitrogen. Excitation-emission matrix fluorescence analysis can also be used to identify the fluorescent properties of dissolved organic nitrogen.⁵⁶ Organic nitrogen exhibits different fluorescence signatures depending on the source of the nitrogen. These signatures can be modeled in a parallel factor analysis to identify sources such as wastewater, animal waste and septage and the relative nitrogen contributions of the sources. For fecal coliform source identification, DEQ has explored the use of genetic testing of pathogens using quantitative polymerase chain reaction (“qPCR”) analysis. DWR is pursuing a collaboration with researchers at North Carolina universities to perform this work.

Next steps

DWR’s investigation is ongoing. Once the investigative work discussed above has been completed, DWR intends to produce a draft water quality monitoring report for public notice and comment. DWR will then release a final water quality monitoring report and evaluate additional actions to address the sources of pollution identified through DWR’s investigation.

In addition to the focused sampling discussed above, NCDEQ has established a new permanent monitoring site in the Stocking Head Creek watershed at Highway 50. Data from this permanent monitoring site will be collected on a monthly basis and will be incorporated into DWR’s ambient water quality monitoring database. The data will be used to inform DWR’s watershed planning activities.

⁵⁶ Osburn et al. 2016.

IV. Community Analysis

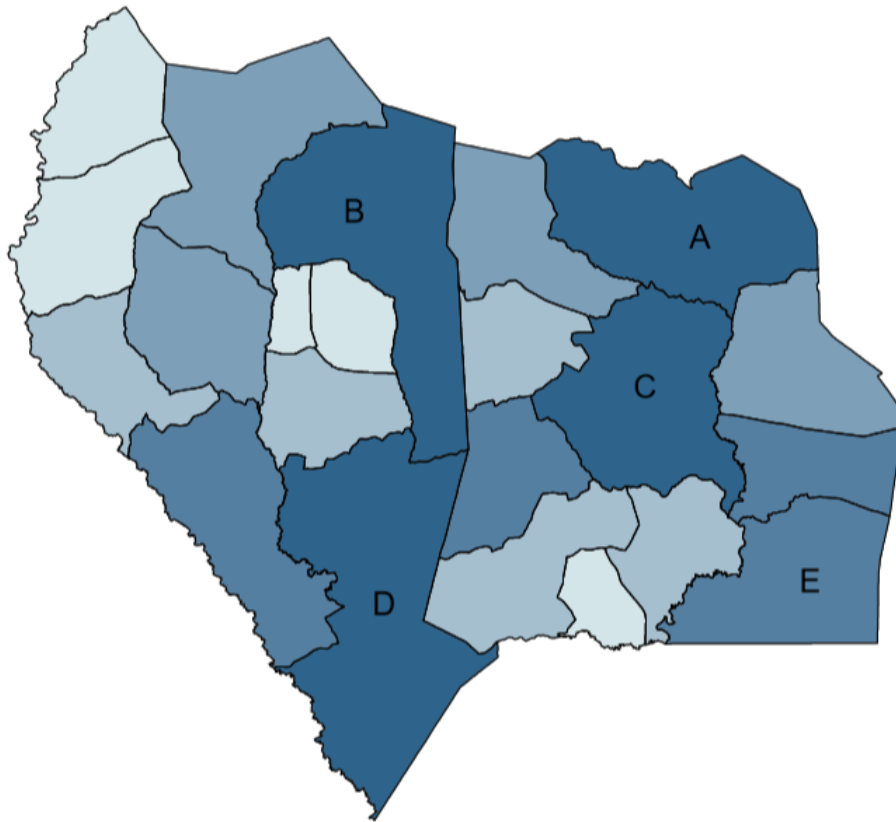
Under Section VII.B.5 of the Settlement Agreement, NCDEQ committed to applying the NCCMS described in this Report to five communities selected by NCDEQ in consultation with the Citizen Groups that are located near facilities regulated under the Swine General Permit. Attached as Attachment M to this Report is NCDEQ's Community Analysis Document which describes in detail the methodology used by NCDEQ to select five communities for analysis and provides the result of the analysis.

As described in the Community Analysis Document, NCDEQ considered several methodologies to identify the five communities to be considered. All of the methodologies used steady state live weight ("SSLW"), or the number of swine operations combined with proximity either to parcels of land or residential areas to determine where the greatest number of swine are likely located near the greatest number of people. After consideration of the potential methodologies, NCDEQ selected the methodology that calculates average SSLW located near residential parcels for the community analysis. This method was selected because it blends a focus on what are likely to be the most populated communities and highest SSLW values located nearest to those communities. It also allows for the most accurate demographic comparison given the currently available data.

To implement this method, NCDEQ ranked census tracts based on the highest average SSLW values within 2 km² of residential parcels. The census tract ranked No. 1 corresponds to the census tract with the highest average SSLW values in close proximity to residential parcels. The census tract ranked No. 2 corresponds to the census tract with the second-highest average SSLW values in close proximity to residential parcels, and so on.

NCDEQ consulted with the Citizen Groups regarding the selection of the five communities beginning in October 2019 through February 2020. This consultation occurred through in-person meetings, phone calls, and email correspondences. The Citizen Groups shared 10 communities for analysis which they identified through discussions with residents from Sampson and Duplin Counties. Because the Citizen Groups' proposed methodology is subjective, not reproducible, and does not include a focus on NCDEQ activities and permitting, NCDEQ did not select the ten communities suggested by the Citizen Groups and instead utilized the methodology described in the Community Analysis Document. However, it is important to note that several of the block groups/communities identified by the Citizen Groups through their consultation with residents were also evaluated in NCDEQ's final analysis using the data-derived methodology described above.

The communities selected by NCDEQ for analysis consist of Census Tracts 901, 9701, 904, 9710, and 906 within Duplin and Sampson Counties.



- Community A:** Census Tract 901, Duplin County
- Community B:** Census Tract 9701, Sampson County
- Community C:** Census Tract 904, Duplin County
- Community D:** Census Tract 9710, Sampson County
- Community E:** Census Tract 906, Duplin County

Legend

Average SSLW Near Residential Parcels

- 33,738 - 601,261
- 601,262 - 759,757
- 759,758 - 1,155,184
- 1,155,185 - 1,474,079
- 1,474,080 - 2,065,447



Figure 8 depicts the five census tracts selected for analysis.

The Community Analysis document provides an assessment of demographic data for each selected community on two levels: (1) the *census tract* level and (2) the *census block group* level (the smallest level for which most demographic indicators are available through the US Census Bureau). This assessment includes a presentation of race and ethnicity data for each community, the county where the community is located, and the State as a whole. Census tracts were used to increase reliability and reduce error, while block groups, with their increased demographic specificity, were used to better understand and identify areas within census tracts where minority populations are more likely to reside, and areas within census tracts where there is higher residential proximity to SSLW.

The five census tracts studied represent communities that have likely seen the most exposure due to their close proximity to these swine operations, and the data show that four of these five census tracts have much higher minority populations than the State as a whole.

The Community Analysis Document also includes Screening Reports produced using the NCCMS for each of the five selected communities. These Screening Reports show the direct outputs available through the NCCMS, which contain data on the environmental incidents and permitted facilities in a selected area, as well as the community sociodemographic data on the block group level.

In addition, the Community Analysis Document includes screenshots providing an example of how the Environmental Justice Tool component of the NCCMS can be applied to the block groups selected for analysis.

V. Title VI Compliance

Pursuant to Section VII.B of the Settlement Agreement, upon completion of all activities required under the Settlement Agreement, NCDEQ is required to conduct a review of its activities to assess the overall compliance of the Swine General Permit program with Title VI requirements. The Settlement Agreement contemplates that as part of this review, NCDEQ will consider

- provisions of the renewed Swine General Permit and implementation of the stakeholder processes required under the Settlement Agreement;
- the final report from the air monitoring activities required under the Settlement Agreement;
- the final report from the water monitoring program required under the Settlement Agreement;⁵⁷
- the status of the NCDEQ Title VI program elements described in Section VI of the Settlement Agreement; and
- results from application of the EJ tool described in Section VI.B to at least five communities selected by NCDEQ, in consultation with the Citizen Groups that are located near facilities regulated under the Swine General Permit.

This Report documents NCDEQ's review of its activities under the Settlement Agreement. In conducting its review, NCDEQ has considered, among other things, EPA's Title VI implementing regulations as well as EPA guidance regarding the agency's implementation of Title VI.⁵⁸ EPA regulations state that "[a] recipient shall not use criteria or methods of administering its program or activity which have the effect of subjecting individuals to discrimination because of their race, color, or national origin."⁵⁹ In determining compliance with this requirement, EPA considers whether the recipient used a facially neutral policy or practice that had a sufficiently adverse and disproportionate effect based on color, race or national origin. To determine the existence of a disparate adverse impact under its regulations, EPA determines whether the following elements exist: (1) adversity/harm; (2) disparity; and (3) causation.⁶⁰

EPA generally will initiate an investigation into a potential Title VI violation if the permit action, including the renewal of a permit, either causes a net increase in the level of stressors or predicted risks that led to the complaint or allows those levels of stressors or predicted risks to continue unchanged.⁶¹ By contrast, if the permit action significantly decreases overall releases of the

⁵⁷ As noted above, because NCDEQ's investigation of potential sources of pollution is ongoing, NCDEQ's water quality monitoring report has not been finalized. NCDEQ has enclosed a summary of the data that have been collected thus far as a result of the study.

⁵⁸ See EPA, *Draft Investigation Guidance*, 65 Fed. Reg. 39650 (June 27, 2000); EPA, *Public Involvement Guidance*, 71 Fed. Reg. 14207.

⁵⁹ 40 C.F.R. §7.35(b). NCDEQ also considered how this guidance has been applied by EPA in various Title VI investigations based on investigative documents EPA has made publicly available.

⁶⁰ See *Draft Revised Investigation Guidance*, 65 Fed. Reg. at 39682; see generally EPA investigative documents collected at <https://www.epa.gov/ogc/external-civil-rights-compliance-office-new-developments>, such as EPA, Preliminary Findings and Closure of EPA Administrative Complaint No. 02NO-19-R6 (Dec.18, 2019), available at https://www.epa.gov/sites/production/files/2019-12/documents/2019.12.18_preliminary_findings_and_closure_letter_to_recipient_02no-19-r6.pdf, and authority cited therein.

⁶¹ See 65 Fed. Reg. 39677 (listing among the types of actions that might be a basis for initiating an investigation "Permit actions, including new permits, renewals, and modifications, if the permit causes a net increase in the level of stressors or predicted risks or measures of impact" and "Permit actions, including new permits, renewals, and

pollutants of concern then EPA will generally close its investigation.⁶² In assessing whether the decrease is actual and significant EPA generally looks to the conditions in the permit at issue.⁶³

Based on its review, NCDEQ has determined that, with the exception of the water quality monitoring report which requires additional investigative action to finalize, NCDEQ has completed all of the measures required under the Settlement Agreement, which the parties agreed would “result in full resolution of the Title VI Complaints filed with EPA.” NCDEQ further concludes that the Swine General Permit program complies with Title VI and EPA Implementing Regulations. NCDEQ concludes that the 2019 Swine General Permit and the updates to its program identified in this Report, far from causing significant adverse impacts, will significantly reduce the potential for adverse impacts associated with swine operations and put NCDEQ in a position to better identify and address impacts that fall within NCDEQ’s regulatory authority. In addition, NCDEQ believes that improvements to the Swine General Permit and NCDEQ’s Title VI program will ensure that affected communities have an opportunity to meaningfully participate in NCDEQ decisions relating to the Swine General Permit program.

A. Assessment of Adverse Impacts

NCDEQ first considers the work that has been done under the Settlement Agreement to assess the existence of adverse impacts from swine operations.

As required by the Settlement Agreement, NCDEQ undertook an air quality monitoring study and is in the process of completing a water quality monitoring study, in part, to evaluate the existence of adverse environmental impacts from swine operations.

As described in Part III.A above, the Duplin County Air Monitoring Study did not identify harmful ambient concentrations of the pollutants associated with swine operations in the study area. With respect to PM_{2.5}, the data collected by DAQ indicated only two days when the reference value for PM_{2.5} was exceeded. DAQ’s analysis of the data indicates that these exceedances were most likely the result of a transient smoke plume. With respect to hydrogen sulfide, data collected during the study period did not result in any exceedances of the hydrogen sulfide reference value. In fact, hydrogen sulfide concentrations were consistently 10 times lower than the reference value at both sites throughout the study. With respect to ammonia, most of the data collected for ammonia were below detectable levels with only 5 events with measurable ammonia concentrations none of which exceeded the ammonia reference value.

With respect to the Cape Fear Study, DWR’s investigation identified substantial water quality problems in the areas selected for study. The results of the study revealed elevated levels of

modifications, that allow existing levels of stressors, predicted risks, or measures of impact to continue unchanged.”).

⁶² See *id.* (“There are two situations where OCR will likely close its investigation into allegations of discriminatory effects: (1) If the complaint alleges discriminatory effects from emissions, including cumulative emissions, and the permit action that triggered the complaint significantly decreases overall emissions at the facility; and (2) If the complaint alleges discriminatory effects from emissions, including cumulative emissions, and the permit action that triggered the complaint significantly decreases all pollutants of concern named in the complaint or all the pollutants EPA reasonably infers are the potential source of the alleged impact.”).

⁶³ See *id.* at 39681 (“Generally, when determining whether the alleged discriminatory act increases, decreases, or does not affect the level of adverse impacts, OCR expects to evaluate the allowable release levels in the permit.”).

nutrients and fecal coliform when compared to a reference location. Of particular concern were the fecal coliform results which contained several data points in excess of North Carolina's fecal coliform standard for class C waters of 200/100mL (MF Count).⁶⁴

As discussed in Part III.B, DWR's investigation of the sources of these water quality problems is ongoing. DWR has identified two promising methods for tracing the sources of pollution detected at the monitoring sites and assessing the extent to which swine operations are contributing to the problem. DWR intends to finalize the results of its investigation once these efforts have been completed. The results of the investigation will be described in a draft water quality monitoring report that will be released for public notice and comment. DWR will then be in a position to evaluate additional actions to address the sources of pollution identified through DWR's investigation.

B. Assessment of Causation

NCDEQ will next consider as part of the Title VI analysis the extent to which NCDEQ's implementation of its Swine General Permit program, including revisions to the Swine General Permit and other actions described in this Report, are causing significant adverse impacts. NCDEQ concludes that, far from causing adverse impacts, NCDEQ's implementation of the Swine General Permit, as strengthened by the measures outlined in this Report, will significantly reduce the potential for adverse impacts from swine operations that are the subject of community concerns.

Indeed, the measures in this Report are exactly the kind of actions that EPA encourages recipients to engage in for the purpose of achieving compliance with Title VI and resolving Title VI Complaints. EPA encourages recipients to engage in broad strategies to reduce pollution impacts across the geographic areas of concern over time.⁶⁵ According to EPA, remedial actions to address alleged adverse impacts may include such measures as changes in policies or procedures; pollution reduction or prevention measures; and measures to promote equality in monitoring and enforcement.⁶⁶

The measures described in this Report, which the Citizen Groups agreed would fully resolve their Complaint, span each of these categories. NCDEQ is confident that the measures described in this Report will significantly reduce the potential for adverse impacts associated with swine operations and put NCDEQ in a position to better identify and address impacts going forward.

As described in Part II.A of this Report, the 2019 Swine General Permit contains several revisions designed to reduce environmental impacts from swine operations, several of which were requested by the Citizen Groups. Some changes to the Permit will directly reduce the risk of over-application of swine waste that would otherwise result in surface water impacts. Examples of such measures include the requirement that permittees install rainbreakers to prevent the application of waste during precipitation events and the requirement that swine operations limit the application of waste to fields based on their PLAT rating.

⁶⁴ See *supra* note 54 (explaining that the fecal coliform standard requires specific monitoring frequency to measure against the 200 cfu/100 mL standard and this study did not sample at that frequency, but that these values serve as an indicator of a water quality problem).

⁶⁵ See, e.g., 65 Fed. Reg. at 39698, 39700.

⁶⁶ See, e.g., *id.* at 39662

Other changes to the Swine General Permit will assist NCDEQ in identifying potential adverse impacts and taking action to address them. For example, the requirement that permittees conduct groundwater monitoring near lagoons in the 100-year flood plain will allow NCDEQ to determine whether swine lagoons are impacting groundwater or impacting surface water through groundwater infiltration. The data gathered as a result of this monitoring requirement can be used by NCDEQ to require appropriate actions to mitigate these impacts and prevent violations of water quality standards. NCDEQ will also use the data to determine if additional groundwater monitoring is needed at swine operations outside of the 100-year flood plain. Likewise, the data gathered as part of NCDEQ's investigation of sources of fecal coliform and nutrient impacts in the Cape Fear Study will inform future actions by NCDEQ to mitigate impacts from swine operations to the extent swine operation are identified as the source of the problem.

Revisions to the Swine General Permit will also promote effective enforcement and transparency. For example, the new annual reporting requirement will enhance the Division's efforts to monitor and ensure compliance with the Swine General Permit, while allowing the public access to information regarding potential sources of pollution in their communities. Another measure described in this Report that will promote effective enforcement and transparency is NCDEQ's Complaint Response SOP, which provides NCDEQ guidelines for ensuring timely response to complaints and provides the public with better access to public records relating to NCDEQ's complaint investigations.

In sum, NCDEQ concludes that its Swine General Permit program, as strengthened by the measures described in this Report, will significantly reduce the potential for adverse impacts from swine operations. Therefore, NCDEQ concludes that the causation element of a disparate adverse impact violation under EPA's Title VI regulations is absent.

C. Discussion of Disparity

Because NCDEQ concludes that the causation element of a disparate adverse impact violation under EPA's Title VI regulations is absent, NCDEQ has not conducted a formal disparity analysis to determine compliance with Title VI.

However, as required by the Settlement Agreement, NCDEQ has applied its EJ Tool to five communities from southeastern North Carolina representing areas high average SSLW values in close proximity to residential parcels. The demographic data are presented in the attached Community Analysis Document and compared to the State as a whole and Sampson and Duplin Counties.⁶⁷ In considering these data and the Citizen Groups' contention that swine operations are significantly more likely to be located in close proximity to minority communities, it is important to consider that NCDEQ's authority to influence the geographic distribution of swine operations is limited.⁶⁸ This is particularly true in this regulatory context where all of the swine operations currently permitted under NCDEQ's Swine General Permit came into existence before the Swine

⁶⁷ As discussed in the Community Analysis Document, NCDEQ did not select a comparison population within the framework of Title VI, which is beyond the scope of this Report. Instead, in applying the EJ Tool as required by the Settlement Agreement, NCDEQ has compared the demographics of the five selected communities with those of the State as a whole, which is included in the NCCMS as a point of comparison, and the counties in which the affected populations are located.

⁶⁸ As EPA has stated, in determining whether an agency is in noncompliance with Title VI, it is appropriate to consider whether the alleged disparate impact result from factors that within the recipient's authority as defined by applicable laws and regulations. *Draft Investigation Guidance*, 65 Fed. Reg. at 39671.

General Permit existed. NCDEQ's authority in developing the Swine General Permit is limited to requiring swine operations operate in a manner that complies with environmental standards.

As EPA has pointed out, "State and local environmental permitting agencies are responsible for minimizing the environmental impacts to local communities and ensuring that their practices and policies are implemented in a nondiscriminatory manner," but are often not "involved in local zoning decisions."⁶⁹ Therefore EPA has encouraged permitting agencies to work with local governments to try to integrate the environmental needs of communities early in the process, beginning in the site planning stage.

Given NCDEQ's limited authority to control the geographic distribution of pollution sources, NCDEQ has developed the NCCMS, in part, as a resource to local communities and governments seeking to integrate these considerations into their local land use decisions moving forward. Because of the limits on NCDEQ's ability to determine the locations where sources of pollution are located, NCDEQ believes its NCCMS will be of crucial importance to communities and local governments in making informed decisions about the siting of pollution sources. Use of the NCCMS as a resource for local communities and additional efforts by NCDEQ to ensure that affected communities are meaningfully involved in NCDEQ's decision-making are discussed further below.

D. Assessment of Measures to Ensure Meaningful Involvement

In describing the interface between Public Involvement and Title VI, EPA has stated, and NCDEQ agrees, that "[p]ublic involvement should be an integral part of the permit decision-making process to help the public understand and assess how issues affect their communities."⁷⁰ According to EPA, "Meaningful public involvement consists of informing, consulting, and working with potentially affected and affected communities at various stages of the permitting process to address their concerns."⁷¹ NCDEQ concludes that the measures described in this report will ensure that NCDEQ fulfills its obligation to provide all North Carolinians an opportunity for meaningful involvement in NCDEQ's decisions relating to the Swine General Permit program.

EPA's Public Involvement Guidance offers a number of approaches that recipients can adopt to address Title VI related concerns. EPA's recommendations include:

- Developing and implementing an effective public involvement plan;
- Involving the public early and often throughout the permitting process;
- Encouraging stakeholder and intergovernmental engagement;
- Equipping communities with a tool to help ensure effective public involvement; and
- Staff training.

As detailed in this Report, NCDEQ has successfully implemented several of the measures outlined in EPA's guidance to ensure that communities affected by NCDEQ's decisions, including

⁶⁹ EPA, *Title VI Public Involvement Guidance*, 71 Fed. Reg. at 14214.

⁷⁰ *Id.* at 14210.

⁷¹ *Id.*

decisions relating to the Swine General Permit, have the opportunity to be meaningfully involved in the decision-making process.

As described in Part II.A above, NCDEQ has developed and commenced implementation of an effective Public Involvement Plan and LEP Plan. As described in Part II.E above, NCDEQ has developed the NCCMS to help ensure that communities and local government can better understand the sources of pollution in their communities. In addition, NCDEQ's Title VI Coordinator has conducted several trainings for NCDEQ staff to ensure that NCDEQ's Public Involvement Plan, LEP Plan and, NCCMS are implemented consistently throughout the agency.

With respect to EPA's recommendation to encourage stakeholder and intergovernmental engagement and early public involvement, NCDEQ believes that the Swine General Permit stakeholder process is a model for how a robust public engagement process can improve the permitting process and sure that public concerns are taken into account in agency decision-making. As described in Part II.A, in developing the 2019 Swine General Permit, NCDEQ engaged in a robust stakeholder process that involved individuals from affected communities, other governmental agencies, representatives from the academic community and the regulated industry. The stakeholder process proved to be a great success, resulting in an improved Swine General Permit that will more effectively protect the environment and public health.

NCDEQ is committed to building on the success of this process to ensure that communities have an opportunity to meaningfully participate in NCDEQ's decision making process going forward.

VI. Conclusion: Additional Ongoing and Future Commitments

While NCDEQ believes the actions identified thus far in this Report—actions required under the Settlement Agreement and actions completed on NCDEQ’s own initiative—will significantly improve NCDEQ’s Swine General Permit Program and Title VI program, NCDEQ has identified additional actions that will further increase equity, transparency, and environmental protection in the permitting of swine operations in North Carolina.

With respect to the Title VI program, these actions include:

1. *Establishment of the NCDEQ Secretary’s Environmental Justice and Equity Advisory Board.* On May 2, 2018, Secretary Regan established the NCDEQ Secretary’s Environmental Justice and Equity Advisory Board (“EJE Board”). Among other things, the EJE Board was created to advise the Department on the integration of environmental justice and equity considerations into the Department’s programs, policies and activities to mitigate the environmental or public health impacts in communities disproportionately burdened by environmental harms. The EJE Board is composed of sixteen voting members appointed by the Secretary, which include diverse representatives of academic institutions, environmental organizations, community organizations, and Native American Indian Tribes. The EJE Board has met quarterly since its formation, with meetings held across the state to allow for public participation from local communities. Board members have weighed in with comments on key issues from coal ash closure to the Clean Energy Plan. Board members have received informational briefings on NCDEQ’s permitting processes, environmental justice initiatives, and implementation of Executive Order 80. Members have also formed subcommittees to explore topics such as clean energy and cumulative impacts.
2. *Expanded use of the NCCMS in NCDEQ decision-making process.* NCDEQ is developing criteria for identifying agency actions that warrant use of the NCCMS. Development of such criteria will allow for consistent and expanded uses of the NCCMS in NCDEQ decision-making. Until these criteria are developed, NCDEQ will continue to encourage staff consultation with the Title VI and Environmental Justice Coordinator and the exercise of professional judgment in evaluating use of the NCCMS on a case-by-case basis.
3. *Evaluate use of disparate impact analysis methods.* A disparity analysis under Title VI involves comparing an affected population to an appropriate comparison population to determine whether a substantial disparity exists that may violate EPA’s Title VI regulations. NCDEQ will undertake an evaluation of methods for conducting a Title VI disparate impact analysis using information available in the NCCMS. NCDEQ will review EPA guidance and other resources to identify data-driven analytical methods that may be appropriate for evaluating NCDEQ actions under Title VI.
4. *Outreach to local governments, community groups and industry groups regarding use of the NCCMS for decision-making in areas such as zoning and land use.* As discussed above, NCDEQ has developed NCCMS, in part, as a resource to local communities and governments seeking to integrate these considerations into their siting decisions. Therefore, NCDEQ will continue to engage in training workshops and informational sessions to

encourage local officials, industry and community groups to access the system during earlier stages of local zoning and siting discussions, prior to the NCDEQ permitting process. NCDEQ will also seek guidance from members of the EJE Board regarding efforts to promote the use of the NCCMS with interested parties.

With respect to swine operations, these actions include:

1. *Evaluation of groundwater monitoring data to inform future regulatory actions.* Conditions III.11-14 of the 2019 Swine General Permit require facilities with lagoon/waste storage structures in the 100-year flood plain to install groundwater monitoring wells up-gradient and down-gradient of each lagoon/waste storage structure and conduct quarterly groundwater sampling for chloride, fecal coliform, ammonia, nitrate, pH, phosphorous, sodium, total dissolved solids, and water level. Each facility must install wells within six months after DWR notifies the farm of the requirement and identifies well locations. As DWR receives groundwater monitoring data pursuant to this provision, the agency will evaluate the data to assess if there are impacts to groundwater quality from the waste structures and determine whether additional measures are required to address those impacts. Permittees will be notified by certified mail if additional groundwater assessment measures need to be taken as a result of the evaluation of groundwater quality data. NCDEQ will also use the data to determine if additional groundwater monitoring is needed at swine operations outside of the 100-year flood plain.
2. *Evaluation of annual reports submitted under the Swine General Permit.* Condition III.18 of the 2019 Swine General Permit requires permittees to submit an annual report to NCDEQ. These reports will provide information regarding land application, lagoon management, soils, and animal production. In addition, the reporting process will require farms to conduct an internal evaluation of compliance with the Swine General Permit and report any noncompliance to NCDEQ. The first set of reports will be due in June of 2020. NCDEQ will review the reports, notify permittees of any actions needed to address noncompliance, and assess the data provided within the annual reports to determine if additional actions are needed in order to address known or potential water quality impacts.
3. *Evaluation of use of individual permitting for swine operations identified by NCDEQ that require individualized conditions to ensure protection of water quality.* NCDEQ has authority to require swine operations to apply for individual permits where individualized conditions are necessary to ensure compliance with regulatory requirements. NCDEQ will evaluate whether there are swine operations that should be covered under individual permits. In conducting this assessment, NCDEQ will evaluate: (1) information submitted by swine operations in their annual reports; (2) groundwater monitoring data; (3) surface water monitoring data; (4) information collected during facility inspections; (5) regional groundwater and surface water quality data; (6) compliance history; and (7) any other pertinent information.
4. *Finalization of water quality monitoring study, including implementation of enhanced source identification analysis.* As described in part III, NCDEQ's water quality monitoring study is ongoing. Next steps in DWR's investigation include collaboration with researchers at North Carolina universities to conduct enhanced source identification

analysis to better understand the sources of pollution and determine whether further study and/or pollution reduction measures are necessary. Once this phase of DWR's investigation is complete, DWR intends to produce a draft water quality monitoring report for public notice and comment. DWR will then release a final water quality monitoring report and evaluate additional actions to address the sources of pollution identified through DWR's investigation. In addition to the focused sampling discussed above, NCDEQ has established a new permanent monitoring site in Stocking Head Creek that will collect monthly water quality data on an ongoing basis. The data will be incorporated into DWR's ambient water quality monitoring database and used to inform DWR's watershed planning activities.

5. *Reassessment of the Community Analysis once the 2020 Census Data are available.* NCDEQ will reexamine the Community Analysis results presented in this Report once the 2020 Census data become available. The updated data will inform the agency's approach to the community engagement process as the agency begins the next renewal of the Swine General Permit.

NCDEQ staff are committed to carrying out the actions identified in this Report and ensuring NCDEQ fulfills its mission of providing science-based environmental stewardship for the health and prosperity of *all* North Carolinians.