

# SOUTHERN ENVIRONMENTAL LAW CENTER

Telephone 919-967-1450

601 WEST ROSEMARY STREET, SUITE 220  
CHAPEL HILL, NC 27516-2356

Facsimile 919-929-9421

November 16, 2015

*VIA ELECTRONIC MAIL*

Teresa Rodriguez  
NCDEQ-Division of Water Resources  
Wastewater Branch  
1617 Mail Service Center  
Raleigh, NC 27699-1617  
*Teresa.Rodriguez@ncdenr.gov*

Re: Comments on Proposed NPDES Permit NC0004308 for Alcoa, Inc.

Dear Ms. Rodriguez:

We appreciate the opportunity to submit comments on behalf of the Concerned Citizens of West Badin Community (“CCWBC”) and the Yadkin Riverkeeper regarding Alcoa, Inc.’s proposed National Pollutant Discharge Elimination System (“NPDES”) Permit NC0004308. Please accept these comments for consideration in your preparation of the final permit.

CCWBC is a group of concerned residents of West Badin, an African-American community near Badin Lake in Stanly County. CCWBC advocates for community-wide healthy land and clean water in and around Badin. CCWBC remains concerned about the residents and visitors whose use of Badin Lake and Little Mountain Creek for fishing, boating, and swimming, is negatively impacted by Alcoa’s continued contamination of these waters.

The Yadkin Riverkeeper seeks to respect, protect and improve the Yadkin Pee Dee River Basin through education, advocacy and action. Through its efforts to measurably improve water quality in the Yadkin River Basin, the Riverkeeper promotes a clean and healthy river that sustains life and is cherished by its people.

The Southern Environmental Law Center (“SELC”) is a non-profit legal advocacy group dedicated to protecting the environment of the South. SELC works with more than 100 partner groups in six southeastern states. SELC has been actively involved in a variety of efforts to protect and improve water quality in the Yadkin River Basin and strives to incorporate principles of environmental justice in its program work.

We urge the Division of Water Resources (“DWR”) to hold Alcoa fully accountable for waste from its closed aluminum facility in and around the West Badin community. Specifically, DWR must broaden the scope of the testing and waste characterization study to determine the extent and nature of the contamination from not only the Alcoa Badin Landfill, but also from the remainder of the site, and strengthen the aforementioned NPDES permit to protect water quality in Little Mountain Creek, Badin Lake and downstream water resources.

## **Historic Contamination by Alcoa in Badin**

For almost a century, the world's third largest producer of aluminum, Alcoa, Inc., which includes Alcoa Power Generating, Inc. and its predecessors in interest, owned and operated the aluminum smelting facility, Alcoa Badin Works, adjacent to Badin Lake in Stanly County, North Carolina. Hazardous substances utilized in and created by aluminum production were improperly disposed of both at the facility and throughout the predominantly African-American local community of West Badin, causing significant groundwater and surface water contamination. Alcoa's waste continues to leach contaminants, including trichloroethylene (TCE), fluoride, and cyanide, into groundwater at and near the facility. It appears that polluted groundwater from the facility then infiltrates the stormwater system, before ultimately discharging into nearby surface waters.

The hazardous substances threatening West Badin and the Yadkin River were used in two distinct stages of Alcoa's aluminum production process. Of particular concern is the waste produced when extracting aluminum metal from aluminum oxide in large carbon-lined electrolytic cells called "pots." This process required periodic replacement of the carbon lining in each pot and the used lining, called "spent potliner," contains leachable cyanide and fluoride compounds. The potliner also includes a layer of refractory brick that absorbs the impurities from the cryolite bath. Old pieces of this brick have been found around Badin Lake. Another waste product from the old aluminum smelting process are the carbon blocks that were used as anodes. These blocks have also been found around Badin Lake, further indicating that Alcoa's waste disposal was not confined to known landfills. Until the late 1970s, Alcoa buried spent potliner in unlined earthen pits both onsite and in the West Badin community. Forty-four of those sites have been evaluated by environmental regulators.

After aluminum metal was extracted, heavy machinery, including large industrial rollers, were used to shape it for commercial use. Operation and maintenance of machinery in the fabrication facility involved the use of PCBs, which were once commonly used in electrical wiring to enhance heat and fire resistance, as well as TCE, an industrial solvent and degreaser. Improper disposal of these chemicals, reportedly including direct application to the ground at the facility, led to contamination of soils at and near Alcoa Badin Works. In addition there are allegations that transformer oil, often laden with PCBs, was sprayed on the then-dirt roads throughout the town to keep down dust.

For years, Alcoa's use and disposal of these harmful substances went largely unchecked. The use of PCBs was not banned until 1979, more than 60 years after aluminum production commenced at Alcoa Badin Works. The EPA did not recognize spent potliner as a hazardous waste until 1988. And attempts to regulate TCE repeatedly stalled in Congress. Consequently, water quality in and around Alcoa Badin Works suffered from decades of poorly regulated waste management practices. It was not until 1989, following federal recognition of the dangers of spent potliner, that Alcoa began the process of addressing its hazardous waste disposal at Alcoa Badin Works. However, regulatory oversight has not resulted in complete determination of the extent of waste on the site nor has Alcoa taken substantial action to address what remains. The results of this inaction are exacerbated by the continued operation of a drainage system that

transports contaminated groundwater from beneath the facility and contaminated runoff from the facility to outfalls that discharge into nearby surface waters.

### **The 2008 NPDES Permit**

When the Clean Water Act was first passed, the NPDES system was designed to focus on traditional point sources rather than stormwater systems. Indeed, in 1973, the EPA issued regulations generally exempting stormwater discharges from the NPDES permitting requirement except where such discharges constituted significant contributions to water pollution.<sup>1</sup> However, the Water Quality Act of 1987 broadened the NPDES program by imposing permit requirements for a variety of stormwater sources.<sup>2</sup> Among the newly regulated stormwater sources were “industrial stormwater discharges.”<sup>3</sup> With respect to these point sources, the primary threat to water quality was posed by the effect of industrial processes on the stormwater effluent, as demonstrated by the myriad regulatory exemptions available to “[o]perators of a discharge which is composed entirely of stormwater.”<sup>4</sup> Thus, even from the outset, regulators realized the increased environmental risk, and corresponding need for appropriate controls, when non-stormwater is discharged through stormwater systems. The EPA has more recently observed that the non-stormwater discharges are “significant sources of pollutants” and that “[i]dentifying and eliminating non-storm water discharges can be an easy and cost-effective method for preventing runoff contamination and pollution of receiving water bodies.”<sup>5</sup>

Alcoa’s current permit also recognizes the importance of identifying and eliminating non-stormwater discharges that threaten water quality. Under the 2008 permit, Alcoa is required to annually submit, “certification that the stormwater outfalls have been evaluated for the presence of non-stormwater discharges.”<sup>6</sup> The only “allowable non-stormwater discharges” are clearly defined in the permit.<sup>7</sup> Of particular relevance, groundwater is only an allowable non-stormwater discharge if it is “uncontaminated.”<sup>8</sup>

If Alcoa complied with the aforementioned annual certification requirement, DENR has received repeated annual indications that Alcoa is regularly responsible for non-stormwater discharges that are not “allowable.” Indeed, the Fact Sheet prepared by DENR when evaluating Alcoa’s most recent permit application indicated the agency’s awareness that contaminated groundwater was discharged through Alcoa’s stormwater system.<sup>9</sup> Given the agency’s

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<sup>1</sup> See 40 C.F.R. § 125.4 (1975).

<sup>2</sup> See 33 U.S.C. § 1342(p).

<sup>3</sup> *Id.*

<sup>4</sup> 40 C.F.R. § 122.26(c)(1)(i)(F).

<sup>5</sup> EPA, Office of Water, *Stormwater Management Fact Sheet: Non-Storm Water Discharges to Storm Sewers*, EPA 832-F-99-022 (Sept. 1999), available at [http://water.epa.gov/scitech/wastetech/upload/2002\\_06\\_28\\_mtb\\_nonstorm.pdf](http://water.epa.gov/scitech/wastetech/upload/2002_06_28_mtb_nonstorm.pdf).

<sup>6</sup> 2008 Permit § B.(1.)a.(v.) (describing contents of Stormwater Pollution Prevention Plan); *id.* (requiring annual review and update of the plan).

<sup>7</sup> 2008 Permit Section B.(3.)2.

<sup>8</sup> *Id.*

<sup>9</sup> DENR/DWR, Fact Sheet for NPDES Permit Development: NPDES No. NC0004308 at 1 (Jan. 2015)(“Although the industrial operations ceased at the site, previous activities contribute to pollutants of concern in the stormwater

knowledge that contaminated groundwater is infiltrating and discharging from Alcoa's stormwater system, the draft permit is objectionable due to its failure to protect receiving waters from the impacts of this unpermitted non-stormwater discharge.

### **Problems with the Modified 2015 NPDES Draft Permit and Recommendations**

The modified draft permit still does not go far enough to protect the environment, or local residents from potentially hazardous discharges coming from the covered outfalls.

First, where the State does require effluent guidelines for cyanide, it fails to protect water quality and human health by treating any reported cyanide value beneath 10 micrograms per liter as zero. This is problematic because the permit ostensibly limits the monthly average concentration of discharged cyanide at five micrograms per liter limit; thus, the inclusion of this "quantitation limit" essentially doubles the monthly average concentration of cyanide that Alcoa may discharge, on average, without violating the permit.<sup>10</sup> Moreover, the permit is not clear as to how the monthly average is calculated; the average will be significantly skewed if all values below 10 micrograms per liter are reported as zero.

Then, the permit contains no limit on PCBs, despite the State's knowledge that these pollutants have in the past been discharged from the facility. PCBs are a known carcinogen and their presence negatively impacts fish populations by inhibiting reproduction. Although the State worked with Alcoa to put caps over known PCB deposits in Badin Lake, it is essentially ignoring another potential source of additional PCB contamination from Alcoa's discharge. Permitting Alcoa to discharge unlimited quantities of both PCBs at any outfall threatens water quality and public health.

Next, while this permit includes effluent limitations at two outfalls for TCE, there is a remarkable disparity in the two limitations, with the limit at Outfall 012 (15.6 ug/L) an astonishing 26 times higher than that for Outfall 011 (6 ug/L). If the limit for Outfall 012 was set by running a CORMIX model in 1994, that limitation is questionable due to the passage of time since the modeling was conducted.<sup>11</sup> In addition, the diffuser at Outfall 012 was designed to achieve an initial dilution of 14:1, which was used to determine acute limits.<sup>12</sup> Thus, if the Division used the 26:1 dilution factor to determine the chronic limit of 15.6 ug/L for TCE, that limit is also questionable because the diffuser was never designed to achieve that level of dilution. TCE is a toxic chemical which can harm the nervous system, liver, respiratory system, and kidneys. Knowing that the groundwater on site is contributing to the release of TCEs from

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and/or groundwater runoff."); *id.* ("At this time Alcoa has not yet identified measures to treat the contaminated groundwater.").

<sup>10</sup> Modified 2015 Draft NPDES Permit 0004308 pps. 3-6.

<sup>11</sup> DEQ/DWR Amended Fact Sheet for NPDES Permit Development, NPDES No. NC0004308, October 6, 2015, p.6.

<sup>12</sup> DEQ/DWR Amended Fact Sheet for NPDES Permit Development, NPDES No. NC0004308, October 6, 2015, p.6.

the stormwater outfall and knowing that Alcoa has not proposed treatment<sup>13</sup> as a solution for that groundwater contamination, should spur more updated action to protect Badin Lake. DWR proposes to permit Alcoa to discharge TCE at quantities well above the federal human health criteria standard at Outfall 012, which was updated in 2015. Based on the latest science, the EPA recommended an ambient water quality criterion of 0.6 ug/L to protect against “an increased cancer risk due to exposure to TCE.”<sup>14</sup> Without an updated analysis of the likely dilution achieved by the diffuser, the proposed limit may threaten water quality and public health.

This permit is also problematic because the State requires no effluent limitations for fluoride and cyanide, at Outfalls 002, 004, 017, 018, 020 and 022.<sup>15</sup> Monitoring data from all these outfalls, save Outfall 022<sup>16</sup>, show exceedances of water quality standards for cyanide, fluoride, or both.<sup>17</sup> Cyanide causes rapid asphyxia in fish and has been linked to nervous, respiratory, and cardiovascular complications in humans. Fluoride inhibits enzyme activity in fish and causes dental and skeletal problems in humans. Yet, the State proposes to require no limits for total cyanide and total fluoride and only semi-annual reporting at these six outfalls.<sup>18</sup> This decision results in violations of the anti-degradation of the Clean Water Act, and should be rectified through setting effluent guidelines and monthly monitoring requirements for each outfall.

Finally, the current permit only requires a priority pollutant scan for Outfalls 005, 011, 012 and 013. The data available to DWR and the history of the Alcoa site do not support limiting the priority pollutant scan to only four outfalls. Rather, the Division should require a priority pollutant scan for all outfalls at the Alcoa site. This scan goes to the heart of ascertaining whether and to what extent toxic pollutants are entering Little Mountain Creek and Badin Lake, impaired waters of the State. Toxic, or priority pollutants, include metals and manmade organic compounds,<sup>19</sup> the very same types of materials that are associated with aluminum smelting sites.<sup>20</sup>

All of the outfalls at the Alcoa Badin Landfill should be included in the priority pollutant scan particularly because the operational history of the landfill lacks specific detail on the full

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<sup>13</sup> Phase 4 – Corrective Measures Alternatives and Phase 5 Justification and Recommendation of the Selected Corrective Measure Alternative for the Badin Works Facility Corrective Measures Study, Environeeering, Inc., January 24, 2013.

<sup>14</sup> <http://water.epa.gov/scitech/swguidance/standards/criteria/current/loader.cfm?csModule=security/getfile&PageID=717529>

<sup>15</sup> Modified 2015 Draft NPDES Permit 0004308, p. 9.

<sup>16</sup> Outfall 022 has no monitoring information because it was just discovered in DWR’s recent site visit.

<sup>17</sup> DEQ/DWR Amended Fact Sheet for NPDES Permit Development, NPDES No. NC0004308, October 6, 2015, pp. 7-11.

<sup>18</sup> DEQ/DWR Amended Fact Sheet for NPDES Permit Development, NPDES No. NC0004308, October 6, 2015, pp. 7-11.

<sup>19</sup> CWA Section 307(a)(1).

<sup>20</sup> U.S.E.P.A. Industrial Stormwater Fact Sheet Series, Sector F: Primary Metals Facilities, 2006, p.3 (Stating that Common associated pollutants with landfilling at primary metals facilities include metals, cyanide, cadmium, arsenic, hexavalent chromium, halogenated or chlorinated solvents.) found at [http://www3.epa.gov/npdes/pubs/sector\\_f\\_primarymetals.pdf](http://www3.epa.gov/npdes/pubs/sector_f_primarymetals.pdf)

extent of what was disposed there. Without a doubt, material from the operation of the aluminum smelter was placed in a ravine in West Badin, with no liner, for an uncertain amount of time.<sup>21</sup> Over its operational history, at least forty-two feet of refuse was placed in that unlined pit.<sup>22</sup> In addition to the unknown quantity of waste material from the aluminum smelter in the unlined landfill, and the unknown duration of time that material was placed there, it is also documented that water passes through the landfill materials,<sup>23</sup> which is an on-going cause of concern regarding water quality impacts to Little Mountain Creek. Despite assertions that Outfalls 017 and 018 only discharge stormwater,<sup>24</sup> they both showed exceedances of the water quality standard for cyanide,<sup>25</sup> calling into question what other pollutants may be in the discharge. New Outfall 022 has no monitoring information to analyze, as it was only recently discovered, necessitating a priority pollutant scan for it as well. Including the additional outfalls in the priority pollutant scan, at a minimum, would help fulfill the public's request for a more complete analysis of the contents of the Alcoa Badin Landfill and the State's mandate to protect water quality and repair impaired waters of the State.

We urge the Division of Water Resources to adequately protect Little Mountain Creek and Badin Lake from additional and excessive pollutant discharge from the Alcoa Badin Works facility. The proposed permit's provisions conflict with the anti-degradation policy of the Clean Water Act and result in a disparate impact on communities protected by Title VI of the Civil Rights Act of 1964. These concerns must be addressed to ensure better outcomes for water quality in Badin Lake and Little Mountain Creek.

#### **I. The Draft Permit Conflicts with the Anti-Degradation Policy Stated in Both Federal and North Carolina Law.**

The federal anti-degradation policy adopted to implement the Clean Water Act requires that the level of water quality necessary to protect the existing water uses be maintained and protected.<sup>26</sup> This policy is both echoed and incorporated by reference in regulations adopted by the North Carolina Environmental Management Commission.<sup>27</sup> The contaminated groundwater traveling through Alcoa's stormwater system is discharged into two water bodies, Little Mountain Creek and Badin Lake, which are both classified as water supply sources. Pursuant to this classification, these waters must be protected as sources of public water supply as well as for uses including secondary recreation,<sup>28</sup> agriculture, aquatic life propagation, maintenance of

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<sup>21</sup> Alcoa Badin Landfill and Former Ball Field Sampling Activities, Enviroengineering Inc., September 15, 2015, p. 5.

<sup>22</sup> Alcoa Badin Landfill and Former Ball Field Sampling Activities, Enviroengineering Inc., September 15, 2015, p. 5.

<sup>23</sup> Alcoa Badin Landfill and Former Ball Field Sampling Activities, Enviroengineering Inc., September 15, 2015, p. 5.

<sup>24</sup> DEQ/DWR Amended Fact Sheet for NPDES Permit Development, NPDES No. NC0004308, October 6, 2015, p.5.

<sup>25</sup> DEQ/DWR Amended Fact Sheet for NPDES Permit Development, NPDES No. NC0004308, October 6, 2015, p.8.

<sup>26</sup> 40 CFR 131.12 (a)(1).

<sup>27</sup> 15A N.C. Admin. Code 2B .0201.

<sup>28</sup> Secondary recreation is defined to include "wading, boating, other uses not involving human body contact with water, and activities involving human body contact with water where such activities take place on an infrequent, unorganized, or incidental basis." 15A N.C. Admin Code 2B .0202(57).

biological integrity, and wildlife habitat.<sup>29</sup> Badin Lake is also a Class B waterbody, so it must be protected for “primary recreation” use.<sup>30</sup>

Existing uses of these water bodies would be threatened by the proposed NPDES permit provisions. This is particularly concerning when permitted discharges enter Badin Lake, which is already considered a “critical area” where “risk associated with pollution” is heightened due to its use for water supply.<sup>31</sup> Badin Lake is still used as a source of drinking water for many North Carolina residents. Moreover, despite fish consumption warnings, residents continue to consume fish from Badin Lake. In addition to these human uses, aquatic life propagation and survival will be threatened by inappropriate regulation of the discharge from Alcoa’s drainage system.

It bears emphasis that both Badin Lake and Little Mountain Creek are Category 5 waters on North Carolina’s 303(d) list.<sup>32</sup> As such, both water bodies are already too polluted to support some of their beneficial uses and the State should be undertaking efforts, such as drafting a Total Maximum Daily Load, to limit pollution. Instead, the State is proposing a permit likely to increase pollutant loading in these water bodies. The issuance of the proposed permit to Alcoa will only exacerbate the observed problems in receiving waters. Because the State’s proposed permit action is inconsistent with the anti-degradation policy of the federal Clean Water Act, the permit should be modified in order to comport with the federal statute and the state policy.

## **II. The Draft Permit Conflicts with Specific Legal and Policy Protections for Communities of Color.**

### **A. The draft permit does not comply with Title VI of the Civil Rights Act of 1964.**

The State’s disregard for public health is especially troubling because it has a disparate impact on racial minorities in the area near the facility. In 2010, the population of Badin, North Carolina, was 39% African American and 6.4% Hispanic or Latino. The West Badin community adjacent to the smelting facility has a significantly higher minority population (over 90%) than Stanly County as a whole. If the state environmental agency, as a recipient of substantial federal funding, takes an action, such as permitting stormwater discharges, that disparately impacts people of color, an additional remedy is provided through federal law.

Title VI of the Civil Rights Act of 1964 states that “[n]o person in the United States shall, on the ground of race, color or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal

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<sup>29</sup> 15A N.C. Admin. Code 2B .0301(c).

<sup>30</sup> *Id.*; see also 15A N.C. Admin Code 2B.0202(52) (“Primary recreation includes swimming, skin diving, skiing, and similar uses involving human body contact with water where such activities take place in an organized or on a frequent basis.”).

<sup>31</sup> 15A NCAC 2B .0202(20) (defining “critical area”).

<sup>32</sup> NCDENR, 2014 Category 5 Water Quality Assessments-303(d) List, available at [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=28b97405-55da-4b21-aac3-f580ee810593&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=28b97405-55da-4b21-aac3-f580ee810593&groupId=38364).

financial assistance.”<sup>33</sup> As a division of the North Carolina Department of Environment and Natural Resources (“NCDENR”), a state agency receiving federal funds, the North Carolina Division of Water Resources must comply with Title VI and its regulations.

The proposed permit does not adequately set limits or monitor for toxic pollutants. If finalized as drafted, the permit is likely to have an adverse and disproportionate impact on the local community on the basis of race, in violation of Title VI. As such, the draft permit should be modified to better protect public health and the environment.

**B. The public process for the draft permit does not comport with North Carolina’s Environmental Equity Initiative.**

The public process for the draft permit is flawed because it does not represent the principles of environmental equity as reflected in NCDENR’s October 19, 2000 “Environmental Equity Initiative” Policy.<sup>34</sup> In order to meet the goals of the Initiative, the policy provides that NCDENR will, among other actions:

Address environmental equity issues in permitting decisions for projects potentially having a disparate impact on communities protected by Title VI of the Civil Rights Act of 1964;

Use demographic information to determine whether: 1) there is a need for greater outreach to community in order to encourage more meaningful participation, or 2) there are special health risks based on the nature of the population;

Resolve environmental equity complaints, consistent with the protection afforded by Title VI of the Civil Rights Act of 1964;

Provide opportunities for interested parties to raise concerns on Environmental Equity in NCDENR’s decisions.

As conducted, the public process for Alcoa’s proposed permit falls short of the aims of the Environmental Equity Initiative. The Fact Sheet does not include any demographic data analysis to determine if this permitting decision warranted heightened outreach to encourage more meaningful participation by the community. To give adequate attention to the North Carolina Policy on Environmental Equity, there should be a demographic data analysis for the community of West Badin, which would be added to the permit fact sheet; and additional public outreach regarding the community’s knowledge of waste in the landfill adjacent to the permitted outfalls, toward the ends of a permit that adequately protects the community, Little Mountain Creek, Badin Lake, and downstream natural resources.

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<sup>33</sup> 42 U.S.C. § 2000d (2012).

<sup>34</sup> Attachment A, NCDENR Environmental Equity Initiative Policy.

### **Conclusion**

Alcoa has failed to be a good steward of the natural resources in the Yadkin River Basin, and even in its shuttered state continues to add harmful pollutants to the waters of the State. The West Badin community and the Yadkin River are negatively impacted by the on-going discharges into Little Mountain Creek and Badin Lake. In order to comply with the Clean Water Act anti-degradation policy, Title VI of the Civil Rights Act of 1964, and the North Carolina Environmental Equity Policy, the State should not issue the permit in its current form but rather do a thorough waste characterization study, set effluent limitations and require monthly monitoring for all outfalls, with extensive input from the local community and stewards of the Yadkin River, and only issue a permit in such a way that protects the people and natural resources of the Yadkin River Basin and West Badin community.

Thank you for the opportunity to comment on this important matter.

Sincerely,



Chandra T. Taylor  
Senior Attorney  
Southern Environmental Law Center

cc:

Heather McTeer Toney, Administrator, EPA Region IV  
James Giattina, Director, Water Protection Division, EPA Region IV  
Ileana Arias, PhD., Director, Division of Community Health Investigations, Agency for Toxic Substances and Disease Registry  
Linda Culpepper, Director, North Carolina Division of Waste Management  
Rick Brajer, Secretary, North Carolina Department of Health and Human Services  
Will Scott, Yadkin Riverkeeper  
Macy Hinson, Concerned Citizens of West Badin Community  
Garry Lewis, Stanly County Minority Health Committee