

Blue Ridge Environmental Defense League

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September 17, 2015

Gina McCarthy, Administrator
US Environmental Protection Agency
Mail Code 1101A
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

**RE: Petition under Clean Air Act §505 of Part 70 Air Quality Operating Permit
Issued by North Carolina Department of Environment and Natural Resources
Duke Energy Progress - Richmond County Combustion Turbine Facility
Hamlet, NC, Richmond County
Facility ID: 7700070, Permit No. 08759T17
Freedom Of Information Act Request, 5 U.S.C. section 552**

Dear Ms. McCarthy:

On behalf of the Blue Ridge Environmental Defense League and our chapter Concerned Citizens of Richmond County, ("Petitioners") I write to ascertain why the US Environmental Protection Agency has not properly responded the petition we filed on September 17, 2014 in this matter ("Petition") requesting that EPA object to the permit issued to the Richmond County Combustion Turbine Facility operated by Duke Energy Progress ("RCCTF"). Also, I want to inquire about the status of any investigations or enforcement actions surrounding the RCCTF, and to supplement the record regarding the problems we have identified with the permit granted by the North Carolina Division of Air Quality. This inquiry and the information provided herein is based solely on issues raised by us and others during North Carolina's public comment period and/or the EPA review period before the RCCTF permit was issued.

Our Petition, timely filed, requested that the Administrator object to the issuance of the Permit because of North Carolina's failure to assure compliance with applicable requirements under the Clean Air Act; that is:

- Failure to provide for meaningful public participation
- Failure to properly assess common control of the Duke Energy Progress and Piedmont Natural Gas electric power turbines
- Failure to require alternative compliance procedures under MACT
- Failure to show compliance with North Carolina's Title V program
- Failure to address environmental justice issues

I hereby include the Petition by reference. To the above list we would now add the failure of the US Environmental Protection Agency to respond to a duly filed petition pursuant to the provisions of the federal Clean Air Act §505(b)(2); 42 U.S. Code § 7661d; 40 CFR § 70.8.

- **Lack of EPA Response**

On September 17, 2014, the Concerned Citizens of Richmond County and the Blue Ridge Environmental Defense League petitioned the United States Environmental Protection Agency to object to the issuance of the Title V permit No. 08759T17 issued by the North Carolina Department of Environment and Natural Resources Division of Air Quality to the Richmond County Combustion Turbine Facility. Our petition was and is still posted on the EPA's website.¹

In the response to the Petition, the EPA sent a letter—dated October 16, 2014—which cited procedures set forth in 40 CFR § 70.8 and stated:

“[T]he EPA is currently reviewing your request that the EPA object to the issuance of a title V operating permit (#08759T17) to the above-reference facility by the North Carolina Division of Air Quality. The EPA will promptly send you the Administrator's final Order responding to your petition upon its issuance.”

As you know, EPA is required by law to render a decision on a CAA Title V petition. The relevant law states:

The Administrator shall grant or deny such petition within 60 days after the petition is filed. The Administrator shall issue an objection within such period if the petitioner demonstrates to the Administrator that the permit is not in compliance with the requirements of this chapter, including the requirements of the applicable implementation plan. Any denial of such petition shall be subject to judicial review under section 7607 of this title. The Administrator shall include in regulations under this subchapter provisions to implement this paragraph. The Administrator may not delegate the requirements of this paragraph.

See Title 42, Chapter 85, Subchapter V § 7661D(b)(2). The time allowed under the statute is 60 days, yet no decision on our petition has been rendered, nor has any further communication been received by us. If the EPA denies a petition under this part, a suit may be brought by persons seeking review of the EPA's action. This case would be heard before the federal Court of Appeals under Clean Air Act §307. However, EPA's effective denial of our Petition by its lack of action, its failure to either accept or deny it, is arbitrary and capricious, and the consequence for the petitioner is the abrogation of due process. In short, the Administrator cannot arbitrarily deny a petition.

- **Failure to properly assess common control of the Duke Energy Progress and Piedmont Natural Gas electric power turbines**

As stated in our Petition, we dispute the North Carolina DAQ's justification for paring off six combustion units from the Permit, holding that they were not under “common legal control.” Duke Energy Progress requested and the state granted the removal of six

¹ http://www.epa.gov/region7/air/title5/petitiondb/petitions/richmond_turbines_petition2014.pdf

natural gas fired units from the permit which, according to DAQ, are owned and operated by Piedmont Natural Gas. However, we presented technical and physical evidence showing these units are under common control: the Piedmont Natural Gas units are numbered consecutively with the Duke Energy Progress units, they are within the same fence line, the Joule–Thomson effect and more.

Moreover, we believe the issue of fragmentation applies here. For example, a letter from EPA Region 7 to the Iowa Air Quality Bureau provided guidance to the state program regarding the question of contiguous facilities in the definition of major source and common control, 40 CFR Part 63.²

When determining whether facilities on separate properties are a single major source, the permitting authority should consider such things as the proximity of the facilities as well as the existence of physical or transportation links such as pipeline, railway, channels or conduit and the functional inter-relationship between the facilities.

Lastly, it should be noted that facilities that purposely attempt to circumvent Part 63 requirements by fragmenting their operations can be held liable under section 63.4(c).

(emphasis added)

The DAQ's judgment, that Piedmont and Duke lack common legal control at the Richmond Combustion Turbines, is incorrect and out of compliance with 40 CFR § 63 and 29 CFR §779.221. Common control need not be sole or complete by one entity, but merely when performance is controlled for common business purposes. The common business purpose—i.e., the enterprise—for Duke and Piedmont at Richmond Combustion Turbines is the production of electricity via the combustion of a common fuel.

- **Failure to require alternative compliance procedures under MACT**

Natural gas combustion releases a wide variety of hazardous air pollutants: benzene, toluene, dichlorobenzene, arsenic, cadmium, chromium and formaldehyde. In fact, some of these pollutants are emitted in greater amounts from natural gas than coal. For example, for a given amount of electricity, emissions of formaldehyde from natural gas are 800% higher than from coal, and diesel oil is even worse. Formaldehyde is a nearly colorless gas with a pungent, irritating odor even at very low concentrations. It is a probable human carcinogen. It is an eye, skin, and respiratory tract irritant. It can produce narrowing of the bronchi and accumulation of fluid in the lungs. Children are more susceptible to the respiratory effects of formaldehyde than adults.

Yet the NC Division of Air Quality approved a permit which specifically exempts the Richmond County Combustion Turbine Facility from federal formaldehyde restrictions, stating:

² Letter from JoAnn M. Heiman, Chief Air Permitting and Compliance Branch, EPA Region 7, to David Phelps, Air Quality Bureau Iowa Department of Natural Resources, October 1, 2004

Removed Formaldehyde requirements under 40 CFR 63 Subpart YYYYY due to a stay on the effectiveness of the emissions and operating limits under 40 CFR 63.6095(d) that is in place until final action is taken by the EPA in the Federal Register.³

The DAQ's reference to Subpart YYYYY of the National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines is the rule setting operating limits on all hazardous air pollutants emissions, including formaldehyde, from combustion turbines. In its Air Permit Review, DAQ included the following note regarding formaldehyde limits:

Duke is requesting that Specific Condition and Limitation No. 2.1.F.6 be updated to reflect the applicability threshold of Subpart YYYYY. More specifically, Duke requested that this modified permit condition state that the facility is not subject to the emission and operating limitations until the combined total number of operating hours of operation on fuel oil by all the turbines at the facility exceeds 1,000 hours per calendar year. Upon exceeding the 1,000 hour threshold, the facility must demonstrate compliance with all the applicable provisions of Subpart YYYYY. Per §63.6110(a), the facility would then have 180 days to complete the initial compliance testing required under this MACT standard.⁴

EPA guidance states that a permit shield can protect a source from enforcement of an applicable requirement under two circumstances:

- Where that applicable requirement has been included in the permit and is therefore enforced through the permit; or
- Where it has been determined that the requirement does not apply to the source.

However, under no circumstances can a permit shield be used to exempt a source from a requirement to which it is subject. The conditional nature of Duke Energy's request—the annual 1,000-hour threshold—restricts enforcement. Moreover, neither circumstance required for a permit shield has been met: there is no enforcement through the permit and no showing that the requirement does not apply. With the new permit, Duke Energy Progress increased its power by 36%, from 1600 MWe to approximately 2000 MWe. At 1,000 hours the turbines would be operating less than 12% of the year. Further, the federal regulation cited in the permit, 40 CFR 63.6095(d), is for gas-fired turbines, not fuel oil. And the citations in the Federal Register were published in 2004, over a decade ago.

40 CFR § 63.6095 (d)—If you start up a new or reconstructed stationary combustion turbine that is a lean premix gas-fired stationary combustion turbine or diffusion flame gas-fired stationary combustion turbine as defined by this subpart, you must comply with the Initial Notification requirements set forth in

³ Permit 08759T17, page 34-35, issued by NC DAQ July 18, 2014 to Duke Energy Progress, Inc., Richmond County Combustion Turbine Facility. An Attachment to the permit listed changes that were made to the previous permit No. 08759T16

⁴ NC DAQ Air Permit Review for 08759T15, Section 5.7 Updated applicability of 15A NCAC 2D .1111 (MACT Subpart YYYYY)

§ 63.6145 but need not comply with any other requirement of this subpart until EPA takes final action to require compliance and publishes a document in the *Federal Register*. [69 FR 10537, Mar. 5, 2004, as amended at 69 FR 51188, Aug. 18, 2004]

The poorly crafted permit shield has created an enforcement problem. EPA or DAQ must reopen and correct the permit. If the MACT requirement is not applicable because the source does not operate in a certain way, either the permit must prohibit the source from operating in a way that would trigger the requirement, or the shield must be modified to include a statement that the shield is void if the source operates in a way that would trigger the requirement.

- **Failure to show compliance with North Carolina's Title V program**

Previous to the September 17, 2014 petition, we had communicated with you regarding the concerns reported by our members living near the RCCTF. On July 21, 2014, we sent a letter to EPA which stated:

We believe that the Richmond County turbine plant is not in compliance with air quality standards (NAAQS) and, therefore, the draft permit cannot be approved as drafted. We believe the reports compiled by residents indicate that *inter alia* the RCCTF is in violation of the two-hour limit for excess emissions due to startup and shutdown malfunction. The BACT requirements of "combustion control" to meet opacity limits of 20% in the draft permit are not adequate. The EPA cannot approve an ongoing violation.

Our letter included a series of photographs taken by residents of the Waymon Chapel Road community. The photos, taken in summer and winter, pointed to extended problems with opacity. One of the photos is copied *infra*. Subsequently, we received the following email:

From: Ceron, Heather
Sent: Tuesday, August 12, 2014 4:26 PM
To: bredl
Subject: RE: Draft NC Air Quality Permit No. 08759T17 Duke Energy Progress - Richmond County Turbines

Mr. Zeller,

Sorry for the delay in response. The permit has been issued. Your concerns are being forwarded to our Enforcement group as well as our Environmental Justice group. Thank you for your interest in this process.

The evidence we have compiled shows that the Richmond County turbine plant is not in compliance with air quality standards. The photographs taken of dense smoke and the complaints made to officials by Richmond County residents indicate that the plant is in violation of the limit on opacity and particulates. Particulate matter can be emitted from the smoke stack or formed in the atmosphere when gaseous pollutants such as SO₂ and

NO_x react to form fine particles. Human health risks caused by exposure to particulates include damage to lung tissue, cancer, and premature death. The elderly, children, and people with chronic lung disease, influenza, or asthma, are especially sensitive to the effects of particulate matter.

The photograph illustrates the problem. Residents of the Waymon Chapel Road community next to the turbine facility took photos near the plant in summer and winter, pointing to illegal emissions of thick smoke, accompanied by a metal taste and a burning smell.



June 16, 2014, Hamlet, NC. Photo by Kim McCall

One year has passed since we brought what we believe are ongoing violations of air quality standards in the vicinity of the RCCTF, yet we have had no further response. Nor have we received word that the EPA Enforcement group and the EPA Environmental Justice group have taken any actions.

- **Failure to address environmental justice issues**

The negative impact of the turbine plant on health, livelihood and well-being of local residents requires immediate attention. The plant is located in a county with a high percentage of African American residents and a high level of people below poverty level. The latest census data reveal Richmond County's population is 31% black, which is 41% above the state average. And 24.8% of residents live below poverty level, compared to the statewide level of 16.8%. In other words, Richmond County has 47% more of its people living below poverty level than other counties in North Carolina.⁵

Residents who live within six miles of RCCTF suffer an even greater disproportionate

⁵ US Census Bureau Quick Facts, Richmond County, <http://quickfacts.census.gov/qfd/states/37/37153.html>

impact of air pollution. For example, in the Town of Dobbin Heights 83% of its residents are African American, 32.6% of the population is below the poverty line—including 36.2% of those under age 18 and 51.9% of those age 65 or over. In the city of Hamlet 34.51% of its residents are African American, 22.2% of the population is below the poverty line, including 33.9% of those under age 18 and 18.2% of those age 65 or over.

According to the Richmond County Health Department, “Richmond County ranked significantly higher than its peer counties (Anson, Bladen, Montgomery, Pasquotank, Scotland and Vance) for the five year span 2007-2011 for Emergency Department visits and hospital inpatient stays related to a primary diagnosis of asthma.”⁶ Asthma rates are directly related to air pollution.

Environmental justice advocates nationwide argue that, because poor people of color bear a disproportionate burden of pollution, these communities should receive a greater share of money and technology to reduce pollution and close loopholes.⁷ Environmental justice law indicates that the disproportionate impacts of air pollution should be offset by greater attention to pollution sources and the reduction of air pollution wherever possible.

Conclusion and Remedy

We request that EPA require DAQ to reopen the Richmond County Combustion Turbine Facility permit. We request a full environmental justice review of the circumstances surrounding operation of this facility. We request enforcement of air pollution regulations at the plant. Also, pursuant to Freedom of Information Act, 5 U.S.C. section 552, I hereby request access to documents generated in the approval of the CAA Title V permit for the Duke Energy Progress - Richmond County Combustion Turbine Facility in Hamlet, NC, Facility ID: 7700070. We are particularly interested in the period from August 8, 2013, when DAQ issued draft Permit No. 08759T14, to August 12, 2014, subsequent to the issuance of Permit No. 08759T17. As stipulated in section 552(a)(6)(A)(i) of the Freedom of Information Act, please provide your reply within twenty (20) business days. Thank you for your attention to this matter.

Respectfully,



Louis A. Zeller
Executive Director

CC:

Heather McTeer Toney, Administrator, EPA Region IV
Sheila Holman, Director, NC Division of Air Quality
Teresa Wilson, Station Manager, Duke Energy Progress, Inc.

⁶ Richmond County Health Department . 2014 State of the County Health Report, page 6, accessed at <http://www.richmondnc.com/172/Health-Education>

⁷ *Environmental Justice for All: A Fifty State Survey of Legislation, Policies and Cases*, Fourth Edition, , University of California-Hastings College of the Law, February 15, 2010

Blue Ridge Environmental Defense League

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Donald R. van der Vaart, Chief
Division of Air Quality, Permitting
1641 Mail Service Center
Raleigh, North Carolina 27699-1641

September 9, 2013

RE: Duke Energy Progress - Richmond County Turbines, Richmond County Energy Complex
Application ID: 7700070.11A, Permit No.: 08759T15

Dear Dr. Van der Vaart:

On behalf of the Blue Ridge Environmental Defense League, I write to provide comments on the Richmond County Turbines draft permit.

Recommendations

The Blue Ridge Environmental Defense League recommends that before this permit is issued the Division of Air Quality should:

1. Hold a permit hearing in the Hamlet, NC area. We have been in contact with residents in Hamlet, Rockingham and nearby communities. They are concerned and some have made requests for a public hearing directly to the Division.
2. Reject the permit as written and draft a site-wide permit.
3. Prevent six combustions sources to be separated from the existing permit.
4. Deny the request by Duke Energy Progress to side-step the North Carolina Clean Smokestacks Act at the Richmond County Turbine facility.

Background

At the Richmond County Energy Complex, Duke Energy Progress operates seven combustion turbines permitted to burn either fuel oil or natural gas, and three auxiliary boilers burning natural gas. Five of the turbines are simple cycle; two are combined cycle. All seven turbines use dry low NOx combustors and water injection for pollution control. The two combined cycle turbines add selective catalytic reduction. Presently, the electric output of the facility is 1600 MWe, and is classed standard industrial code SIC 4911. With the new permit, Duke Energy Progress seeks to increase its power by 36% to approximately 2000 MWe.

The draft permit adds two 190 MWe Siemens SGT6-5000F combustion turbine generators (ES-13 and ES-14), a new natural gas fired auxiliary boiler (ES-15), seeks to modify the existing natural gas fired auxiliary boiler (ES-10) and removes six units from the permit, although they still operate within the facility fence line.

General Comments

Combustion turbines are remarkable for their lack of efficiency in converting chemical energy to mechanical energy. Part of the output is lost in the compressor where intake air is compressed up to 30 atmospheres of pressure, before the fuel is burned. Accordingly, "More than 50 percent

of the shaft horsepower is needed to drive the internal compressor and the balance of recovered shaft horsepower is available to drive an external load.”¹ The two types of turbines utilized at the Richmond County facility are simple-cycle and combined-cycle. The simple cycle has a thermal efficiency of only 15 to 42 percent. Combined cycle units add a *heat recovery steam generator* to boost efficiency to between 38 and 60 percent. So, from 40 to 85 percent of the fuel burned produces no electric power. But air pollution and global warming gases are created by combustion whether power is produced or not.

Moreover, how the turbine is operated affects air pollution emissions and efficiency. Duke Energy Progress has trimmed its application to escape requirements of BACT and MACT by reducing hours of operation for some units with negative consequences: e.g., Turbine Units ES-13 and ES-14 are to operate for 1000 or 2000 hours per year burning fuel oil or natural gas, respectively. This would result in underestimated levels of toxic air pollution.

Available emissions data indicate that the turbine’s operating load has a considerable effect on the resulting emission levels. Gas turbines are typically operated at high loads (greater than or equal to 80 percent of rated capacity) to achieve maximum thermal efficiency and peak combustor zone flame temperatures. With reduced loads (lower than 80 percent), or during periods of frequent load changes, the combustor zone flame temperatures are expected to be lower than the high load temperatures, yielding lower thermal efficiencies and more incomplete combustion.²

The products of incomplete production—carbon monoxide and PM-10—increase with reduced operating loads. So in addition to escaping Clean Air Act provisions, Duke’s regulatory stratagem of reducing hours of operation will create higher levels of pollution per kilowatt-hour. Before issuing this permit, the Division must assess the anomalous impact of the apparent attempt by the applicant to game the system. Best available control technology for criteria pollutants and maximum achievable control technology for hazardous air pollutants are the standards which should be required for the Richmond County Combustion Turbines Title V permit.

If approved as written, the draft permit for the Richmond County Turbines would allow significant modification of the facility. The permit must comply with the air quality permitting program under Title V and 40 CFR Part 70 (15A NCAC 2Q .0501), but the removal of several emissions sources operating within the energy complex, the removal of alternative compliance procedures under several MACT sources and alterations in enforcement of rule requirements make the draft permit unacceptable.

Duke Energy Progress Side-steps Sulfur Dioxide Best Available Control Technology

Previously, the proposed project was subject to state-only BACT requirements for SO₂ (15A NCAC 2D .0530(h)) because, if cost recovery is sought pursuant to the NC Clean Smokestacks Act (G.S. 62-133.6), new natural gas-fired electric generating units must install best available control technology for NO_x and SO₂. However, Duke Energy Progress will not seek cost

¹ US EPA Air Pollution Emission Factors, AP-42, Stationary Gas Turbines, Section 3.1.2 Process Description

² *Id.* Page 3.1-3

recovery and has requested that SO₂ BACT emission limits the new combustion turbines (ID Nos. ES-13 and ES-14) be removed from the permit. The Division of Air Quality must justify how the groundbreaking statewide air pollution advance of the last decade has been side-stepped by Duke Energy Progress at this time in this place.

Duke Energy Progress Plays Pollution Shell Game

The Richmond County plant has three natural gas fired heaters (ES-21, ES-22 and ES-23) with a heat input of 8.75 MMBtu/hr each. In their permit application submitted in 2008, three additional natural gas fired heaters (ES-16, ES-17 and ES-18) with a heat rating of 5.0 MMBtu/hr were to be added to the permit. However, Duke requested that the DAQ remove all six of these natural gas fired units from their permit. These heaters are located within the fence line of the Richmond County facility but owned and operated by Piedmont Natural Gas.

The federal Clean Air Act Title V operating permit program requires that major industrial sources and certain other sources obtain a permit that consolidates all of the applicable requirements for a facility into one document. The Richmond County Energy Complex is a single site with co-located air pollution emission sources. The purpose of title V permits is to reduce violations of air pollution laws and improve enforcement of those laws. The DAQ should not allow the six combustions sources to be separated from the existing permit.

Permit Incorrectly Delays Hazardous Air Pollutant Controls

Combustion turbines ES-13 and ES-14 are classified as new stationary sources for the purpose of MACT (maximum achievable control technology). Any new or reconstructed unit which is a *lean premix oil-fired stationary combustion turbine* commencing operation after March 5, 2004 must comply with the emissions and operating limits in 40 CFR § 63.6095(a)(2). In the draft permit, these units are permitted to burn fuel oil up to 1000 hours per year and natural gas up to 2000 hours per year. Notwithstanding the US EPA stay of standards which applies to *lean premix gas-fired stationary combustion turbines*, as referenced in the Divisions Air Permit Review, these two units must meet the standards of 40 CFR § 63 including MACT.³ In lean-premix combustors the fuel is mixed before entering the power producing combustion chamber. The purpose of Subpart YYY of this rule is to limit hazardous air pollutants from stationary combustion turbines located at major sources of HAP emissions, and requirements to demonstrate initial and continuous compliance with the emission and operating limitations. The draft permit would allow excessive emissions of toxic air pollutants. We request a public hearing on the draft permit be held, at which time we will present detailed analyses of the impacts on public health.

Conclusion

In summary, the draft permit would allow excessive emissions of toxic air pollutants which would have a negative impact on public health. We recommend that the Division reject this permit and begin anew. Further, on behalf of our members in Richmond County and North

³ 40 CFR 63, Subpart YYY - National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines

Carolina, we request that a public hearing on the draft permit be held, at which time we will present further, detailed analyses of the impacts on public health.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Louis A. Zeller", with a horizontal line extending to the right.

Louis A. Zeller

Executive Director

Blue Ridge Environmental Defense League

PO Box 88 Glendale Springs, NC 28629

(336) 982-2691

BREDL@skybest.com

CC: Mike Gordon
Jeff Twisdale



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

September 25, 2015

Mr. Louis A. Zeller
Executive Director
Blue Ridge Environmental Defense League
PO Box 88
Glendale Springs, North Carolina 28629

Dear Mr. Zeller:

The U.S. Environmental Protection Agency Region 4 has received your letter, dated September 17, 2015, inquiring about the status of the EPA's response to your petition of Duke Energy Progress' Richmond County Combustion Turbine Facility title V significant permit revision (#08759T17), which was subsequently issued by the North Carolina Department of Environment and Natural Resources (NCDENR) on July 18, 2014. The petition was submitted on behalf of Concerned Citizens of Richmond County and Blue Ridge Environmental Defense League and was received by the EPA on September 17, 2014. The petition currently remains in EPA's queue for a response from the Administrator due to agency workload. The EPA has forwarded your Freedom of Information Act (FOIA) request to EPA's FOIA office and, in the interim, is providing the enclosed responsive documents related to EPA's review of proposed permit revision #08759T17 during the 45-day EPA review period required under Clean Air Act § 505.

The EPA appreciates your interest in air quality issues in the State of North Carolina. If you have additional questions or comments, please contact Terry Johnson of the EPA Region 4 staff at (404) 562-8950. Thank you.

Sincerely,

A handwritten signature in black ink that reads "Beverly H. Banister".

Beverly H. Banister
Director
Air, Pesticides and Toxics Management Division

cc: Sheila Holman, NCDENR

Enclosures (3)