

**BEFORE THE ADMINISTRATOR  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

In the matter of a  
Part 70 Air Quality Operating Permit  
Issued by North Carolina Department  
of Environment and Natural Resources  
To Piedmont Natural Gas, Inc.  
Wadesboro Compressor Station  
Facility ID: 0400056  
Wadesboro, NC, Anson County  
Permit No. 10097T01

October 3, 2014

**THE BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE'S PETITION  
TO THE ENVIRONMENTAL PROTECTION AGENCY  
TO OBJECT TO THE TITLE V AIR QUALITY PERMIT  
ISSUED TO PIEDMONT NATURAL GAS  
WADESBORO COMPRESSOR STATION**

Pursuant to Title 42 U.S.C. § 7661D(b)(2) and on behalf of Pee Dee Water Air Land and Lives (öPD-WALLö) and the Blue Ridge Environmental Defense League (öBREDLö) (öPetitionersö), we hereby petition the United States Environmental Protection Agency to object to the issuance of the Title V Permit No. 10097T01 (öPermitö) issued by the North Carolina Department of Environment and Natural Resources Division of Air Quality (öDAQö) to the Wadesboro Compressor Station operated by Piedmont Natural Gas.

In brief, DAQ permit suffers from fatal flaws which would result in excessive air pollution levels and would place a disproportionate burden on low income and minority populations.

**Background**

The Piedmont Natural Gas compressor station is located at 259 Pleasant Grove Church Road in Wadesboro, North Carolina. Power for the compressor is provided by eight four-stroke lean-burn natural gas-fired reciprocating internal combustion Caterpillar G3616 gas engines, each rated at 4,735 horsepower and equipped with catalytic oxidizers. Also, there is one four-stroke lean-burn natural gas-fired emergency generator rated at 880 horsepower.

**Basis for Objection to the Permit**

The permit as issued by the State of North Carolina is not in compliance with applicable requirements of the federal Clean Air Act and implementing regulations. Federal regulations at 40 CFR §70.8(c)(1) require the EPA to object to a proposed permit if it is not in compliance with the requirements of the relevant part. Further, failure of the permitting authority to meet procedural requirements for public participation under

§70.7(h) constitute sufficient grounds for EPA to object to a proposed permit. Requests from the affected community for a public hearing were not granted by DAQ.

The Petition requests that the EPA Administrator object to the permit. Petition is submitted this day October 3, 2014, 60 days after the close of the EPA comment period which ended on August 4, 2014. Petition is based on issues raised with reasonable specificity during the DAQ public comment period; principally, comments submitted by Petitioners on July 18, 2014.<sup>1</sup>

### Permitting Agency's Basis for Pollution Levels Underestimates Impacts

The DAQ's air permit review grossly underestimates the potential nitrogen oxide, carbon monoxide, volatile organic compounds and formaldehyde levels emitted by the facility. The permit review lists the following facility-wide emission rates:

Pollutant	Emission rate tons/year
Particulates (2.5, 10 and total)	12.46
SO <sub>2</sub>	0.73
NO <sub>x</sub>	183.86
VOC	35.05
CO	21.98
CO <sub>2</sub> e	203,824.65
HAP total	12.51
HAP formaldehyde	8.78

The DAQ air permit review states that emission rates for NO<sub>x</sub>, VOC, CO and formaldehyde were provided by the engine supplier. (Other emission rates were derived from US EPA's AP-42 section 3.2.) For example, the DAQ review states that the emission factor for NO<sub>x</sub> used as a basis for the permit was 5.00e-01 g/hp-hr, or 0.5 grams/horsepower-hour. Use of this figure yields the NO<sub>x</sub> level listed in the table above. However, Petitioners' review of the technical data sheet for the Caterpillar G3616 gas engine indicates a higher emission rate of 0.7 g/hp-hr.<sup>2</sup> Using this figure, facility-wide emissions of NO<sub>x</sub> are 255 tons per year, or 40% higher. This information was provided to the DAQ by Petitioners during the public comment period.

Further, the lean-burn engine employed by Piedmont Natural Gas at the Wadesboro facility would have wide variations in nitrogen oxide (NO<sub>x</sub>) and carbon monoxide (CO) emissions depending on the load placed on the engines. US EPA emission factors for this type of engine (presented in pounds/million BTU heat input) indicate the following:

Pollutant	90-105% Load	<90% Load	Difference
NO <sub>x</sub>	4.08	0.847	482%
CO	0.317	0.557	76%

<sup>1</sup> Letter from Louis A. Zeller to Kevin Godwin, NC Division of Air Quality, July 18, 2014

<sup>2</sup> Caterpillar, G3616 gas engine, technical data, <http://pdf.cat.com/cda/files/2842978/7/LEHE0326FM-00.pdf>

The differences indicated above are, of course, in opposite directions; i.e., NO<sub>x</sub> levels are higher at about 100% load and CO levels are higher when the load is below 90%. Products of incomplete combustion (PICs) caused by rich-burning or lean-burning are known to include carbon monoxide and aldehydes. Changes in operating conditions explain the variations in air pollution emissions. The EPA's AP-42 states:

It should be emphasized that the actual emissions may vary considerably from the published emission factors due to variations in the engine operating conditions. This variation is due to engines operating at different conditions, including air-to-fuel ratio, ignition timing, torque, speed, ambient temperature, humidity, and other factors. It is not unusual to test emissions from two identical engines in the same plant, operated by the same personnel, using the same fuel, and have the test results show significantly different emissions. This variability in the test data is evidenced in the high relative standard deviation reported in the data set.<sup>3</sup>

Pollutant emissions vary with load conditions. Engine efficiency is less when the engine is operating at full throttle (effective compression ratio is lower because the incoming fuel-air mixture cannot fill the combustion chamber as well). Lean-burn technologies are associated with increased carbon monoxide emissions.<sup>4</sup> Catalytic oxidizers may reduce CO from lean-burn internal combustion engines by converting it to carbon dioxide, CO<sub>2</sub>; however, they do not reduce nitrogen oxides.

Even the engine manufacturer warns against the reliance on its technical data for regulatory compliance:

The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.<sup>5</sup>

The DAQ's permit as issued does not include adequate monitoring, recordkeeping and reporting requirements to ensure that the Piedmont Natural Gas Wadesboro Compressor Station will comply with NAAQS and the state implementation plan for NO<sub>x</sub>, CO formaldehyde and other pollutants.

### **Opacity Compliance Lacks Sufficient Basis**

The DAQ's Permit has insufficient basis for determining compliance with NAAQS opacity standards. The DAQ Air Permit Review states: "As stated in the inspection report, typical opacities for these engine exhausts is zero." The facility inspection cited

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<sup>3</sup> US EPA AP-42, Stationary Internal Combustion Sources, Section 3.2.3 Emissions, page 3.2-3

<sup>4</sup> AP-42, Stationary Internal Combustion Sources, Section 3.2.4.2 Control Techniques for Lean-burn Reciprocating Engines, page 3.2-5

<sup>5</sup>[http://pdf.cat.com/cda/files/2195869/7/3512B%201750%20kVA%20Standby%20HD%20LowEmiss\\_EU\\_EMCP4.pdf](http://pdf.cat.com/cda/files/2195869/7/3512B%201750%20kVA%20Standby%20HD%20LowEmiss_EU_EMCP4.pdf), Caterpillar technical data sheet for emergency diesel generator set

in the permit review occurred on April 22, 2014; however, at the time of inspection the inspector noted that the facility was not in operation. Petitioners raised this issue with the DAQ, stating that a non-specific review of a typical facility is insufficient when the matter at hand is a specific facility at a specific location. Therefore, the premise of the draft permit for compliance with the 20% opacity standard has no basis. Petitioner submits that this failure provides additional grounds for EPA to object to the Permit.

### **Environmental Justice Analysis Lacking**

The compressor station site is located in a county with a majority of African American residents and a high level of people below poverty level. The latest census data reveal Anson County is 48.5% black, 48.2% white. In Anson County 22.2% of the people are below poverty level, compared to the statewide level of 16.8%.<sup>6</sup> A study led by a researcher at Duke University's Nicholas School of the Environment using air quality data compiled by the American Lung Association and the EPA found significant relationships between race, poverty and excessive levels of air pollution. It concludes:

Focusing on PM2.5 and ozone, we find that within areas covered by the monitoring networks, non-Hispanic blacks are consistently overrepresented in communities with the poorest air quality. The results for older and younger age as well as poverty vary by the pollution metric under consideration. Rural areas are typically outside the bounds of air quality monitoring networks leaving large segments of the population without information about their ambient air quality. These results suggest that substantial areas of the United States lack monitoring data, and among areas where monitoring data are available, low income and minority communities tend to experience higher ambient pollution levels.<sup>7</sup>

This study provides an indicator of elevated risk to public health in Anson County, particularly in Wadesboro which, in addition to being the site of a Piedmont Natural Gas compressor station, is the location of several other significant sources of air pollution including Triangle Brick Company, Valley Proteins and Carolina By-Products. Also, Piedmont Natural Gas is a natural gas supply company with more than a million residential and business customers and their pipeline crosses Anson County. However, DAQ has not complied with its environmental justice obligations under the state's Administrative Procedure Act. See *Washington County v. U.S. Dep't of the Navy*.<sup>8</sup> North Carolina law and permit review procedures require the evaluation of the cumulative or secondary impacts.<sup>9</sup> A national survey of environmental justice policy performed by the University of California at Hastings states:

NC DENR's permit review procedures require the evaluation of the cumulative and/or secondary impact information as part of the State Environmental

<sup>6</sup> US Census Bureau Quick Facts, Anson County, <http://quickfacts.census.gov/qfd/states/37/37007.html>

<sup>7</sup> "Making the Environmental Justice Grade: The Relative Burden of Air Pollution Exposure in the United States," Miranda ML *et al*, *Int. J. Environ. Res. Public Health* 2011, 8, 1755-1771, 25 May 2011

<sup>8</sup> 317 F.Supp.2d 626 (E.D.N.C. 2004)

<sup>9</sup> North Carolina Environmental Policy Act of 1971, Chapter 113A, §§ 113A-1, *et. seq*

Protection Act or environmental permit process. While not specifically targeting EJ populations, the cumulative impacts assessment has implications for achieving EJ for disproportionately affected communities by recognizing that while an individual permitting decision may not have an adverse effect on the local community, the cumulative effects of permitting decisions, over time, may result in environmental hazards.<sup>10</sup>

In view of the cumulative impacts of the pollution sources previously permitted by DAQ cited *supra*, the additional pollution burden imposed by the Permit in question and the historic patterns of negative impacts of pollution in at-risk communities, the DAQ should have performed an environmental justice analysis. The Hastings survey continues:

Moreover, examining the potential secondary impacts of a project requires permitting authorities to take a forward-looking view of the consequences of a present permitting decision. For example, secondary impacts may be of concern when building a new reservoir which can lead to requirements for new drinking water treatment plants, wastewater treatment facilities, condemnation of privately owned lands, and other infrastructure requirements, all which may create significant environmental impacts. In some cases, these secondary and cumulative impacts can then be responsible for increased air pollution, sedimentation, non-point-source pollution, degraded water quality, and loss of natural resources.<sup>11</sup>

Citations omitted. The EPA's responsibility to review state permits for EJ compliance was stated clearly in a 2011 memorandum to Regional EPA Administrators which urged each EPA region to fully analyze the health, social and economic effects on minority and low income communities in its own work as well as our review of other agencies' NEPA documents pursuant to the Clean Air Act Section 309, which authorizes EPA to review environmental actions and to make these reviews public.<sup>12</sup>

Based upon the presence of a natural gas compressor station, the pipeline, other existing pollution sources, the decision by the state legislature to allow natural gas extraction hydrofracking and the failure of the DAQ to consider the cumulative impacts, the EPA should compel the state agency to do a review of cumulative and secondary impacts with an emphasis on the disproportionately affected communities in Anson County. Petitioners hereby appeal to the EPA to object to the permit and require a cumulative impact environmental justice analysis to be performed.

<sup>10</sup> *Environmental Justice for All*, 4<sup>th</sup> Edition, University of California Hastings, College of the Law, Public Law Research Institute, North Carolina, Feb. 15, 2010

<sup>11</sup> *Id.*

<sup>12</sup> Memorandum from EPA Assistant Administrator for Enforcement and Compliance Assurance Cynthia Giles to Regional Administrators re environmental justice reviews pursuant to NEPA and Clean Air Act Section 309, 42 U.S.C. §760, April 19, 2011. Accessed 10/1/14 at <http://www.epa.gov/compliance/resources/policies/nepa/nepa-environmental-justice-memo-pg.pdf>

## Conclusion

As granted by DAQ, the permit for the Piedmont Natural Gas Wadesboro Compressor Station fails to comply with the air quality permitting program under Title V and 40 CFR Part 70. Therefore, Petitioners request that the EPA require the NC Division of Air Quality object to the Permit and require DAQ to:

1. Hold a public hearing in the affected community
2. Properly analyze criteria and hazardous pollutant emissions and opacity
3. Include sufficient permit monitoring and compliance measures
4. Perform a cumulative and secondary impact analysis of environmental justice impacts

In sum, the Permit allows excessive emissions of air pollutants which will have a negative impact on public health. PD WALL and BREDL recommend that the EPA object to this permit.

Thank you for your attention to this matter.

Respectfully submitted,



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