

BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE

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November 4, 2002

Edward L. Martin, P.E.
Division of Air Quality
1641 Mail Service Center
Raleigh, NC 27699-1641

Re: Air Quality Permit No. 01001T28, Roxboro Steam Electric Plant, CP&L
Facility ID: 5/73/00029, 1700 Dunnaway Road, Semora, NC 27343 Person County

Dear Mr. Martin:

On behalf of the Blue Ridge Environmental Defense League, we write to comment on the draft Title V permit for the Roxboro Steam Electric Plant.

Overview

CP&L operates four coal/recycled No. 2 fuel oil-fired electric utility boilers and one No. 2 fuel oil-fired internal combustion turbine at its Roxboro plant in Person County.

Roxboro Plant Fossil Fuel Combustion Units

Unit / construction date	Fuel	Heat input mmBTU/hour	Control devices
Boiler 1 w/low-Nox / 1966	Coal/no. 2 fuel oil (recycled)	4722	SCR + ESP w/SO3 (cold side)
Boiler 2 w/low-Nox / 1968	Coal/no. 2 fuel oil (recycled)	7035	SCR + ESP w/SO3 (cold side)
Boiler 3A w/low-Nox / 1973	Coal/no. 2 fuel oil (recycled)	4261	SCR + ESP w/SO3 (cold side)
Boiler 3B w/low-Nox / 1973	Coal/no. 2 fuel oil (recycled)	4261	SCR + ESP w/SO3 (cold side)
Boiler 4A w/low-Nox / 1980	Coal/no. 2 fuel oil (recycled)	4099	SCR + ESP w/SO3 (hot side)
Boiler 4B w/low-Nox / 1980	Coal/no. 2 fuel oil (recycled)	4099	SCR + ESP w/SO3 (hot side)
Combustion turbine / 1968	No. 2 fuel oil	265	none

The SCR unit on Boiler 1 was installed June 2002. SCRs are listed in the permit but have not been installed on Boiler 2, Boiler 3A, or Boiler 3B. Boilers 4A and 4B, constructed in 1980, are required to meet New Source Performance Standards. Particulates are limited to a maximum of 0.1 pounds/mmBTU and opacity is limited to 20%.

The Division of Air Quality's Initial Title V Air Permit Application Review states: "The DRAFT Title V operating permit replaces an existing Construction and Operation Permit No. 01001R28, issued on July 24, 2001 and scheduled to expire on June 30, 2006. Also, the DRAFT Title V permit will incorporate the Phase II acid rain permit requirements as a combined Title V/Title IV permit and will replace the existing Phase II Acid Rain Permit No. 730029R02, issued by the DAQ on December 29, 2000, and currently scheduled to expire on December 31, 2004."

General Comments

The draft permit contain a reference to a proposed opacity rule for EPA approval under the NC SIP which states, "Upon EPA approval of the North Carolina's proposed opacity rule, as included in 15A NCAC 2D .0521, this requirement will no longer be applicable." (2.1.A.3. 40 CFR 60 SUBPART II: NORTH CAROLINA STATE IMPLEMENTATION PLAN) We would bring to the attention of DAQ an April 4, 2001 memo from EPA Region 4 to the Director of the Forsyth County Environmental Affairs Department which states that the proposed change cannot be approved. EPA wrote, "This proposed change is not approvable because it will unnecessarily limit the County's ability to pursue enforcement actions when the duration of excess emissions during a calendar year is less than 0.8 percent of the source's operating time." The Forsyth local program opacity rule mirrors North Carolina's 2D .0521, and would therefore indicate that EPA approval will not be forthcoming. As detailed below, Carolina Power & Light fossil plants have been out of compliance with opacity limits since 1999. The April 24th letter cites other problems in the NC State Implementation Plan regarding malfunction, startup, and shutdown: "As a result, more excess emission situations are excused from enforcement than anticipated by EPA policy," and excess emissions: "in no event can excess emissions not be considered a violation." **The DAQ must now stipulate and enforce a clear requirement for the lowest possible air pollution limits for Roxboro and all coal-fired power plants in North Carolina.**

Units 1, 2, 3A, and 3B have installed SCR and ESP with SO₃ flue gas conditioning systems. However, the draft permit allows the selective catalytic reduction system and the sulfur trioxide flue gas conditioning system to be operated on an as-needed basis. To allow control devices to be operated intermittently or at less than peak levels is a violation of Emission Control Standards section 15A NCAC 2D .0502, which states: "The purpose of the emission control standards set out in this section is to establish maximum limits on the rate of air contaminants into the atmosphere. All sources shall be provided with the maximum feasible control." (emphasis added). The installation of control devices which are not utilized to provide maximum feasible control would appear to be contrary to the purpose of the state regulations and therefore not in compliance with the SIP.

Specific Comments**Permit Section 2.1 - Specific Limitations and Conditions****Visible Emission Limits-Opacity**

The Roxboro Plant is out of compliance with opacity limits and has been so since 1999 when the utility signed a special order by consent with the Environmental Management Commission. The additional delay in compliance appears to be a continuation of the stalling tactics initiated by the company over three years ago. The DAQ acknowledges the expired SOC and the continuing non-compliance in its Air Permit Application Review which states:

"DAQ and CP&L had executed an SOC (Number AQ 99-004), effective September 28, 1999 for CP&L's electric power generation facilities including the Roxboro Steam Electric Plant (Roxoboro Plant) for not complying with opacity requirements of 2D .0521 ("old" opacity rule) and 2D .0524

(40CFR60 Subpart D). Note that this SOC has expired as of January 1, 2002. The Title V permit will include the provisions under which the compliance with these requirements will be assured.”

DAQ Initial Title V Air Permit Application Review

Although elsewhere the DAQ’s review states that the plant was in compliance at the last inspection of June 18, 2002, the most recent information in the review shows otherwise. Under Applicable Regulatory Requirements the review states:

c. 40 CFR 60 Subpart II North Carolina State Implementation Plan

i. Regulatory Analysis

Visible emissions (except during startups) shall not exceed 40 percent opacity when averaged over a six-minute period for sources established as of July 1, 1971. This is a federal-only requirement.

In accordance with the defunct SOC (AQ 99-004) expired on January 1, 2002, the Permittee has certified the non-compliance with this standard. Per DAQ (Rahul Thaker)'s discussion with CP&L (Earl Enzor) on 8/28/02, the permittee will not be able to show compliance with this requirement at this time. Hence the permit will include the compliance schedule as required per 40CFR70.5(c)(8)(C).

ii. Monitoring/Recordkeeping/Reporting Requirements

No monitoring/recordkeeping/reporting is required for visible emissions from these boilers to assure compliance with the this regulation.

DAQ Initial Title V Air Permit Application Review

The Roxboro Plant is out of compliance with opacity limits. But the draft permit has no compliance schedule, and no monitoring, recordkeeping, or reporting requirements. Instead, it attempts to sidestep the compliance requirement with a vague statement of non-compliance and no schedule whatsoever. The draft permit states:

a. Visible emissions from these sources shall not be more than 40 percent opacity (except during startups) when averaged over a six-minute period except that six-minute periods averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period. [40 CFR 52 Subpart II]

The Permittee is currently in noncompliance with the requirement of Section 2.1 A. 3. a. above. These sources are subject to the following compliance schedule.

Compliance Schedule

Upon EPA approval of the North Carolina's proposed opacity rule, as included in 15A NCAC 2D .0521, this requirement will no longer be applicable.

The DAQ cannot grant the Title V permit and leave compliance with regulations in limbo; the agency may not permit a continuing violation.

Finally, under North Carolina visible emission regulations (15A NCAC 2D .0521), sources manufactured after 1971 must comply with a 20% opacity limit. This regulation is part of the state implementation plan (SIP) and is federally enforceable. The draft permit incorrectly allows boilers 3A and 3B, both constructed in 1973, to exceed the 20% opacity limit.

Prevention of Significant Deterioration

Subsequent to comments submitted by BREDL at the April 18, 2000 public hearing for CP&L's Lee Plant, the EMC's hearing officer recommended that permits prohibit the use of ESP voltage control software, known as current trimming, in a non-dynamic mode. Subsequent DAQ memos reflect the recommendation that Energy Management Systems be limited to dynamic mode only, and the draft permit stipulates this requirement. However, the permit fails to include any monitoring, recordkeeping, or reporting to assure compliance with this requirement. Commercially available energy management system software would allow data recording for the purpose of compliance assurance. For example, BHA Technologies lists the following device for ESP current trimming on its website:

Want reduced power consumption?

The on-board Energy Management system keeps opacity below a pre-set limit, using the least amount of power possible. BHA customers have achieved up to 40 to 60% decreases in precipitator power usage, with energy savings of over \$2000 a day.

Need advanced technology?

The SQ-300 AVC enables you to take advantage of Best Available Control Technology to keep you ahead of regulatory requirements. Remote Diagnostics, Back Corona detection and control, automatic waveform analysis, seamless DCS and data archive interfaces, sophisticated data acquisition and trending, and a host of other features can be yours with the world's leading Automatic Voltage Control.

<http://www.bha.com/products/espprod/sq300-05.htm>

DAQ's permit review acknowledges the regulatory problems of non-compliance, stating:

“The Standard Mode (static or non-dynamic mode) will not be allowed without a permit revision because such operation would not necessarily meet the definition of “maximum feasible control” under 2D .0502 and would raise concerns regarding possible NSR/PSD violations.”

40CFR51.166(j) requires all major sources to meet all emission standards.

(j) *Control technology review.* The plan shall provide that:

(1) A major stationary source or major modification shall meet each applicable emissions limitation under the State Implementation Plan and each applicable emission standards and standard of performance under 40 CFR parts 60 and 61.

40 CFR 51.166(m) provides that a SIP shall contain analysis based on monitoring data to ensure compliance with NAAQS.

(ii) The plan shall provide that, with respect to any such pollutant for which no National Ambient Air Quality Standard exists, the analysis shall contain such air quality monitoring data as the reviewing authority determines is necessary to assess ambient air quality for that pollutant in any area that the emissions of that pollutant would affect.

(iii) The plan shall provide that with respect to any such pollutant (other than nonmethane hydrocarbons) for which such a standard does exist, the analysis shall contain continuous air quality monitoring data gathered for purposes of determining whether emissions of that pollutant would cause or contribute to a violation of the standard or any maximum allowable increase.

Compliance assurance monitoring provisions of 40 CFR Part 64 require the operator to “provide a reasonable assurance of compliance with emission limitations or standards for the anticipated range of

operations....” [40CFR64.3(a)]. The operator must “design the monitoring to obtain data for one or more indicators of emission control performance....” [40CFR64.3(a)(1)]. Further, the operator “must document that no changes to the pollutant-specific emissions unit...have taken place that could result in a significant change in the control system performance....” [40CFR64.4(c)(2)]

As a practical matter, the Title V permit must include monitoring, recordkeeping, and reporting provisions regarding Energy Management Systems to allow EPA, DAQ, and the public to know if the Roxboro Plant is in compliance.

NC Toxic Air Pollutants-State Enforceable Only

The Roxboro Plant is permitted to burn waste oils, solvents, and anti-freeze including hydraulic fluid, metal working fluid, insulating fluid, acetone, methanol, methyl ethyl ketone, toluene, varsol, xylene, and ethylene glycol.

Emissions of 105 toxic air pollutants are limited under state-only regulations (15A NCAC 2Q. .0711 and 2D .1100), but in 1998 a loophole in the state rule was created for certain combustion sources. The TAP exemption for utility boilers applied to sources burning only unadulterated fossil fuel. As stated in the draft permit, Boilers 1, 2, 3A, and 3B may burn recycled No. 2 fuel oil. Therefore, the toxic air pollutant limits should apply to these sources and the TAP limits should be enforced whenever the units are operating.

Moreover, the NC TAP exemption was carved out based on the premise that the federal MACT for control of 188 hazardous air pollutants at these sources would be implemented making the state rule unnecessary.

In June 2001 the Clean Air Act Advisory Committee issued a work plan for the development of a MACT for electric generating units. The hazardous air pollutant of principal concern was mercury; HAPs of secondary concern included nickel and other emissions caused by the combustion of coal. However, the MACT is several years from implementation. The advisory committee stated:

“On December 14, 2000 (65 FR 79825; December 20, 2000), the EPA announced that regulation of HAP emissions from oil- and coal-fired electric utility steam generating units was necessary and appropriate. Under an existing settlement agreement, such regulations must be proposed by December 15, 2003 and promulgated by December 15, 2004. At the June 2000 public meeting noted above, the EPA indicated a desire to keep the regulatory process open and to include all stakeholders involved. After discussion with the various stakeholder groups, it has been decided that the most effective means of ensuring that inclusion would be to form a working group under the existing Permits, New Source Reviews, and Toxics Subcommittee.”

The Electric Utility Steam Generating Units MACT Rulemaking Working Group, June 2001
http://www.epa.gov/ttn/atw/combust/utiltox/draft_charge_process.pdf.

The U.S. Department of Energy is researching more efficient methods of removing mercury from the flue gas of electric generating units. A fact sheet for the research project states:

Environmental control agencies and researchers have become increasingly concerned with the mobilization of trace elements to the environment from fossil fuel burning. Mercury is the trace element of particular concern since, during coal combustion, most of the mercury present in coal is transferred into the vapor phase due to its high volatility. There is considerable evidence in the literature that currently used pollution abatement technologies (flue gas desulfurization, control of NOx and SOx emissions, and particulate control devices) are not capable of controlling gas phase mercury emissions.

Once discharged to the atmosphere, mercury persists in the environment and creates a long term contamination problem. Furthermore, well documented food chain transport and bioaccumulation of mercury, together with high toxicity to mammals and severe health problems caused by the ingestion of mercury even at low levels, require strict control of mercury emissions from coal-fired power plants.

US DOE Office of Fossil Energy
<http://dominoweb.fossil.energy.gov/domino/apps/fred/fred.nsf>

The Roxboro Plant is consistently among the top emitters of toxics to the atmosphere. EPA Toxic Release Inventory data for 1999 reports **Roxboro is the electric facility with the largest total on-site and off-site releases in the nation**; TRI data for 2000 shows Roxboro as the dirtiest facility in North Carolina, with more toxic air emissions than paper mills, chemical plants, or any other source. Roxboro's toxic air pollution totals in 1999 and 2000 were over 19 million pounds per year.

As yet, no MACT has been issued by EPA, scheduled implementation is years away, and further delays can be expected. Also, existing technologies appear to be ineffective at controlling mercury and other hazardous air pollutants. **Therefore, we hereby request that no Title V permits be granted until the NC Environmental Management Commission revokes the state exemption for industrial boilers from toxic air pollutants regulations.**

Nitrogen Oxides

The DAQ Initial Title V Air Permit Application Review states: "After November 1, 2000 but before the EPA promulgation of revisions to 40 CFR Part 51, Subpart G, revising the nitrogen oxide budget for North Carolina, the following limits apply [15A NCAC 2D .1416(a)]."

Total NOx emissions from all Carolina Power & Light Company's facilities (Asheville, Cape Fear, Lee, Mayo, Roxboro, Sutton, and Weatherspoon) may not exceed:

- 12,019 tons per ozone season for 2004 (no change after promulgation of 40CFR51G)
- 15,566 tons per ozone season for 2005 (15,024 tons after promulgation of 40CFR51G)
- 14,355 tons per ozone season for 2006 (11,320 tons after promulgation of 40CFR51G)

After 2006 NOx limits continue unless revised.

Roxboro Plant Maximum NOx Emissions May 1 to September 30

Boiler	2004	2005	2006
1	861	1076	811
2	1602	2003	1509
3	1773	2215	1669
4	1698	2199	2028

Insignificant Activities

The draft permit lists 36 sources of hazardous air pollutants as “insignificant” under 2Q .0503(8): No. 2 fuel oil tank - 100,000 gallons; No. 2 fuel oil tank - 500,000 gallons; Lube oil storage tank - 8,000 gallons (U1 turbine lube oil); Lube oil storage tank - 8,000 gallons (U2 turbine lube oil); Two lube oil storage tanks - 9,000 gallons each (U3&4 turbine lube oil); Bulk lube oil tank - 7,500 gallons (U1&2); Batch lube oil tank - 12,000 gallons (U1&2); Batch lube oil tank - 15,000 gallons (U3&4); Gasoline tank - 1,500 gallons (A Whse); Two kerosene tanks - 250 gallons each (FH); Kerosene tank - 280 gallons (IC turb.); Two kerosene tanks - 1,000 gallons each (IC turb.\U3&4 oh); Ethylene glycol tank - 6,000 gallons; Diesel tank - 250 gallons (IC turb.); Diesel tank - 1,000 gallons(transash); Diesel tank - 2,000 gallons (transash); Ethylene glycol tank - 265 gallons; Hydraulic oil storage tank - 500 gallons (fh); Engine oil storage tank - 500 gallons (fh); 30 nos. assorted lube oil storage tanks - 55 to 265 gallons each; Used oil (waste separator) tank, 500 gallons; Used oil portable tank, 350 gallons; Two used oil portable tanks, 1,000 gallons each; Two used oil portable tanks, 300 gallons each (transash); Fuel oil storage day tank, 280 gallons (emergency fire pump); IC turbine lube oil reservoir - 1,800 gallons; Sulfuric acid storage tank - 6,000 gallons; Sodium hydroxide storage tank - 6,000 gallons; Vacuum cleaner outside near the dry flyash silos; Four cooling towers (do not use chromate chemicals); 287 hp emergency fire pump; Two propane engines at the afterbay, 381,750 btu/hr (34 kW) assuming 30 percent efficiency; IC turbine starting diesel generator, 1,018,000 btu/hr (90 kW) assuming 30 percent efficiency; Emergency diesel fire pump at intake, 730,415 btu/hr (64 kW) assuming 30 percent efficiency; IC turbine starting diesel generator, 610,800 btu/hr (54 kW) assuming 30 percent efficiency; and fugitive emissions from coal handling/storage, plant parking lots, paved roads, unpaved roads, coal pile and ash handling.

On April 13, 2000, the Environmental Protection Agency issued a notice (65 FR 19891) for emissions reductions of hazardous air pollutants (e.g., benzene, toluene, xylene and ethyl benzene) in storage tanks larger than 40,000 gallons constructed or modified after May 18, 1978 (40 CFR 60.110a) and storage tanks with a capacity of greater than 40 cubic meters that were constructed or modified after July 23, 1984 (40 CFR 60.110b). The notice states that uncontrolled emissions from slotted guidepoles in such tanks can exceed 25,000 pounds per year. The DAQ should determine if this or other reductions may be had at the Roxboro Plant.

Even though some or most of the insignificant sources may be exempted under the applicable regulations, **the DAQ should make an assessment of the aggregate effect of these sources due to the large number of sources and the individual and synergistic effects of toxic air pollutants on downwind residents’ and workers’ health.**

We plan to submit further remarks before the close of the public comment period.

Respectfully submitted,

Louis Zeller
Clean Air Campaign Coordinator

Janet Marsh Zeller
Executive Director