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October 12, 2021

Via eComments
Environmental Quality Board
P.O. Box 8477
Harrisburg, PA 17105-8477

Subject: Proposed Rulemaking – Additional RACT Requirements for Major Sources of NO_x and VOCs for the 2015 Ozone NAAQS (51 Pa.B. 4333, Saturday, August 7, 2021)

Introduction

The Appalachian Region Independent Power Producers Association ("ARIPPA"), on behalf of its member companies, hereby provides comment on the subject proposal to amend Chapters 121 and 129 (relating to general provisions; and standards for sources) by adopting additional presumptive reasonably available control technology (RACT) requirements and RACT emission limitations for certain major stationary sources of oxides of nitrogen (NO_x) and volatile organic compound (VOC) emissions in existence on or before August 3, 2018, to address the 2015 8-hour ozone National Ambient Air Quality Standards (NAAQS). This proposed rulemaking would establish §§ 129.111—129.115 (relating to additional RACT requirements for major sources of NO_x and VOCs for the 2015 ozone NAAQS) to meet Clean Air Act (CAA) requirements. Emissions of NO_x and VOCs are precursors for ground-level ozone formation. RACT is defined as the lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.

The Environmental Protection Agency (EPA) is responsible for establishing NAAQS, or maximum allowable concentrations in the ambient air, for six criteria pollutants considered harmful to public health and welfare, including the environment: ground-level ozone; particulate matter; NO_x; carbon monoxide; sulfur dioxide; and lead. The EPA establishes primary and secondary ground-level ozone NAAQS to protect public health and welfare. Section 110(a) of the CAA gives states the primary responsibility for achieving the NAAQS and provides that each state shall adopt and submit to the EPA a plan to implement measures, or a State Implementation Plan (SIP), to enforce the NAAQS or a revision to the NAAQS promulgated under section 109(b) of the CAA. A SIP includes the regulatory programs, actions and commitments a state will carry out to implement its responsibilities under the CAA. Once approved by the EPA, a SIP is legally enforceable under both federal and state law.

Pennsylvania's RACT regulations under §§ 129.96—129.100 (relating to additional RACT requirements for major sources of NO_x and VOCs) were implemented in April 2016 for the 1997

and 2008 8-hour ozone standards. On October 26, 2015, the EPA lowered the primary and secondary 8-hour ozone standards from 0.075 parts per million (ppm) to 0.070 ppm. According to the Pennsylvania Department of Environmental Protection (Department), a generic RACT analysis was conducted to determine if additional controls would represent RACT for the 2015 8-hour ozone NAAQS.

After conducting this analysis, the Department determined the RACT for each source category. Based on this analysis, the Environmental Quality Board (EQB) has determined that additional cost-effective controls represent RACT for the 2015 8-hour ozone NAAQS. There are ten existing source categories that would be affected by this proposed rulemaking, which include circulating fluidized bed (CFB) combustion units firing waste products of coal mining (i.e. coal refuse or waste coal). ARIPPA's comments will focus on § 129.112 (Presumptive RACT requirements, RACT emission limitations and petition for alternative compliance schedule) as it relates to the presumptive RACT emissions limitations for CFB boilers firing primarily bituminous waste such as gob or anthracite waste such as culm and § 129.115 (Written notification, compliance demonstration and recordkeeping and reporting requirements) as it relates to these facilities demonstrating compliance with the applicable RACT emission limitation using a daily average.

ARIPPA appreciates the EQB's recognition of this industry by providing a presumptive NO_x emissions limit for CFB boilers primarily firing coal refuse. Unfortunately, while the proposed NO_x emission rate may be reasonable over a longer averaging basis, it is not consistently achievable as proposed based upon the daily averaging requirement. This period is too short to account for unavoidable fluctuations in NO_x emissions. This includes emissions during boiler startup or periods of low load operations where reduced heat input affects NO_x emissions rates and thereby creates RACT compliance issues despite low total NO_x emissions. No additional control technology is reasonably available considering technological and economic feasibility to allow these facilities to consistently reach this standard on a daily averaging basis.

ARIPPA supports the EQB's goal "that this proposed rulemaking would fulfill requirements for re-evaluation and be less resource intensive than imposing case-by-case analysis for affected facilities in the covered categories." However, the proposed rule does not achieve that goal as it relates to CFB boilers primarily firing coal refuse. Accordingly, in general, ARIPPA supports the proposed rule providing permitted facilities a compliance option whereby a CFB source that cannot meet the presumptive RACT emission limitations and requirements under proposed § 129.112 may apply for a facility-wide or system-wide NO_x emissions averaging plan under proposed § 129.113 or an alternative case-by-case RACT determination under proposed § 129.114. As currently proposed, a majority of the coal refuse-fired CFB boilers would likely be required to pursue a case-by-case RACT analysis as they cannot consistently achieve the proposed presumptive NO_x RACT limit on a daily average basis.

Background

Organized in 1989, ARIPPA is a nonprofit trade association based in Camp Hill, Pennsylvania, comprised of independent electric power producers, environmental remediators, and service providers that remediate polluting coal refuse piles often located on abandoned mine land to produce alternative energy. The association represents 10 unique environmentally beneficial coal refuse reclamation to energy facilities located in Pennsylvania that utilize CFB boiler technology to convert coal refuse into highly alkaline beneficial use ash utilized in the mine land reclamation. This process uses coal refuse as a primary fuel to generate electricity which is sold through the wholesale energy market operated by the PJM regional transmission organization (RTO) to provide private funding for mine land reclamation.

Today, the are a total of 13 CFB plants that convert coal mining waste into alternative energy in Pennsylvania, West Virginia, Montana, and Utah; however, 10 of the 13 alternative energy plants are located in Pennsylvania. Most of the ARIPPA member plants were originally constructed as Qualifying Facilities (QFs), subject to size restrictions pursuant to the Public Utility Regulatory Policy Act (PURPA). As a result, these facilities are relatively small in size, with all but one facility between 33 to 112 megawatts (MW) net operating capacity and a combined generation capacity just under 1,200 MW.

ARIPPA facilities provide a unique environmental benefit by utilizing state-of-the-art CFB technology to convert coal refuse into alternative energy. The industry achieves both economic and environmental benefits through a complete "fuel cycle," utilizing coal refuse to produce and sell energy, and producing "beneficial use ash" as part of the energy generation process, which is then used to remediate and reclaim mining-affected lands. This approach produces documented environmental restoration benefits, produces economic activity and employment across the fuel cycle, and addresses coal refuse piles without the need for costly landfills or other disposal methods.

These plants play a critical role in the environmental remediation of coal regions where they are located by removing coal refuse piles, remediating and reclaiming mining affected lands and reducing or even eliminating surface and groundwater pollution caused by acid mine drainage (AMD) from coal refuse piles. By converting coal refuse into alternative energy, ARIPPA members are removing one of the principal sources of contamination to surface water and groundwater in coal mining regions of Pennsylvania. In addition, ARIPPA plants work closely with state and federal environmental agency officials, various local watershed groups, and environmental groups such as Earth Conservancy, Foundation for Pennsylvania Watersheds, Western Pennsylvania Coalition for Abandoned Mine Reclamation (WPCAMR), and Eastern Pennsylvania Coalition for Abandoned Mine Reclamation (EPCAMR), to reclaim abandoned mine lands and convert polluted streams into clean and usable waterways.

As the Commonwealth's energy priorities continue to shift away from traditional fossil-fuel sources, we must deal with the legacy from historic mining operations that powered our country during the previous century. Coal mining companies continue to struggle and close, many in bankruptcy, while

funds available for reclamation regularly prove insufficient to adequately reclaim former mining sites. The coal refuse reclamation to energy industry is a market-based, alternative energy solution to this problem that if preserved can save the state over $5 billion in environmental remediation costs.

The coal refuse reclamation to alternative energy industry has collectively removed over 230 million tons of polluting coal refuse and converted it into a viable fuel to be used to produce alternative energy. Based upon a 2019 study by Econsult Solutions, since the late 1980s these facilities that comprise the mine land reclamation to energy industry have removed at least 230 million tons of waste coal and remediated over 7,200 acres of land thereby improving more than 1,200 miles of Pennsylvania waterways. However, according to the Department's own estimates, there remains at least 220 million tons of polluting waste coal located on more than 770 identified sites covering 8,300 acres. By removing and converting coal refuse into alternative energy, ARIPPA plants are remediating one of the major sources of contamination to surface water and groundwater in coal mining regions of the United States. As a result, surrounding communities, lands, and streams have experienced vast environmental and economic improvements.

At full capacity, this industry can remove about 10 million tons of coal refuse from the environment and reclaim approximately 200 acres of mining affected land in Pennsylvania each year. The reclamation work by these facilities provides $37 million per year in environmental and public use benefits while saving the state up to $267 million annually in avoided environmental cleanup costs according to the 2019 study by Econsult Solutions. When considering the limited federal dollars available for reclamation and remediation of mining affected lands, and the magnitude of coal mining's legacy in Pennsylvania, ARIPPA facilities utilize coal refuse from historic mining activities that will otherwise remain in communities throughout the Commonwealth producing acid mine water discharges to surface waters and groundwater and prevent uncontrolled air pollution caused by fugitive coal dust and coal refuse pile fires. The industry provides an option for removing coal refuse piles from the environment without shifting the full significant cost to public resources, thereby reducing the cost on Pennsylvania taxpayers. Should that option become unavailable, the entire cost for removal and remediation would fall on Pennsylvania taxpayers.

Comments

Comment – Most CFB boilers firing primarily bituminous and anthracite coal refuse cannot reasonably achieve a presumptive RACT emission limit of 0.16 lb. NO_x/million British thermal units (MMBtu) heat input on a consistent basis using a daily average as proposed in this rule.

In general, ARIPPA supports regulatory limits that are environmentally friendly and can in fact be met. Under § 129.112(g)(1)(vi) of the proposed rule, circulating fluidized bed combustion units primarily firing anthracite or bituminous coal refuse with a rated heat input equal to or greater than 250 MMBtu/hour must comply with a presumptive RACT emission limit of 0.16 lb. NO_x/MMBtu heat input. Additionally, § 129.115(b)(4) requires a coal refuse-fired combustion unit with a continuous emission monitoring system (CEMS) subject to the NO_x RACT emission limitation under §

129.112(g)(1) must demonstrate compliance with the applicable RACT NO_x requirement using a daily average.

While ARIPPA can support a presumptive RACT emission limit of 0.16 lb. NO_x/MMBtu heat input for CFB units primarily firing coal refuse, a daily averaging period at this emissions rate is neither reasonable nor consistently achievable by these facilities. CFB boilers are generally low emitters of NO_x by nature of its low combustion temperature inherent with its design. However, after reviewing CEMS data from Pennsylvania's ten coal refuse-fired facilities during the past five years, ARIPPA has determined that eight of these facilities (four anthracite and four bituminous) have at least 297 occurrences of exceeding the proposed presumptive RACT emissions limit of 0.16 lb. NO_x/MMBtu heat input on a daily average basis. This is despite the fact that these facilities have consistently achieved NO_x emissions rates below this level on an annual basis. For example, in 2019, annual emissions rates for these facilities ranged from a low of 0.057 lb. NO_x/MMBtu to a high of 0.1576 lb. NO_x/MMBtu.

Additionally, under § 129.112(g)(1)(viii), a coal refuse-fired CFB combustion unit "subject to subparagraph (vi) must control the NO_x emissions each operating day by operating the installed air pollution control technology and combustion controls at all times consistent with the technological limitations, manufacturer specifications, good engineering and maintenance practices and good air pollution control practices for controlling emissions." Due to the nature of the CFB boiler and its use of ash recirculation, selective catalytic reduction (SCR) technology is not required and the technology is not applicable as well. In order to achieve current RACT emission rates for NO_x, six of the ten coal refuse-fired CFB units use selective noncatalytic reduction (SNCR) technology and ammonia injection (the only technology that has been demonstrated to work on coal refuse-fired units using CFB technology).

SNCR is a post combustion emissions control technology for reducing NO_x by injecting an ammonia type reactant into the furnace at a properly determined location. However, four plants have designs and operational controls allowing them to achieve the emission rate without add-on controls. Of the eight facilities that exceeded the proposed presumptive RACT emissions limit of 0.16 lb. NO_x/MMBtu heat input on a daily average basis during this period, half of them have installed SNCR and ammonia injection NO_x emissions controls.

Design and cost considerations make additional add on controls uneconomic or technologically infeasible. As a majority of the coal refuse-fired CFB facilities cannot consistently meet the presumptive RACT emission limitations and requirements under proposed § 129.112 when measured on a daily average, the proposed rule will in effect impose a more resource intensive case-by-case RACT analysis on this class of facilities. Certainly, that is not the intent of the Department.

Comment – A daily averaging period for CFB boilers primarily firing coal refuse to demonstrate compliance with the presumptive NO_x RACT emissions limit is not reasonable and therefore should be extended up to a 30-day rolling average period.

ARIPPA supports the presumptive RACT NO_x limitation identified in this rule as a NO_x emission rate limitation of 0.16 lb. NO_x/MMBtu for both bituminous and anthracite coal refuse-fired combustion units as an appropriate rate limitation for both fuels if averaged over a 30-operating day rolling average. Requiring daily averaging to demonstrate compliance with this proposed presumptive NO_x RACT limit does not reasonably consider the limitations inherent in the design and operations of CFB boilers primarily firing coal refuse. Additionally, it does not appropriately address the variability of heat input, nitrogen content and other characteristics of the coal refuse used as fuel by these facilities.

These facilities are constrained by their fuel source, which as a waste product is inherently diverse and can vary significantly over short periods of time in qualities such as ash, nitrogen, and Btu content. Heat input from coal refuse material can vary greatly from one hour to the next based on the calorific content of the fuel. Additionally, the rate at which fuel is fed into the boiler can vary dramatically depending on what type of fuel is burning and when. At times these changes in heat rate can be required to achieve a certain load level, but NO_x emissions can remain the same as heat rate drops with no change in feed rate leading to a spike in NO_x emissions rates. These changes affect the rate of thermal NO_x in the boiler.

The NO_x emissions from a CFB unit are primarily dependent upon the nitrogen content of the fuel. Nitrogen content in coal refuse fuel can also very dramatically. Fuel NO_x can have a significant impact on NO_x emissions rates as the Btu value affects heat input. For example, one anthracite facility (Schuylkill Energy Resources) has seen the nitrogen content in its coal refuse fuel vary this year alone from a high of 0.79% in January 2021 to a low of 0.45% in March 2021 on a dry basis.

At times, despite the similar operating conditions while feeding coal refuse fuel from the same fuel source, heat input can drop dramatically while total NO_x emissions remain the same causing the NO_x emissions rate to go up as heat rate drops with no change in the coal refuse fuel feed rate. Additionally, operators have limited ability to react to declining heat input and increases in NO_x emissions rates during a short daily averaging window without creating cascading emissions or operational issues, particularly at the 50% of coal refuse reclamation to energy facilities that do not have installed NO_x emission control systems.

In examining data from the Rausch Creek facility, which primarily fires anthracite culm, there were 54 days between 2019-2021 when the facility was running near full load (not startup/shutdown days) that NO_x emissions exceeded the proposed presumptive RACT NO_x limit. This indicates that this is mostly thermal NO_x caused by excessive temperature conditions in the boiler as well as the amount of fines in the fuel. This facility does not have any installed NO_x controls.

Colver Green Energy experienced 12 operating days during the same period where it would have exceeded the proposed presumptive NO_x RACT limit. The Colver facility controls NOx with anhydrous ammonia injection at the cyclone inlet. The anhydrous ammonia injection system falls under the U.S. EPA Risk Management Plan requirements. The facility's Title V permit contains a limit

of 5 ppm of ammonia slip. While six of these days may be attributed to inefficient ammonia injection, the other six were days in which the facility was operating near full load (not startup/shutdown days) with no known reason for the NO_x emission rate increase.

Schuylkill Energy Resources experienced eight occurrences where daily NO_x emissions rates exceeded the proposed presumptive NO_x RACT limit. Each of these was due to boiler startup or upset recovery on days the facility fired startup fuel. Similarly, at Gilberton Power Company there were five days where NO_x emissions exceeded the proposed presumptive NO_x RACT limit, including when the boiler was operating at low load due to economics, during startup or upset recovery firing fuel oil, and one exceedance when operating at full load but resulting from conditions of abnormal airflows and feed rates. Ebensburg Power Company had four days exceeding the proposed NO_x RACT emissions limit, two of which were on startup and two were low load operating day. None of these facilities have add on NO_x emissions controls.

In summary, CBF facilities primarily firing coal refuse regularly experienced days of highest NO_x emissions rates where operating days exceeded the proposed NO_x RACT limit in large part due to startups/shutdowns, low loads, and abnormal operating conditions. While up to a 30-day averaging period may be required, a period longer than one day is absolutely necessary to appropriately account for the inherent variations in NO_x emissions from these facilities.

Comment – Implementing the presumptive RACT limit as lbs. NO_x/hr. assures acceptable performance by limiting the lbs. NO_x/hr. during all conditions, including during those special conditions which include startup or shutdown periods.

ARIPPA supports comments by Olympus Power, LLC indicating that a presumptive RACT limit expressed as pounds of NO_x per hour (lbs. NO_x/hr.) is the most appropriate way to ensure that mass emissions reductions are achieved on an operating day basis without unnecessarily and inappropriately burdening the coal refuse-fired CFB combustion units. This will ensure the NO_x mass emissions are controlled to levels that would be no higher, and likely lower, than the mass NO_x emissions that would occur if the units were to operate at the presumptive 0.16 lbs. NO_x/MMBtu emissions rates at full load operations for an operating day. However, if this presumptive NO_x emission rate limit is to be implemented over a single operating day period, that emission rate limitation should be expressed as an operating day average lbs. NO_x/hr., calculated using the hourly heat input identified in each respective Title V permit that characterizes the heat input of each coal refuse-fired combustion unit. This approach appropriately recognizes that the mass NO_x emissions are what drive ozone formation, not the emission rate as lbs. NO_x/MMBtu, and establishes a reasonable NO_x RACT emissions limit for coal refuse-fired CFB units.

Comment – Boiler startup and periods of low load operations should be exempted from the presumptive NO_x RACT requirement for circulating fluidized bed boilers firing primarily coal refuse.

In reviewing CEMS data from ARIPPA's member facilities that utilize CFB boilers to primarily

combust coal refuse, the most common causes of daily average NO_x emissions rates exceeding the proposed presumptive RACT limit of 0.16 lb. NO_x/MMBtu heat input was boiler startup and periods of low load operations for which these units are not designed. These unstable operating conditions are characterized by low heat input which despite low overall NO_x emissions produce a higher-than-normal NO_x emissions rate. Basic math tells us that by lowering the denominator (i.e. heat input) in the daily emissions rate calculation, it will inevitably produce a higher than normal NO_x emissions rate.

Absent the RACT presumptive limits for combustion units firing coal refuse being implemented as a lbs. NO_x/hr. operating day limit, then alternative limits need to be provided for the special conditions as are provided as part of Best Available Control Technology (BACT) conditions in existing permits. Simply stated, 0.16 lbs. NO2/MMBtu is not RACT during those special conditions such as startup.

For coal refuse-fired combustion units equipped with SNCR or ammonia injection NO_x emissions controls, it is not possible to inject ammonia at all times, especially during startup periods. It is apparent from existing permit conditions that the Department already recognizes those situations exist and accommodates for them by establishing the limits for those periods in the unit lbs. NO_x/hr. Implementing the presumptive RACT as lbs. NO_x/hr. assures acceptable performance by limiting the lbs. NO_x/hr. during all conditions, including during those special conditions which include startup periods.

When measured during a limited time period, such as a daily averaging basis as in the proposed rule, the reduced heat input during these periods will regularly produce an exceedance of the presumptive NO_x RACT emission limit. Therefore, it would also be reasonable to exempt emissions during these special operating conditions for purposes of compliance with the applicable NO_x RACT emissions requirement for these facilities. Requiring these low heat input operating periods to be averaged over a single day will regularly lead these facilities to exceed the presumptive NO_x RACT limit of 0.16 lb. NO_x/MMBtu heat input when these conditions exist as shown by prior CEMS data.

Another important consideration is that PJM calls for these units to come into service at specified times and if that requires startup to begin later in the day, the duration of the startup could result in a non-compliant emission rate limit while emissions on a mass basis are very low. Further, PJM could call for operating levels that are lower than the levels at which ammonia could be injected.

Recent legislative and administrative efforts led by the Department and the General Assembly intended to provide additional resources to encourage environmental reclamation by this industry should reduce the number of days where these facilities will operate at low load in the future. Last year, Governor Wolf signed House Bill 2536 (Act 114 of 2020) which closed the border on participation in Tier II of the Alternative Energy Portfolio Standards (AEPS) program allowing these facilities to operate at levels approaching maximum design capacity and resulting in the cleanup of additional polluting coal refuse piles in the Commonwealth. Additionally, the recently adopted CO2 Budget Trading Program regulation set aside 12.8 million CO2 allowances annually recognizing the

beneficial environmental remediation work performed by the industry. In light of these recent statutory and regulatory changes, demand for in-state energy production from coal refuse within the Commonwealth is expected to increase in the future requiring operating these facilities at a capacity rate higher than most have done in recent years and reducing the number of days operating at low load conditions.

Comment – The presumptive NO_x RACT emissions limit for circulating fluidized bed boilers primarily firing anthracite waste such as culm should be the same rate as those primarily firing bituminous waste such as gob.

Comment was requested on the appropriateness of establishing a different limit for anthracite coal refuse-fired combustion units. ARIPPA appreciates the distinction in the proposed rule between NO_x emissions from circulating fluidized bed facilities primarily firing anthracite culm from those primarily firing bituminous gob. While each type of coal refuse has distinct chemical characteristics, the processes and technology utilized at facilities firing each type of fuel are indistinguishable. After reviewing daily NO_x emissions from facilities firing each type of coal refuse, ARIPPA believes there is not sufficient justification to establish separate presumptive NO_x RACT emissions limits for CFB units firing anthracite coal refuse.

Of the eight coal refuse reclamation to energy facilities that experienced daily NO_x emissions exceeding the presumptive RACT limit of 0.16 lb. NO_x/MMBtu heat input, four of these were CFB units primarily firing anthracite culm. Despite the fact that these four facilities all had annual NO_x emission rates well below the presumptive RACT limit of 0.16 lb. NO_x/MMBtu heat input during the past five years, these four facilities have experienced more than 100 days where the NO_x emissions rate exceeded the proposed presumptive NO_x RACT limit on a daily basis. Additionally, none of these facilities have installed add on NO_x controls beyond the design and operational controls allowing them to achieve the current RACT emissions rate with technological and economic considerations making the addition of such controls unfeasible at this time.

As stated above, NO_x emissions from a CFB unit are largely determined by the nitrogen content of the fuel. In examining data from bituminous and anthracite coal refuse facilities, it is easily observable that the while nitrogen content varies by recovered fuel there are no distinct differences in nitrogen content between anthracite culm and bituminous gob coal refuse. For example, anthracite culm coal refuse utilized as fuel at Schuylkill Energy Resources in May 2021 had an average nitrogen content of 0.65%, whereas bituminous gob coal refuse fired at Ebensburg had a nitrogen content of 0.57% during the same month. Based upon the data, there is not an adequate technological basis to implement more stringent presumptive NO_x RACT limits for CBF units firing anthracite culm coal refuse, especially when the fuel nitrogen content will likely change within individual coal refuse piles and certainly between coal refuse piles.

If the Department were to consider adopting a lower NO_x RACT emissions rate for CFB units firing anthracite coal refuse, it cannot reasonably establish a lower rate while maintaining the proposed daily basis for demonstrating compliance with the proposed NO_x RACT limit Under the proposed

rule requiring daily averaging to demonstrate NO_x RACT compliance, ARIPPA opposes establishing a separate NO_x RACT emissions rate for CFB units firing anthracite coal refuse as it is not technologically reasonable nor consistently achievable for these facilities on a daily average basis.

Conclusion

Thank you for the opportunity to provide these comments on the proposed RACT requirements for major sources of NO_x and VOCs for the 2015 ozone NAAQS. The Commonwealth has repeatedly emphasized the importance of the mine land reclamation work performed by this industry through enacting legislation and establishing programs to support its continued operation. ARIPPA appreciates that unrelenting support. With the long-term sustainability of the remaining ten mine land reclamation to energy facilities significantly improved by the enactment of Act 114 of 2020, along with other state and federal legislative and regulatory programs supporting the industry, the industry looks forward to continuing our partnerships with the Commonwealth and environmental organizations to eliminate the remaining ground, air, and water pollution from the legacy of coal mining in Pennsylvania.

ARIPPA supports workable regulatory limits to protect the environment. However, the proposed presumptive NO_x RACT limits for CFB units primarily firing coal refuse were not determined in a manner that is reasonably achievable by the majority of these facilities on a consistent basis. To allow the coal refuse reclamation to energy units to maximize the removal of coal refuse and the remediation and reclamation of mining affected lands, the Department must provide a RACT limit that is achievable every day, year-round and will not unnecessarily force any of these units into uneconomic operations and likely early retirement which would cause the environmental impacts of coal refuse to continue harming the health, safety and welfare of those living around, downwind and downstream of coal refuse piles.

ARIPPA opposes the proposed rule as it relates to daily averaging to demonstrate the presumptive RACT NO_x emissions limit for CFB facilities primarily firing coal refuse as this does not represent a reasonable or regularly achievable timeframe for the vast majority of these facilities based upon available technology and regular operations of these units. While we support the proposed presumptive RACT NO_x emissions rate for these facilities, this rate is not consistently achievable on a daily basis as currently proposed in the rule and should instead be measured on a 30-day rolling average basis. As proposed, the rule does not establish a consistently achievable or reasonable presumptive NO_x RACT limit and would in effect require the majority of these facilities to seek a case-by-case RACT analysis.

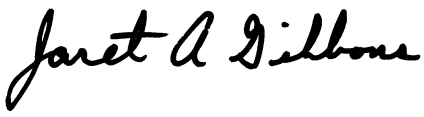
Alternatively, the Department should consider an emission rate limitation expressed as an operating day average lbs. NOx/hr., calculated using the hourly heat input identified in each respective Title V permit that characterizes the heat input of each coal refuse-fired combustion unit or exclude NO_x emissions during certain operating periods, such as startup/shutdown and low load operations where reduced heat input results in a higher daily NO_x emissions rate despite low overall NO_x emissions. The daily timeframe during which emissions are currently proposed to be averaged

is not a sufficient timeframe to account for and properly average emissions and heat input during these reduced operating periods despite the relatively low NO_x emissions.

Additionally, presumptive RACT NO_x emissions rates for both CFB facilities firing bituminous gob and anthracite culm coal refuse should be established at the same level. There is not an adequate technological basis to implement more stringent presumptive limits for anthracite culm coal refuse-fired units.

If the Department has any questions about these comments, please contact me at 717-763-7635 or the address set forth above.

Respectfully submitted,



Jaret A. Gibbons
ARIPPA Executive Director

cc: Tom Roberts, ARIPPA President

Attachment 1

Coal Refuse-Fired Circulating Fluidized Bed (CFB) Units
NO_x Emissions Rates Exceeding 0.16 lb./MMBtu (2019-2021)

Operating Days NOx Emissions Rate Exceeding 0.16 lb./MMBtu	
Plant:	**# of Exceedances:**
Colver Green Energy	12
Ebensburg Power Co.	4
Gilberton Power Co.	5
Mt. Carmel Cogen	7
Rausch Creek Generation	88
Schuylkill Energy Resources	8
Scrubgrass Generating	169
Seward Generation	4
Total	**297**

*Mt. Carmel data is 2017-2019 as the three most recent full operating years

COLVER			
Date:	**NOx lb/MMBtu:**		**Total # of Exceedances:**
1/4/2019	0.175		12
3/5/2019	0.165		
3/6/2019	0.161		
11/4/2019	0.177		
11/5/2019	0.161		
11/8/2019	0.161		
11/16/2019	0.163		
2/8/2020	0.160		
4/25/2020	0.161		
1/21/2021	0.160		
3/2/2021	0.161		
3/13/2021	0.169		

EBENSBURG			
Date:	**NOx lb/MMBtu:**		**Total # of Exceedances:**
3/4/2019	0.180		4
12/30/2019	0.173		
11/16/2019	0.168		
12/10/2019	0.162		

GILBERTON			
Date:	**NOx lb/MMBtu:**		**Total # of Exceedances:**
10/16/2020	0.163		5
10/17/2020	0.166		
12/29/2020	0.174		
12/30/2020	0.168		
2/9/2021	0.168		

MT. CARMEL			
Date:	**NOx lb/MMBtu:**		**Total # of Exceedances:**
1/10/2017	0.196		7
10/14/2017	0.398		
10/17/2017	0.335		
10/18/2017	0.314		
1/19/2018	0.219		
1/21/2019	0.205		
7/25/2019	0.482		

Schuylkill Energy Resources			
Date:	**NOx lb/MMBtu:**		**Total # of Exceedances:**
5/7/2017	0.217		8
5/8/2017	0.264		
5/30/2017	0.161		
8/12/2017	0.161		
9/11/2017	0.160		
9/15/2017	0.164		
2/10/2018	0.163		
10/13/2018	0.178		

SEWARD			
Date:	**NOx lb/MMBtu:**		**Total # of Exceedances:**
12/22/2019	0.171		4
6/14/2020	0.172		
3/28/2021	0.160		
6/4/2021	0.164		

Rausch Creek Generation, ARIPPA

Title V Permit Conditions:

NOx Boiler Limit: 416 tons/rolling 12-month total, equivalent to 94.977 lbs/hr at full operation

Boiler: 592.4 MMBtu/hr

NOx Boiler Limit: 0.16 lbs/MMBTU (RACT II Limit)

Averaging Period: 30 Days

NOx Controls:

No installed NOx controls.

Operational Reasons for Increased NOx:

The days indicated below appear to be days that the plant was running near full load, not startup/shutdown days. This indicates that this is mostly thermal NOx caused by excessive temperature conditions in the boiler as well as the amount of fines in the fuel.

Days > 0.16 lb/Mbtu

Note: Based on discussions with DEP, values ranging from 0.160-0.164 were not included.

Year	Month	Day	Hour	Day Sum NOx lb	Day Sum Heat Input Mbtu/hr	Day Nox lb/Mbtu ®
2019	01	20	23	2114.8	11838.4	0.18
2019	02	01	23	1979.6	10847.6	0.18
2019	02	09	23	2162.9	12807.8	0.17
2019	02	10	23	2122.3	12392.2	0.17
2019	03	06	23	2386.1	12445	0.19
2019	07	20	23	2108	12406.4	0.17
2019	07	21	23	2058.1	12101.6	0.17
2019	07	22	23	2131.9	12535.8	0.17
2019	07	23	23	2115.8	12441.8	0.17

2019	07	24	23	2103.6	12366.9	0.17
2019	07	25	23	2126.6	12717.1	0.17
2019	08	30	23	2375.9	13046.7	0.18
2019	08	31	23	2225.7	13348.5	0.17
2019	09	07	23	2298.1	12573.8	0.18
2019	11	21	23	43.6	187.9	0.23
2019	12	11	23	2300.2	13440	0.17
2019	12	12	23	2588.7	14382.4	0.18
2019	12	13	23	2408.4	13741.2	0.18
2019	12	23	23	2098.6	12713.5	0.17
2020	01	22	23	2256.8	13465.8	0.17
2020	02	21	23	2087.6	12639	0.17
2020	04	23	23	2034.4	12187.3	0.17
2020	11	02	23	2218.8	12469.1	0.18
2020	11	03	23	2127.2	12355.4	0.17
2020	11	04	23	2033.4	11579.7	0.18
2020	11	06	23	2065.2	11411.3	0.18
2020	11	07	23	1962.8	11711.7	0.17
2020	11	12	23	2017	11787.2	0.17
2020	11	17	23	2324.9	11992.9	0.19
2020	11	18	23	2188.8	11761.3	0.19
2020	11	19	23	2229.6	12044.2	0.19
2020	11	21	23	1897.4	11077.7	0.17
2020	12	29	23	2149.4	12669.1	0.17
2020	12	31	23	1972.5	11674.7	0.17
2021	01	10	23	2098.7	12261.3	0.17
2021	01	23	23	114.1	654.1	0.17

2021	01	24	23	1010.1	4705.3	0.21
2021	01	27	23	31.8	181.6	0.18
2021	02	01	23	1783.2	10633.7	0.17
2021	02	02	23	63	186.1	0.34
2021	02	24	23	1880.3	11363.7	0.17
2021	02	25	23	1714	10269.6	0.17
2021	03	06	23	1976.7	11278.7	0.18
2021	03	07	23	1955.7	11388.3	0.17
2021	03	08	23	2204.7	11472.5	0.19
2021	03	10	23	1977.4	11689.3	0.17
2021	03	11	23	1940.9	11280.7	0.17
2021	03	15	23	1909.3	11353.7	0.17
2021	03	16	23	1893.6	11446.2	0.17
2021	04	08	23	2021.4	11893.1	0.17
2021	04	09	23	2236.5	11749.8	0.19
2021	04	10	23	2010.3	11080.8	0.18
2021	04	11	23	1829.6	11066.3	0.17
2021	04	12	23	2116.4	11524.8	0.18

Attachment 2

State	Facility Name	Facility ID (ORISPL)	Year	NOx (tons)	Heat Input (MMBtu)	NOx Emission Rate (lb/MMBtu)	NOx Controls
PA	Colver Green Energy	10143	2011	707.9	10,547,649	0.1342	Ammonia Injection
PA	Colver Green Energy	10143	2012	878.0	10,539,723	0.1666	Ammonia Injection
PA	Colver Green Energy	10143	2013	886.7	10,727,086	0.1653	Ammonia Injection
PA	Colver Green Energy	10143	2014	888.3	10,898,712	0.1630	Ammonia Injection
PA	Colver Green Energy	10143	2015	802.5	10,413,109	0.1541	Ammonia Injection
PA	Colver Green Energy	10143	2016	737.5	9,312,141	0.1584	Ammonia Injection
PA	Colver Green Energy	10143	2017	796.8	10,256,988	0.1554	Ammonia Injection
PA	Colver Green Energy	10143	2018	808.9	10,393,739	0.1557	Ammonia Injection
PA	Colver Green Energy	10143	2019	766.0	9,721,258	0.1576	Ammonia Injection
PA	Colver Green Energy	10143	2020	484.9	6,389,008	0.1518	Ammonia Injection
PA	Ebensburg Power Company	10603	2011	307.8	6,593,604	0.0934	
PA	Ebensburg Power Company	10603	2012	316.0	6,451,584	0.0980	
PA	Ebensburg Power Company	10603	2013	306.8	6,107,538	0.1005	
PA	Ebensburg Power Company	10603	2014	285.3	5,507,732	0.1036	
PA	Ebensburg Power Company	10603	2015	166.1	3,014,189	0.1102	
PA	Ebensburg Power Company	10603	2016	161.9	3,199,391	0.1012	
PA	Ebensburg Power Company	10603	2017	204.8	4,131,375	0.0991	
PA	Ebensburg Power Company	10603	2018	308.2	5,590,563	0.1103	
PA	Ebensburg Power Company	10603	2019	186.2	3,958,836	0.0941	
PA	Ebensburg Power Company	10603	2020	177.6	4,743,555	0.0749	
PA	Gilberton Power Company	10113	2011	210.6	7,862,057	0.0536	Overfire Air
PA	Gilberton Power Company	10113	2012	118.9	5,254,869	0.0453	Overfire Air
PA	Gilberton Power Company	10113	2013	209.2	8,307,117	0.0504	Overfire Air
PA	Gilberton Power Company	10113	2014	222.1	7,846,825	0.0566	Overfire Air
PA	Gilberton Power Company	10113	2015	190.8	7,996,905	0.0477	Overfire Air
PA	Gilberton Power Company	10113	2016	274.9	8,253,398	0.0666	Overfire Air
PA	Gilberton Power Company	10113	2017	382.7	8,149,161	0.0939	Overfire Air
PA	Gilberton Power Company	10113	2018	356.7	7,915,046	0.0901	Overfire Air
PA	Gilberton Power Company	10113	2019	377.1	8,215,657	0.0918	Overfire Air

PA	Gilberton Power Company	10113	2020	355.8	8,379,202	0.0849	Overfire Air
PA	Mt. Carmel Cogeneration	10343	2011	313.5	4,347,059	0.1442	
PA	Mt. Carmel Cogeneration	10343	2012	303.6	4,610,015	0.1317	
PA	Mt. Carmel Cogeneration	10343	2013	304.5	4,630,003	0.1315	
PA	Mt. Carmel Cogeneration	10343	2014	296.5	4,608,654	0.1287	
PA	Mt. Carmel Cogeneration	10343	2015	235.5	4,482,460	0.1051	
PA	Mt. Carmel Cogeneration	10343	2016	182.9	4,841,438	0.0756	
PA	Mt. Carmel Cogeneration	10343	2017	149.9	4,849,440	0.0618	
PA	Mt. Carmel Cogeneration	10343	2018	143.9	4,481,704	0.0642	
PA	Mt. Carmel Cogeneration	10343	2019	50.8	1,465,517	0.0693	
PA	Mt. Carmel Cogeneration	10343	2020	23.7	774,490	0.0613	
PA	Northampton Generating Plant	50888	2011	449.8	10,681,825	0.0842	Ammonia Injection
PA	Northampton Generating Plant	50888	2012	383.4	9,242,761	0.0830	Ammonia Injection
PA	Northampton Generating Plant	50888	2013	375.2	10,027,167	0.0748	Ammonia Injection
PA	Northampton Generating Plant	50888	2014	326.1	7,816,525	0.0834	Ammonia Injection
PA	Northampton Generating Plant	50888	2015	230.8	5,330,167	0.0866	Ammonia Injection
PA	Northampton Generating Plant	50888	2016	142.1	3,192,664	0.0890	Ammonia Injection
PA	Northampton Generating Plant	50888	2017	114.2	2,665,294	0.0857	Ammonia Injection
PA	Northampton Generating Plant	50888	2018	111.9	2,508,999	0.0892	Ammonia Injection
PA	Northampton Generating Plant	50888	2019	78.4	1,875,877	0.0835	Ammonia Injection
PA	Northampton Generating Plant	50888	2020	4.6	117,015	0.0792	Ammonia Injection
PA	Panther Creek Energy Facility	50776	2011	567.5	8,877,787	0.1279	Ammonia Injection
PA	Panther Creek Energy Facility	50776	2012	542.6	8,512,484	0.1275	Ammonia Injection
PA	Panther Creek Energy Facility	50776	2013	485.9	8,025,900	0.1211	Ammonia Injection
PA	Panther Creek Energy Facility	50776	2014	499.7	8,221,153	0.1216	Ammonia Injection
PA	Panther Creek Energy Facility	50776	2015	378.7	6,420,726	0.1180	Ammonia Injection
PA	Panther Creek Energy Facility	50776	2016	102.8	1,693,403	0.1215	Ammonia Injection
PA	Panther Creek Energy Facility	50776	2017	69.6	1,168,314	0.1191	Ammonia Injection
PA	Panther Creek Energy Facility	50776	2018	113.7	1,871,915	0.1215	Ammonia Injection
PA	Panther Creek Energy Facility	50776	2019	79.8	1,205,647	0.1324	Ammonia Injection
PA	Panther Creek Energy Facility	50776	2020	35.0	589,164	0.1188	Ammonia Injection

PA	Scrubgrass Generating Plant	50974	2011	702.3	10,136,733	0.1386	SNCR
PA	Scrubgrass Generating Plant	50974	2012	756.5	10,425,866	0.1451	SNCR
PA	Scrubgrass Generating Plant	50974	2013	582.9	7,324,458	0.1592	SNCR
PA	Scrubgrass Generating Plant	50974	2014	594.5	7,518,927	0.1581	SNCR
PA	Scrubgrass Generating Plant	50974	2015	312.0	4,243,679	0.1470	SNCR
PA	Scrubgrass Generating Plant	50974	2016	547.2	7,354,190	0.1488	SNCR
PA	Scrubgrass Generating Plant	50974	2017	490.5	6,985,634	0.1404	SNCR
PA	Scrubgrass Generating Plant	50974	2018	472.4	6,527,087	0.1448	SNCR
PA	Scrubgrass Generating Plant	50974	2019	267.2	3,993,649	0.1338	SNCR
PA	Scrubgrass Generating Plant	50974	2020	12.0	120,769	0.1986	SNCR
PA	Seward	3130	2011	1,768.8	34,491,092	0.1026	SNCR
PA	Seward	3130	2012	953.1	20,814,197	0.0916	SNCR
PA	Seward	3130	2013	969.6	19,183,496	0.1011	SNCR
PA	Seward	3130	2014	1,411.8	28,465,465	0.0992	SNCR
PA	Seward	3130	2015	959.9	18,947,057	0.1013	SNCR
PA	Seward	3130	2016	1,745.7	30,537,546	0.1143	SNCR
PA	Seward	3130	2017	1,450.1	27,249,584	0.1064	SNCR
PA	Seward	3130	2018	1,525.3	28,045,508	0.1088	SNCR
PA	Seward	3130	2019	1,079.4	20,218,472	0.1068	SNCR
PA	Seward	3130	2020	1,610.2	25,765,413	0.1250	SNCR
PA	St. Nicholas Cogeneration Project	54634	2011	253.3	10,878,492	0.0466	
PA	St. Nicholas Cogeneration Project	54634	2012	239.6	11,248,881	0.0426	
PA	St. Nicholas Cogeneration Project	54634	2013	225.5	10,248,638	0.0440	
PA	St. Nicholas Cogeneration Project	54634	2014	252.6	10,726,877	0.0471	
PA	St. Nicholas Cogeneration Project	54634	2015	242.3	10,562,831	0.0459	
PA	St. Nicholas Cogeneration Project	54634	2016	212.7	10,482,138	0.0406	
PA	St. Nicholas Cogeneration Project	54634	2017	274.6	9,915,657	0.0554	
PA	St. Nicholas Cogeneration Project	54634	2018	304.8	11,144,724	0.0547	
PA	St. Nicholas Cogeneration Project	54634	2019	299.0	10,490,645	0.0570	
PA	St. Nicholas Cogeneration Project	54634	2020	300.6	10,773,361	0.0558	

PA	Rausch Creek Generation	50611	2011	219.6	3,094,270	0.1419	
PA	Rausch Creek Generation	50611	2012	230.0	3,124,046	0.1473	
PA	Rausch Creek Generation	50611	2013	302.4	3,551,264	0.1703	
PA	Rausch Creek Generation	50611	2014	304.6	3,563,249	0.1710	
PA	Rausch Creek Generation	50611	2015	291.5	3,361,871	0.1734	
PA	Rausch Creek Generation	50611	2016	54.1	942,034	0.1149	
PA	Rausch Creek Generation	50611	2017	29.2	394,420	0.1482	
PA	Rausch Creek Generation	50611	2018	228.4	3,610,216	0.1265	
PA	Rausch Creek Generation	50611	2019	176.0	2,602,120	0.1353	
PA	Rausch Creek Generation	50611	2020	247.8	3,723,179	0.1331	

Attachment 3

Schulykill Energy Resources	
Coal Refuse Fuel Nitrogen	
Month	% N Dry Basis
Jan-21	0.79
Feb-21	0.69
Mar-21	0.45
Apr-21	0.59
May-21	0.65
Jun-21	0.74
Jul-21	0.56

STANDARD LABORATORIES INC.
NORTHERN DIVISION
554 GALLITZIN ROAD
CRESSON, PA 16630
(814) 886-7400

DATE: 6-28-2021
SAMPLE NO. 1275156

EBENSBURG POWER COMPANY
2840 NEW GERMANY ROAD
PO BOX 845
EBENSBURG, PA. 15931-0845

SAMPLE ID: WEEKLY COMPOSITE 5/3/2021 - 5/9/2021

OPERATING CO.: EBENSBURG POWER CO.
SAMPLED BY: CUSTOMER PROVIDED
MINE:
LOCATION:

DATE SAMPLED: 5/3/21 DATE RECEIVED: 5/9/21
WEATHER:
GROSS WEIGHT: 4281.7 LBS

OTHER ID: RUN #1

CERTIFICATE OF ANALYSIS

	ASTM METHOD	AS RECEIVED	DRY BASIS
MOISTURE	D2961 D3302 D3173	11.72%	
ASH	D3174	44.76%	50.70%
SULFUR	D4239 METHOD B	1.60%	1.81%
CARBON	D3178 D5373	34.54%	39.13%
HYDROGEN	D3178 D5373	2.48%	2.81%
NITROGEN	D3179 D5373	0.51%	0.57%
OXYGEN	D3176	4.39%	4.98%
BTU/LB	D5865	6045	6847
MAF BTU/LB			13888
LBS OF SO2 PER MILLION BTU			5.28
LBS OF SULFUR PER MILLION BTU		2.647	
CHLORINE	D4208	296ppm	336ppm

TRACE ELEMENTS
D3683 D3684 D3684 (MODIFIED)

MERCURY	227.11 PPB

APPROVED BY _____

APPROVED BY _____

BLACK SEAL ANALYSIS