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October 12, 2021

Environmental Quality Board
Rachel Carson
State Office Building
16th Floor
400 Market Street
Harrisburg, PA 17101-2301

Re: Comments from Interstate Natural Gas Transmission Pipeline Company Stakeholders on proposed rule: *Additional RACT Requirements for Major Sources of NOx and VOCs*

Dear Environmental Quality Board:

This letter provides comments of a group of six natural gas transmission pipeline companies (the "Pipeline Group")[1] on the Environmental Quality Board's (EQB) proposed rule *Additional RACT Requirements for Major Sources of NOx and VOCs* ("Proposed Rule").[2]

The Proposed Rule was approved by the EQB in May 2021 and published for comment in the Pennsylvania Bulletin on August 7, 2021. Each member of the Pipeline Group has operations in Pennsylvania that will be significantly impacted by the Proposed Rule and the Group welcomes this opportunity to share its expertise in comments for the Department of Environmental Protection's (DEP) and the EQB's consideration when preparing the final rule. The Pipeline Group supports realistic and achievable regulations to reduce emissions from engines and turbines in Pennsylvania natural gas transmission and storage operations and appreciates DEP's efforts and collaboration throughout the rulemaking process to address statewide emission reduction goals. As explained in greater detail below, the Pipeline Group is concerned that portions of the proposed schedule do not allow the regulated community enough time to comply. In addition, we have identified several assumptions used to support the proposed presumptive RACT limits which are inconsistent with our experience of operating sources that would be subject to those limits. The following are comments from the Pipeline Group:

1. The Schedule for Compliance is Too Aggressive

a. The Proposed Rule does not provide sufficient time to comply with presumptive RACT requirements.

The Proposed Rule establishes presumptive RACT limits and conditions for certain sources.[3] Sources subject to the presumptive RACT limits must demonstrate compliance with those limits by January 1, 2023, unless they obtain an approved alternate compliance schedule.[4] The source owner or operator must notify the DEP how it will comply within 6

[1] The Pipeline Group members are BHE GT&S, Enbridge, Kinder Morgan, National Fuel Gas Supply, TC Energy, and Williams-Transco.
[2] 51 PA Bulletin 4333.
[3] Proposed 25 Pa Code § 129.112.
[4] Proposed 25 Pa Code § 129.112(a)(1).

months after the effective date of the Rule.[5] Given that the Proposed Rule was only published for comment in August 2021, a final rule is not expected to be promulgated until the first quarter of 2022 at the earliest. Any delays could extend that date later into 2022. This leaves insufficient time for owners or operators of the affected sources to demonstrate compliance with the presumptive RACT limits, by January 1, 2023.

The Pipeline Group acknowledges DEP's statement, during a July 21, 2021 web meeting, that the compliance date of January 1, 2023 cannot be changed due to EPA obligations. However, the Pipeline Group respectfully reiterates that the current schedule for the rulemaking process does not allow companies sufficient time to complete assessing the impact of the final rule on their operations, finalize reasonable compliance plans, submit and receive approval for a compliance test plan, and demonstrate compliance with RACT III requirements by January 1, 2023. In fact, if the rule is not finalized by July 1, 2022 there will be less than six months to notify the DEP of the compliance option for particular sources. For those sources able to meet the presumptive RACT limits, there would be less than six months to demonstrate compliance.

At a minimum, the Pipeline Group suggests the compliance date be set for 2 years after the effective date of the final rule.

In the absence of a more appropriate compliance date, affected units have no recourse but to submit petitions for an alternative compliance schedule for most affected units and facilities. The Pipeline Group requests additional discussion on this topic so that we can understand DEP plans for the final rule, and discuss developing a streamlined process for company submittals, DEP review, and approval of petitions for an alternative schedule, if an adequate compliance schedule is not included in the final rule – a recommendation is provided below in section 1.b.

b. Although operators began assessing compliance options and initiated planning when the draft rule was made available, the schedules to petition for an alternative compliance schedule, or develop an alternative RACT proposal do not provide sufficient time for companies to prepare submittals and for DEP's approval process.

Pipeline Group companies have been assessing the implications of "RACT III" and engaged in compliance planning since DEP released initial information on the draft rule in the Spring of 2020. Companies identified potentially affected units (e.g., reciprocating engines or combustion turbines that drive natural gas compressors) and began diligently assessing emission control options and compliance requirements based on available information, then re-assessed based on changes to presumptive emission limit applicability when the proposed rule was released. Some actions were limited by the lack of background information (e.g., technical support documentation) that was not available until May 2021 and final decisions/budget allocation typically do not occur until the rule is promulgated. Because of this, significant additional effort is needed to complete compliance planning and to address tasks such as funding approval for procurement and development of detailed implementation schedules. The 6 month deadline for submittals detailing compliance plans and implementation schedules is not sufficient time, but operators could provide high-level information on affected sources within that timeframe.

[5] Proposed 25 Pa Code § 129.115(a).

The Proposed Rule includes two scenarios where affected owners or operators may petition for an alternate compliance schedule: 1) if the source is proposing alternative RACT,[6] or 2) if the source cannot meet the applicable presumptive RACT without installing an air cleaning device.[7] In addition, there might be a scenario where the source is proposing an alternative RACT by installing an air cleaning device.[8] In all three cases, the proposed rule requires significant detail for the submittal with a deadline 6 months after final rule promulgation. Thus within 6 months, operators will need to complete impact analysis, finalize compliance options, and develop compliance plans necessary to provide the detailed list of information included in the Proposed Rule.

For alternative RACT, submitting alternative RACT documentation within 6 months and complying within one year is not feasible and operators will petition for an alternative compliance schedule. In this case, the owner or operator must submit a written RACT proposal to the DEP within 6 months of the effective date of the final rule[9] that includes significant details and analysis associated with the alternative and associated implementation. The owner or operator must have an approved plan approval or operating permit before implementing the proposed alternate RACT requirement.[10] The RACT proposal must include a compliance schedule for completing the RACT requirement as soon as possible but not later than 1 year after the effective date of the regulation.[11] If a company is proposing an alternate RACT by installing an air cleaning device compliance schedule for completing the RACT requirement must be as soon as possible but not later than 3 year after the issuance of the approved plan approval or operating permit modification – this timing is acceptable.

The Pipeline Group is greatly concerned with the proposed schedule. For example, six months after the effective date of the final rule is not sufficient time for preparation and submittal of an alternative RACT proposal and petition for an alternative schedule. The following summarizes activities that companies need to undertake to prepare for an alternative RACT proposal:

- Conduct an impact analysis, identifying units that are impacted by the rule and conduct engineering studies to identify applicable control technologies and develop appropriate compliance plans. In most cases, since additional control options are being evaluated for units already controlled, these engineering studies will include engaging equipment and control technology manufacturers. This process alone may take up to 6 months on an aggressive schedule, particularly when operators have several facilities and sources.
- While the engineering analysis is being conducted, the petition must be developed.

Accordingly, 6 months does not allow sufficient time to appropriately complete these activities and submit a complete detailed proposal/petition.

The Pipeline Group is further concerned about the compliance date of 1 year after the rule effective date, for alternate RACT. Accounting for 6 months for preparing and submittal

[6] Proposed 25 Pa Code § 129.114(j).
[7] Proposed 25 Pa Code § 129.112(n).
[8] Proposed 25 Pa Code § 129.114(d).
[9] Proposed 25 Pa Code § 129.114(d)(1).
[10] Proposed 25 Pa Code § 129.114(f).
[11] Proposed 25 Pa Code § 129.114(d)(4).

of the petition, that leaves 6 months for DEP's review/approval process and the company implementing its proposed alternate RACT. Six months is inadequate time to receive an approved plan approval or operating permit modification and implement the RACT requirement. DEP's timeliness of technical review time, and EPA and public comment/review periods impact the compliance schedule, and are outside operator control. Based on experience under RACT II, this could take 4 months or longer but the timeline is unknown and largely dependent on DEP resources at a regional level.

If the operator proposes to comply with RACT (or an alternate RACT) through the installation of an air cleaning device, the operator may petition for an alternative compliance schedule within 6 months of the effective date of the rule. Similar detail is required for this submittal, with additional information required regarding the procurement process and schedule. The activities companies need to undertake are similar in nature to those activities listed for alternate RACT proposals.

In all of these cases, the initial deadline 6 months after final rule promulgation is inadequate.

The Pipeline Group suggests the petition deadline for an alternate compliance schedule with installation of an air cleaning device, and the petition deadline for an alternative compliance schedule when alternative RACT is requested be set for 1 year after the effective date of the final rule. In addition, the Pipeline Group suggests *the compliance date* for an alternate compliance schedule with no installation of an air cleaning device be set for 1 year <u>after</u> DEP approval of the plan approval application.

A primary issue with a 6 month deadline is the amount of detail required. As noted in the following comment, many sources will be submitting a petition for an alternative compliance schedule with some also submitting alternative RACT requests. If DEP desires information on this inventory of sources sooner than the one year deadline recommended above, the Pipeline Group recommends requiring a simple, streamlined submittal within 6 months. In the submittal required within 6 months, the operator could provide a list of facilities and affected sources that plan to submit a petition for an alternative schedule and/or an alternative RACT request. That would provide DEP an inventory of affected sources. For each of these sources, the alternative schedule petition or alternative RACT request that includes the details required in the Proposed Rule would be received by the one year deadline.

2. Many of the Pipeline Group's sources will require alternative RACT limits.

The Proposed Rule includes lower NOx emission standards for many categories of natural gas-fired reciprocating engines and turbines. The affected units operated by the Pipeline Group already have implemented controls in response to two previous RACT rules and are in compliance with RACT II. If the proposed lower RACT III emission limits are technically feasible, the nominal reductions achieved will likely result in relatively high cost effectiveness values that exceed the $3,750 per ton threshold identified in the Technical Support Document ("TSD") and Regulatory Analysis Form ("RAF"), thereby requiring case-by-case alternative RACT limits which DEP would have to review and

approve. The need to process a significant number of alternate RACT petitions will require significant resources which DEP may not be contemplating,[12]

Based on the presumptive RACT limits in the Proposed Rule, a preliminary review of potentially affected units operated by the Pipeline Group indicates over 50 units and more than 20 facilities may require additional controls and/or compliance via an alternative RACT proposal. Those numbers could change depending on final rule requirements. The potentially impacted units include:

- More than 20 lean burn reciprocating engines larger than 3,500 hp (proposed NOx limit decreased from 3.0 to 0.6 g/bhp-hr);
- More than 10 rich burn reciprocating engines ≥ 500 hp (proposed NOx limit decreased from 2.0 to 0.6 g/bh-phr; see Comment 3 regarding this limit);
- More than 10 rich burn reciprocating engines less than 500 hp (proposed 0.6 g/bhp-hr NOx limit added; see Comment 3 regarding this limit);
- More than 10 combustion turbines larger than 1,000 and less than 6,000 hp (proposed NOx limit decreased from 150 ppmv to either 85 ppmv or 42 ppmv); and,
- Two or three larger turbines that may not meet the Proposed RACT III Rule NOx limits.

The Pipeline Group anticipates that alternative compliance schedules will be requested by nearly all affected facilities, and case-by-case alternative RACT requests will be submitted for dozens of affected units with Proposed RACT III Rule NOx emission limits lower than RACT II limits. This includes lean burn engines ≥3500 hp, rich burn engines with lower NOx limits (≥500 hp) or NOx limits included for the first time (>100 hp to <500 hp), and simple cycle turbines less than 6000 hp that do not include a lean premixed / low NOx burner (i.e., "DLNC").[13]

3. The Proposed Rule states an incorrect limit for emissions from rich burn engines.

The Proposed Rule revises the NOx emission limit for natural gas-fired rich burn units from 2.0 g/bhp-hr to 0.6 g/bhp-hr, and lowers the applicability threshold to 100 hp. However, the TSD indicates the NOx limit is 2.0 g/bhp-hr for all size units. DEP has stated that the presumptive RACT limit listed for NOx in Proposed Rule is a typographical error and the correct limit is 2.0 g/bhp-hr, as stated in the TSD. We request the DEP to correct the typographical error and list NOx limit as 2.0 g/bhp-hr. If not, a TSD analysis must be provided to support the lower limits, and that analysis should consider an appropriate baseline NOx level (e.g., 2 g/bh-hr for units subject to RACT II emission standards).

4. The TSD incorrectly concludes that Dry Low-NOx Combustor ("DLNC") technology is installed on 1,000 hp – 6,000 hp simple cycle turbines.

The TSD concludes that DLNC is installed on simple cycle turbines in the 1,000 to 6,000 hp range. The presumptive NOx RACT limits are lowered from 150 ppmv to 85 ppmv for

[12] See e.g. RAF at 8, 13 (the proposed presumptive RACT limits would eliminate or minimize the need for "time-consuming and costly case-by-case RACT reviews.")

[13] DEP refers to this technology as Dry Low NOx Combustion (DLNC) in support documents. The TSD (page 23 of 32) indicates that, "All turbines in this category [3,000 – 60,000 hp] are installed with DLNC." This is not the case for some unit less than 6,000 hp that do not have a DLNC technology option.

units from 1,000 hp to less than 3,000 hp and to 42 ppmv for units from 3,000 hp to less than 6,000 hp. That is not correct for most units (e.g., not all Solar Centaur units include DLNC and Solar has indicated that NOx controls are not available for units less than 4,100 hp). Thus, for combustion turbines less than 6,000 hp that are not equipped with DLNC, the NOx control technology option would be Selective Catalytic Reduction ("SCR"). The TSD indicates SCR is not cost effective for simple cycle turbines, so the 42 ppmv NOx standard is not supported for turbines less than 6,000 hp that do not include DLNC. Even if the SCR analysis is repeated with a marginally higher baseline NOx level, SCR cost effectiveness would still exceed the NOx cost threshold. DEP should revert to the RACT II NOx standard of 150 ppmv for simple cycle combustion turbines <6,000 hp, or, at a minimum, the size range should be changed to 4,100 hp to 6,000 hp for units with a 42 ppmv limit.

In addition, the TSD does not adequately justify lowering the NOx limit from 150 ppmv for units less than 4,100 hp without a DLNC option. The accepted standard and NOx guarantee from Solar for such units is 150 ppmv. While the TSD indicates that "analysis of test results of actual NOx emissions" indicate emission levels lower than 85 ppmv, that is not likely a comprehensive data base indicative of the emissions range for standard diffusion flame combustors used on those units. EPA analysis for the Turbine NSPS concluded that a 150 ppmv limit is appropriate. Solar reviewed data from its production test cell for such units and those data show many units would not meet the 85 ppmv limit. Although the majority of production line test cell results meet 85 ppmv NOx, some units do not. In addition, the emissions achieved immediately after production may not be indicative of site performance after installation, initial break-in and wear, etc. Solar does not provide a guarantee for the proposed limit.

To ensure that the presumptive RACT limit adequately considers NOx emission guarantees and the potential range for NOx emissions, the Pipeline Group recommends retaining the 150 ppm NOx limit for small turbines from 1,000 hp to 4,100 hp.

5. A more thorough review of the cost effectiveness of SCR controls for natural gas-fired units is required.

The TSD includes appendices that summarize cost effectiveness analyses for different equipment categories and emission control technologies, including SCR for turbines and reciprocating engines. The SCR data sources should be more clearly defined and cited, because there are many factors that affect SCR feasibility and costs, especially for retrofit applications. In many cases the NOx cost effectiveness value for SCR significantly exceeds the RACT threshold of $3,750 per ton identified in the TSD and RAF (e.g., for simple cycle turbines and for lean burn reciprocating engines smaller than 3,500 hp).

For lean burn engines ≥3,500 hp (Appendix 25), the cost effectiveness value is only marginally lower than $3,750 per ton. However, there are omissions or questionable assumptions that would increase the cost effectiveness if properly addressed. There are many scenarios where more appropriate assumptions increase the cost effectiveness value above $3,750 per ton. Examples include:

- Capital Cost: As noted on the TSD, the EPA OAQPS EPA Air Pollution Control Cost Manual[14] (Control Cost Manual) provides the basis for the cost effectiveness analysis. EPA's more recent release of revisions to the control cost manual chapter on SCR[15] (SCR Cost Manual Update) provides important updates. That document does not provide capital cost estimates for natural gas-fired reciprocating engines, but does include SCR cost estimates for natural gas-fired industrial scale turbines and for diesel engines. The capital cost used by DEP in Appendix 25 of the TSD is indicative of the diesel engine SCR costs adjusted from 1994 to 2021 costs. The Pipeline Group believes the gas-fired turbine costs are more indicative of actual costs than the diesel engine cost basis. The SCR Cost Manual Update costs for turbines are noted as retrofit costs while the diesel engine quote is for a new unit. In addition, large lean burn engines larger than 3,500 hp presented in Appendix 25 are two-stroke lean burn engines which have exhaust flows / excess combustion air similar to that of a combustion turbine (e.g., 12 – 15% excess O_2 in the exhaust as compared to lower relative exhaust flow for a diesel engine. Recent SCR cost quotes associated with regional haze SIPs in western states indicate that the turbine SCR costs, adjusted from 1999 to 2021 using the consumer price index (CPI) are indicative of current capital costs.

  The SCR Cost Manual Update indicates an SCR cost of $237 per kilowatt (kW) for a 2 megawatt (2,680 hp) unit and $167/kW for a 12 MW (16,092 hp) unit in 1999 dollars. Corrected using the CPI, these costs are $275/kW to $390/kW. In contrast, the SCR capital cost in Appendix 25 range from $176 to $198 per kilowatt (kW). Based on this information, **the SCR costs in Appendix 25 are at least 40% too low**. This change alone (e.g., increasing SCR capital cost by 40% or more) will result in the cost effectiveness value exceeding $3,750 per ton for all of the example units (3,500 hp to 5,000 hp) in Appendix 25.

- SCR life and capital recovery: The SCR Cost Manual Update also indicates that while 30 year life may be appropriate for a new electric generating unit, 20 to 25 year life should be anticipated for industrial scale units. For reciprocating engines in natural gas transmission and storage, harsher operating conditions (e.g., thermal cycling due to compressor drivers being cycled on and off in response to pipeline demand, exhaust pulsation from very low speed (e.g., 300 rpm) 2-stroke lean burn engines) support assuming the lower end of this range (i.e., 20 years rather than 25 years). In either case, the capital recovery factor should not be based on 30 years, and this results in an increase in cost effectiveness values on the order of 2% to 5.5%.

- Retrofit costs for units in existing compressor buildings could require significant changes to accommodate exhaust re-configuration due to building and station space limitations. The retrofit costs (and related contingencies) could exceed the SCR capital cost and significantly increase cost per ton values. The contingency costs included in Appendix 25, approximately 24% of purchased equipment costs, attempt to address this issue. That contingency is not unreasonable, but there may be cases where significantly higher contingency costs arise. For example, significant exhaust and/or yard piping re-plumbing could be required, and in some cases significant costs could arise to update or rebuild the compressor house. In the limited experience to date applying SCR to compressor drivers in transmission and storage operations, significant commissioning costs have arisen that would further raise these costs. For the purposes of a general discussion, the contingency factor in Appendix 25 may be adequate, but

[14] https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution
[15] https://www.epa.gov/sites/default/files/2017-12/documents/scrcostmanualchapter7thedition_2016revisions2017.pdf

case-specific review could significantly increase this cost (e.g., could be more than double the contingency cost in Appendix 25). This change alone could significantly increase the cost effectiveness for a case-specific analysis.

- Annual costs associated with labor to operate and maintain SCR is under-estimated, both in terms of the required time and the staff labor rate. For example, SCR operation in colder winter climates requires additional attention, and since sites are not continuously manned, maintenance call-outs would likely occur and should be included in cost estimates either directly or as an annual operating cost contingency.

  For labor rates, Appendix 25 indicated that the $21.56 rate was provided by the Marcellus Shale Coalition (MSC). That rate is too low based on T&S operations experience and should be over $30 an hour, to as much as $60 an hour. In addition, based on our understanding of previous feedback provided by MSC, the direct annual labor costs were nearly 50% higher than the cost shown in Appendix 25. Skilled labor and union rates would apply, depending on the situation. In addition, the total annual hours and costs for SCR operation, and maintenance labor materials is under-estimated. Material costs are not itemized, but the total labor for both operation and maintenance appear to equate to approximately 2 to 2.5 hours per day. This may be an adequate estimate for typical operations, but would not include all costs associated with maintenance, unplanned maintenance, and quality control to ensure the integrity of the reagent feed rate control and injection system.

  For example, the reagent injection system and exhaust injection grid are susceptible to operational problems and "required" maintenance that is not included in costs. Recent experience at compressor stations indicates delivery system malfunctions occur and the injection grid requires periodic "tuning" to ensure exhaust mixing is adequate to meet NOx limits while limiting ammonia slip. For reciprocating engines already operating with combustion controls (e.g., 3.0 g/bhp-hr baseline), the NO_2/NOx ratio can vary with load changes and the ammonia demand differs depending on that ratio (i.e., whether the reactant in NO or NO_2). This may necessitate more complex (and costly) reagent control instrumentation that also increases operating costs and maintenance costs. In the example provided below, relatively small cost increases are included when considering this background, and actual operating and maintenance costs could be significantly higher.

  In addition, cost estimates from other SCR analysis indicate that power demand and electricity costs are likely under-estimated by at least 25% and as much as 100%. Since this is an ongoing annual cost, it has a meaningful impact on the cost effectiveness. For the purposes of the example cost analysis update below, this cost was not changed.

- The operating assumption of 100% run time (8,760 hours) artificially decreases cost effectiveness values. Because T&S operations are designed and operated to ensure delivery during peak natural gas demand, compressor driver utilization is typically much lower than full use. At a minimum, there would be annual time dedicated to unit maintenance and SCR system maintenance and evaluation that would incur at least 5% downtime. This factor is not considered in the example provided below.

Updated assumptions based on the best available information increase SCR costs for these reciprocating engines above the NOx cost effectiveness threshold. For other SCR analysis that may also be considered – e.g., for smaller turbines that do not include DLNC, these same cost issues would apply (with the exception of exhaust pulsation inherent to large lean burn engines). For comparison, the Appendix 25 analysis was revisited with revised

assumptions based on information discussed above, and this example uses relatively conservative assumptions rather than adding more costs and contingencies. For an analysis of the 5,000 hp unit in Appendix 25, the "updated" assumptions include:

- Capital cost of $275/kW (low end of the range discussed above);
- 25-year life and capital recovery factor (20 year basis is recommended as discussed above);
- Nominal increase of operating labor and maintenance costs by 50% (i.e., discussion above indicates labor rates alone would be 50% or more higher);
- Annual operating, maintenance and process QA/QC of $20,000 to address issues such as ensuring / testing injection grid integrity, unplanned maintenance call-out to address reagent system anomalies, and periodic evaluation or testing of reagent control system instrumentation (e.g., periodic calibration or auditing of system performance). This increment is nominal and actual operating contingencies are expected to be much higher.
- **The resulting cost effectiveness for a 5,000 hp lean burn engine is over $4,500 per ton.**

This review concludes that SCR is not cost effective for larger lean burn engines, and the current NOx standards should be retained. A more thorough review and consideration of the most appropriate assumptions (e.g., 20 year rather than 25 year life) would likely result in an even higher cost effectiveness value, well in excess of $3,750 per ton.

6. Confirm that RACT II case-by-case limits are sufficient for RACT III compliance.

The Pipeline Group respectfully requests DEP confirm that where the proposed RACT III NOx limit is equivalent to the RACT II limit and an alternate RACT II limit was approved by the DEP, the approved alternate RACT II limit satisfies RACT III limit/requirements.

To summarize, the primary comments and recommendations from the Pipeline Group follow:

- The schedule should allow at least two years after final rule promulgation to demonstrate compliance.
- More time is needed for submitting petitions for alternative compliance schedules and alternative RACT requests. The schedule for submitting a detailed alternative compliance schedule petition or request for alternative RACT should be one year after final rule promulgation rather than 6 months. If DEP desires initial information on the inventory of sources likely to submit such requests, operators can reply with a streamlined submittal within 6 months that identifies the facilities and affected sources likely to petition for an alternative compliance schedule or alternative RACT.
- The four-stroke rich burn NOx emission standard, which we understand to be erroneous in the Proposed Rule and correct in support documentation, should be corrected in the rule.
- The size category for small turbines should be revised to 1,000 to 4,100 hp because DLNC combustion technology is not available for those units and other options (e.g., SCR) are not cost effective. In addition, the NOx emission standard should be revised for simple cycle turbines from 1,000 to less than 4,100 hp to reflect the manufacturer (i.e., primarily Solar units) warranty.

- For lean burn engines 3,500 hp and larger the SCR cost effectiveness evaluation should be updated to reflect more accurate costs for capital equipment, installation, and operation of retrofit controls. This would conclude that SCR is not cost effective and the NOx emission standard should be revised to reflect that conclusion.

By providing an approximate count of stations and units operated by the six companies in the Pipeline Group that would be affected by the Proposed Rule, we hope that it is clear that a significant challenge lies ahead. This count is only indicative of the companies in the Pipeline Group, and other affected sources would likely increase these counts. If the proposed compliance deadline and schedule for submitting a petition for an alternative compliance schedule or alternative RACT request are retained in the final rule, we request additional discussion with DEP on developing a streamlined process for submittal, review, and approval of petitions for an alternative schedule, as such requests will be common for the units operated by the Pipeline Group.

We believe stakeholder input can inform updates to RACT requirements that ensure a sound technical rule and implementation schedule that fulfills DEP's 2015 Ozone NAAQS obligations. We offer our assistance in helping DEP understand the affected sources for natural gas transmission and storage operations and potential compliance issues such as scheduling.

We appreciate your consideration of these comments and welcome additional dialogue. Please contact me at 847-516-3658 or jamesmccarthy@comcast.net if you have any questions. Thank you.

Sincerely,

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