(Harrisburg hearing) 2

Original: 2302

Comments of Six Natural Gas Pipeline Companies on Proposed Amendments to Pennsylvania Chapter 129 and Chapter 145 NOx Emissions Control Requirements for Stationary IC Engines

Good afternoon. My name is Colin Toole. I am testifying today on behalf of my company, Duke Energy Corporation. In these comments I also represent five other natural gas pipeline companies: Dominion Transmission, El Paso Corporation, Williams Gas Pipelines, National Fuel Gas Supply Corporation, and NiSource. Our companies operate stationary gas reciprocating IC engines to pump natural gas through our pipeline systems to residential, commercial, and industrial customers in Pennsylvania and the Northeast. One of the important roles of our gas transmission system is to provide clean fuel to electric generating plants in the Northeast states. We appreciate the opportunity to speak to the Environmental Quality Board about the proposed amendments to Pennsylvania Code Chapters 129 and 145 that would mandate a second round of retrofit NOx controls on the gas pipeline engines we operate in Pennsylvania.

In my testimony I will address our concern that there are a number of the provisions in the proposed regulations that place an unnecessary compliance burden on the operators of stationary IC engines.

Our experience with natural gas transmission engines is that there is significant variability in the NOx emissions between various engine subcategories, between various makes and models of engines, and even between similar engine models. The variability extends to both uncontrolled emission rates and the effectiveness of various NOx control retrofit.

Because of this variability there is little technical basis for adopting a single stringent NOx emission limit with the expectation that it can be achieved by all affected engines. The technical feasibility of the proposed NOx emission limits has been discussed by another industry representative. Our point here is that attempting a single NOx limit for

these rules is the principle source of unnecessary compliance burden in the proposed amendments.

The amendments proposed by Pennsylvania are inconsistent with recent EPA guidance related to state measures to reduce NOx from stationary reciprocating IC engines. In August 2002, EPA issued implementation guidance related to Phase II of the NOx SIP Call. This guidance recognized the difficulty in setting a single compliance target for the existing heterogeneous population of spark-ignited engines, and recommended that states focus on obtaining a NOx tonnage reduction rather than trying to make all affected engines achieve a single NOx limit.

EPA's memorandum stated that:

> "...individual engines or engine models may respond differently to control equipment,"

Because of the inherent variability of engine NOx emissions, EPA encourages states to,

> "Allow owners or operators of large IC engines the flexibility to achieve the NOx ton per season reductions by selecting from among a variety of technologies or a combination of technologies applied to various sizes and types of IC engines,"

The AQTAC also requested that DEP address the issue of flexibility. Our industry also urges Pennsylvania to incorporate this flexible approach in any additional measures for NOx control from IC engines. The DEP proposals as they now stand, however, would set a single NOx compliance level for all affected spark-ignited engines, whether or not the compliance level is actually achievable for that engine.

Another area of unnecessary compliance burden in the proposed amendments is the requirement in Section 145.114 that compliance using averaging must be demonstrated with a Continuous Emissions Monitoring System, known as a "CEMS". This is in conflict with EPA's August guidance letter, which states that periodic monitoring or

predictive emissions monitoring can be sufficient to demonstrate compliance. Also, CEM systems are very expensive, and frequently unreliable. In rough numbers, the capital cost of a single CEMS is more than $150,000, with operating costs greater than $50,000 per year. We are not aware of any IC engines in Pennsylvania that are required to have CEMS, or of any other source category of comparable size to the IC engine category that has such a burdensome requirement.

There are three other key areas of unnecessary compliance burden that need to be changed in the proposed amendments:

First, the uncertainty associated with the applicability criteria;

Second, permitting issues; and

Third, the schedule for compliance.

The language in Section 145.111 that an engine is included if it exceeded the NOx tonnage threshold during the ozone season in 1995, *or during any year thereafter,* is a problem because it introduces uncertainty into a technical decision. To have the applicability base constantly changing would severely hamper a company's ability to strategically plan retrofit control activities. Also, the proposed rules do not specify the compliance deadlines for newly controlled engines, and these deadlines may trigger this applicability criteria in some future year.

Retrofit NOx control installations are not only expensive, but they also represent an administrative burden. Permitting requirements add months to the time needed to install controls. We urge Pennsylvania to streamline state permitting requirements for facilities that are required to install retrofit NOx controls. As pollution control projects, these permit actions should also be exempt from EPA's major New Source Review. NSR review is expensive and can increase the time required to comply with emission reductions by more than a year. In its August 2002 guidance letter, EPA said that installation of combustion modification technology on natural gas-fired engines can be

presumed to be environmentally beneficial, and therefore such a modification may exempt the engine from undergoing NSR review.

My final area of comment concerns the proposed compliance schedule. A compliance deadline of May 2005 would represent about a two-year period from the date that these amendments would become effective. There are a number of reasons why this schedule is not realistic:

First, these retrofits are not "off the shelf" technology. In each case, the installation of retrofit controls requires site-specific engineering design followed by solicitation of bids.

Second, there is the inevitable time required to apply for and receive construction permits. Our experience with the regional offices is that the department is not meeting its money back guarantee program deadlines of six months for minor construction permits and two years for major modifications.

Third, there is the time needed to actually install and test the NOx control system and other needed modifications to the facility.

For natural gas pipelines there are also other industry-specific problems. First, during some periods of the year, demand for gas simply does not allow us to schedule units to be off-line. In addition, FERC and the PUC require pipelines to provide reliable service of clean burning natural gas for the gas-fired electric generating plants. Second, there are a limited number of experienced vendors capable of installing NOx control systems on older 2-stroke and 4-stroke integral engines. Our previous experience with RACT showed that a three- to four-year schedule is required for installing retrofit NOx controls.

Again, we appreciate the opportunity to speak to the Environmental Quality Board about the proposed amendments to Pennsylvania Code Chapters 129 and 145 regarding NOx emissions from natural gas-fired stationary internal combustion engines. We look

forward to amplifying these remarks in our later submission of written comments, and to answering any questions you may have.

(Pittsburgh hearing)

ORIGINAL: 2302

Comments of Six Natural Gas Pipeline Companies on
Proposed Amendments to Pennsylvania Chapter 129 and Chapter 145
NOx Emissions Control Requirements for Stationary IC Engines

Good afternoon. My name is Steve Burkett. I am testifying today on behalf of my company, Dominion Transmission, Inc. In these comments I also represent five other natural gas pipeline companies: El Paso Corporation, Williams Gas Pipelines, Duke Energy Corporation, National Fuel Gas Supply Corporation, and NiSource. Our companies operate natural gas stationary reciprocating IC engines to pump natural gas through our pipeline systems to residential, commercial, industrial and electrical generation customers in Pennsylvania and other states in the Northeast. We appreciate the opportunity to speak to the Environmental Quality Board about the proposed amendments to Pennsylvania Code Chapters 129 and 145 that would mandate a second round of retrofit NOx controls on the gas pipeline engines we operate in Pennsylvania.

We have three main areas of concern about the proposed amendments:

> First, there are significant mistakes and other problems with the DEP regulatory analysis that prevent it from being acceptable as justification for the proposed regulations;
>
> Second, based on our experience with NOx control for gas IC engines, we believe that the proposed NOx limits are technically infeasible; and,
>
> Lastly, a number of the provisions in the proposed regulations will place an unnecessary compliance burden on the operators of stationary IC engines.

First, I would like to discuss problems with the DEP regulatory analysis.

There are three serious mistakes in the Regulatory Analysis Form prepared by the Department of Environmental Protection (DEP). First, it does not take into account that

the engines that will be impacted have already installed retrofit NOx controls. This means that there is little additional NOx reduction to be gained by the proposed rules, and that the cost-per-ton estimates are wrong. Second, the regulatory analysis for the Chapter 145 proposal is premature in that it is based on an EPA proposal, not a final EPA regulation. Finally, the regulatory analysis mistakes EPA's estimate of *average* control effectiveness with a compliance emission *limit*.

Each of the seventeen gas transmission engines in the five-county Philadelphia nonattainment area, and Pennsylvania's ten "large" engines listed by EPA in the NOx SIP Call Inventory, have installed NOx controls since 1995 under Pennsylvania's NOx RACT rules. As I will discuss later in these comments, it is not technically feasible for all engines to meet the NOx emission levels proposed in these amendments. But even if it were possible to achieve additional control, most of the NOx reduction from these sources has already happened.

For example, an engine that was at 27 grams per brake horsepower-hour in 1990 is now controlled to around 3 grams per brake horsepower-hour. There is little incremental reduction available now in forcing the engine to 1.5 g/bhp-hr. Such an incremental reduction would be about 6% of the total reduction already achieved. For the Chapter 29 proposal this means that there is little potential contribution from the engine population in helping Pennsylvania meet the small NOx shortfall in the Philadelphia nonattainment area SIP.

For the Chapter 145 proposal, the presence of NOx controls on engines which EPA counted as uncontrolled means that it is likely that no additional statewide engine NOx controls are necessary to meet EPA requirements. Finally, we question whether it is reasonable or equitable to require two successive rounds of NOx control for IC engines.

Our next major point is that we believe that it is both unwise and against Pennsylvania regulatory policy to justify the proposed amendments to Chapter 145 with a regulatory analysis based only on an EPA proposal, rather than on an EPA final regulation. DEP's

regulatory analysis depends only on the proposal issued by EPA in February 2002, and does not address two significant actions that EPA has taken since publishing the proposal.

To respond to comments on its proposal, EPA requested states provide additional information on the effectiveness of retrofit NOx controls installed on lean-burn engines. This information has now been placed in EPA's rulemaking docket. This information is relevant to the number that EPA adopts for the average control effectiveness used in calculating the engine portion of state NOx budgets. In its proposal EPA indicated that it would select a number in the range of 1.5 to 3.0 g/bhp-hr. The docket material appears to support a number at the higher end of this range.

A second development is that in August 2002, EPA issued a guidance memorandum on the content of state rules for engines submitted to EPA as a part of the NOx SIP Call. In its memorandum EPA states:

> "Where States choose to regulate large IC engines, EPA encourages the States to allow owners and operators of large IC engines the flexibility to achieve the NOx tons per season reductions by selecting from among a variety of technologies or a combination of technologies applied to various sizes and types of IC engines."

Except for the provision for limited averaging, the proposed amendments are inflexible in requiring all affected engines to meet a single emission limit. The Pennsylvania proposal even removes the flexibility in the OTC model rules, which allowed emission trading.

Our final point of concern with the DEP regulatory analysis is that it mistakes EPA's estimate of the *average* effectiveness of retrofit NOx control for a NOx emission *limit*. EPA is calculating a NOx budget, not writing an engine control regulation. The difference is that for an *average,* roughly half of the engines will be above or below the estimate. An emission limit is far more stringent, in that *all* engines will have to be below the number. In this regard the EPA number is significantly less stringent than the Chapter 145 proposal.

To sum up our comments about the regulatory justification for the Chapter 129 and Chapter 145 proposals:

- At this point DEP does not know the final NOx SIP Call Budget for Pennsylvania;
- DEP does not know the average percent NOx reduction from engines that will be used by EPA in calculating the engine budgets;
- DEP has confused EPA's average NOx reduction figure with a compliance limit; and,
- DEP has proposed a program that is inconsistent with the flexible approach advocated by EPA's recent guidance.

I would like to turn now to the second section of my comments: our concern that the proposed NOx limits are not technically feasible for all engines.

In these proposed amendments, DEP has neither presented data showing that the NOx limits envisioned by the Chapter 129 and 145 amendments are technically feasible, nor countered previous statements of industry concerns about such technical feasibility. Industry presented concerns about technical feasibility of these limits in May 2002. The AQTAC has also asked DEP to address this area. The proposed amendments, however, are not accompanied by any technical data or analysis of technical feasibility, nor is the presumed control technology for compliance identified.

Our second point regarding the technical feasibility of the proposed NOx control levels is that these levels are significantly more stringent than any level that could be derived from EPA's assessments of engine NOx controls. As discussed above, we believe that because of the additional docket data, it is likely that EPA will select 3 g/bhp-hr or another number at the high end of the range as the average for NOx control effectiveness. This is significantly less stringent than the 1.5 g/bhp-hr number proposed by DEP. Secondly, as discussed previously, an average is not as stringent as an emission limit. The DEP NOx limits are therefore significantly more stringent than what will be required by the U.S. EPA.

Our third point regarding technical feasibility is that it is unreasonable to expect additional NOx control when the control technology to be used is the same as that already installed on the affected engines. EPA has taken the position, with which we agree, that the lean-burn engine retrofit control technology to be used in the NOx SIP Call is low emission combustion (LEC). This is the same technology that was used by most of the RACT-controlled engines in Pennsylvania. EPA has found that SCR technology, contemplated in the original NOx SIP Call regulation in 1998, may work on diesels or constant-load modern engines used in electric generation, but that SCR has not been demonstrated on load-following pipeline engines. At this point there is no technical basis identified by DEP showing that existing pipeline engines can achieve 1.5 g/bhp-hr.

The central technical feature of IC engines NOx control is the significant variability in the NOx emissions between various engine subcategories, between various makes and models of engines, and even between similar engine models. This variability extends to both uncontrolled emission rates and the effectiveness of various NOx control retrofits. Because of this variability, there is little technical basis for adopting a single stringent NOx emission limit with the expectation that it can be achieved by all affected engines. This is the rationale for the flexible approach recommended by EPA.

We note that the Chapter 129 amendments set a single control level for spark-ignited gas engines, without differentiating between rich-burn and lean-burn engines. These subcategories require distinctly different control technologies.

In summary, we urge Pennsylvania not to attempt to adopt the proposed NOx limits without further investigation as to their technical feasibility. We recommend that any additional engine control measures, if truly needed, adopt the flexible approach recommended by EPA, focus on reduction of NOx tons rather than apply a single emission rate to all engines, and take into account pre-existing NOx RACT controls on IC engines. If DEP does decide to propose IC engine NOx limits, these should be based on an assessment of the control technologies to be used aligned with the principal engine subcategories to be controlled.

We also believe that final action now on these proposals, in the absence of the EPA regulation, would represent a violation of Pennsylvania's requirement that control measures be no more stringent that those required by the Clean Air Act.

I now turn to our last point: we feel that there are a number of the provisions in the proposed regulations which place an unnecessary compliance burden on the operators of stationary IC engines.

Our experience with natural gas transmission engines is that there is significant variability in the NOx emissions between various engine subcategories, between various makes and models of engines, and even between similar engine models. The variability extends to both uncontrolled emission rates and the effectiveness of various NOx control retrofit.

Because of this variability there is little technical basis for adopting a single stringent NOx emission limit with the expectation that it can be achieved by all affected engines. A single NOx limit for these rules is the principle source of unnecessary compliance burden in the proposed amendments.

The amendments proposed by Pennsylvania are inconsistent with recent EPA guidance related to state measures to reduce NOx from stationary reciprocating IC engines. In August 2002, EPA issued implementation guidance related to Phase II of the NOx SIP Call. This guidance recognized the difficulty in setting a single compliance target for the existing heterogeneous population of spark-ignited engines, and recommended that states focus on obtaining a NOx tonnage reduction rather than trying to make all affected engines achieve a single NOx limit.

EPA's memorandum stated that:

"...individual engines or engine models may respond differently to control equipment,"

Because of the inherent variability of engine NOx emissions, EPA encourages states to,

"Allow owners or operators of large IC engines the flexibility to achieve the NOx ton per season reductions by selecting from among a variety of technologies or a combination of technologies applied to various sizes and types of IC engines,"

The AQTAC also requested that DEP address the issue of flexibility. Our industry also urges Pennsylvania to incorporate this flexible approach in any additional measures for NOx control from IC engines. The DEP proposals as they now stand, however, would set a single NOx compliance level for all affected spark-ignited engines, whether or not the compliance level is actually achievable for that engine.

Another area of unnecessary compliance burden in the proposed amendments is the requirement in Section 145.114 that compliance using averaging must be demonstrated with a Continuous Emissions Monitoring System, known as a "CEMS". This is in conflict with EPA's August guidance letter, which states that periodic monitoring or predictive emissions monitoring can be sufficient to demonstrate compliance. Also, CEM systems are very expensive, and frequently unreliable. In rough numbers, the capital cost of a single CEMS is more than $150,000, with operating costs greater than $50,000 per year. We are not aware of any IC engines in Pennsylvania that are required to have CEMS, or of any other source category of comparable size to the IC engine category that has such a burdensome requirement. Further, at a recent presentation, DEP and the EPA categorically emphasized the fact that CEMs would not be mandatory for sources subject to the Compliance Assurance and Monitoring (CAM) rules. Rather, the DEP and EPA expect companies to ensure compliance through parametric methods. It should also be understood that the IC engines are not part of the Cap and Trade program and hence the use of CEMs for compliance demonstration would be unwarranted. Compliance can be demonstrated through alternate methods already established as part of

current RACT rules (Part 127) or established parametric methods employed by IC engine operators.

There are three other key areas of unnecessary compliance burden that need to be changed in the proposed amendments:

First, the uncertainty associated with the applicability criteria;

Second, permitting issues; and

Third, the schedule for compliance.

The language in Section 145.111 that an engine is included if it exceeded the NOx tonnage threshold during the ozone season in 1995, *or during any year thereafter,* is a problem because it introduces uncertainty into a technical decision. To have the applicability base constantly changing would severely hamper a company's ability to strategically plan retrofit control activities. Also, the proposed rules do not specify the compliance deadlines for newly affected engines, and these deadlines may trigger this applicability criteria in some future year.

Retrofit NOx control installations are not only expensive, but they also represent an administrative burden. Permitting requirements add months to the time needed to install controls. We urge Pennsylvania to streamline state permitting requirements for facilities that are required to install retrofit NOx controls. As pollution control projects, these permit actions should also be exempt from EPA's major New Source Review. NSR review is expensive and can increase the time required to comply with emission reductions by more than a year. In its August 2002 guidance letter, EPA said that installation of combustion modification technology on natural gas-fired engines can be *presumed to be environmentally beneficial,* and therefore such a modification may exempt the engine from undergoing NSR review.

My final area of comment concerns the proposed compliance schedule. A compliance deadline of May 2005 would represent about a two-year period from the date that these

amendments would become effective. There are a number of reasons why this schedule is not realistic:

First, these retrofits are not "off the shelf" technology. In each case, the installation of retrofit controls requires site-specific engineering design followed by solicitation of bids.

Second, there is the inevitable time required to apply for and receive construction permits. Our experience with the regional offices is that the department is not meeting its money back guarantee program deadlines of six months for minor construction permits and two years for major modifications.

Third, there is the time needed to actually install and test the NOx control system and other needed modifications to the facility.

For natural gas pipelines there are also other industry-specific problems. First, during some periods of the year, demand for gas simply does not allow us to schedule units to be off-line. In addition, FERC and the PUC require pipelines to provide reliable service of clean burning natural gas for the gas-fired electric generating plants. Second, there are a limited number of experienced vendors capable of installing NOx control systems on older 2-stroke and 4-stroke integral engines. Our previous experience with RACT showed that a three- to four-year schedule is required for installing retrofit NOx controls.

Again, I appreciate the opportunity to speak to the Environmental Quality Board about the proposed amendments to Pennsylvania Code Chapters 129 and 145 regarding NOx emissions from natural gas-fired stationary internal combustion engines. I look forward to amplifying these remarks in a later submission of written comments, and to answering any questions you may have.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

Original: 2302

AUG 22 2002

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: State Implementation Plan (SIP) Call for Reducing Nitrogen Oxides (NO_x)--Stationary Reciprocating Internal Combustion Engines

FROM: Lydia N. Wegman, Director
Air Quality Strategies and Standards Division

TO: Air Division Director
Regions I-V & VII

The purpose of this memorandum is to provide guidance to States that choose to adopt rules covering stationary reciprocating internal combustion engines (IC engines) as part of their response to the NO_x SIP call. Although the schedule for submittal of the SIPs addressing IC engines under the NO_x SIP call is the subject of on-going rulemaking, I am aware that several States are taking steps toward compliance with the requirements of the SIP call. This memorandum addresses questions on the IC engine source category that have been raised recently by several States as well as by the affected industry in various discussions and meetings. Specifically, EPA is providing guidance on the following issues related to IC engines: State flexibility, periodic monitoring, new source review, and early reductions. The EPA is also clarifying that the guidance in this memorandum reflects EPA's current views and supersede the views underlying the proposed requirements in the Federal implementation plan proposed October 21, 1998 regarding IC engines. This guidance is effective immediately.

State Flexibility

For purposes of complying with the NO_x SIP call, a State is free to choose whatever mix of controls will meet its budget and is free not to regulate IC engines at all. Where States choose to regulate large IC engines, EPA encourages the States to allow owners and operators of large IC engines the flexibility to achieve the NO_x tons/season reductions by selecting from among a variety of technologies or a combination of technologies applied to various sizes and types of IC engines. Flexibility would be helpful as companies take into account that individual engines or engine models may respond differently to control equipment. That is, while certain controls are known to have a specific average control effectiveness for an engine population, some individual engines that install the controls would be expected to be above and some below that average control level, simply because it is an average. Available technologies include combustion modifications, such as pre-combustion chambers or high energy ignition, and post-combustion controls, such as non-selective catalytic reduction.

During the SIP development process the States may establish a NO_x tons/season emissions decrease target for individual companies and then provide the companies with the opportunity to develop a plan that would achieve the needed emissions reductions. The companies may select from a variety of control measures to apply at their various emission units in the State or portion of the State affected under the NO_x SIP call. These control measures would be adopted as part of the SIP and must yield enforceable and demonstrable reductions equal to the NO_x tons/season reductions required by the State. What is important from EPA's perspective is that the State, through a SIP revision, demonstrate that all the control measures contained in the SIP are collectively adequate to provide for compliance with the State's NO_x budget during the 2007 ozone season.

Periodic Monitoring

The NO_x SIP call requires the State to provide for monitoring the status of compliance with any control measures adopted to meet the NO_x budget.[1] Title V air operating permit programs recognize SIP emissions limitations as applicable requirements that must be included in operating permits. Title V permit programs require SIP emissions limitations (and other applicable requirements) in permits to be accompanied by periodic monitoring sufficient to yield reliable data from the relevant time period that is representative of a source's compliance with the emissions limitation. In addition, the compliance assurance monitoring rule[2] may apply to these emissions limitations at certain emissions units at Title V major sources. Acceptable monitoring is not limited to those monitoring methods such as continuous or predictive emissions measurement systems that rely on automated data collection from instruments. Non-automated monitoring may provide a reasonable assurance of compliance for IC engines provided such periodic monitoring is sufficient to yield reliable data for the relevant time periods determined by the emission standard.

Using parametric data may be appropriate, as the source owners and operators in permitting authorities' jurisdiction might already be collecting data that could be used to indicate compliance as part of normal, ongoing operations. When using parametric data to satisfy the periodic monitoring requirement, Title V permits should specify an operating range for each parameter or combination of conditions which will provide a reasonable assurance that the source is in compliance with the underlying requirement. The proposed range should be supported by documentation indicating a site-specific developed relationship between parameter indicator ranges and compliance with the emission limit, although it is not required that the range be set such that an excursion from the range will prove noncompliance with the associated limit. Operational data collected during performance testing is a key element in establishing indicator

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[1]See 40 CFR section 51.121(i).

[2]See 40 CFR part 64.

ranges; however, other relevant information in establishing indicator ranges would be engineering assessments, historical data, and vendor data. The permit should also include some means of periodically verifying the continuing validity of the parameter ranges.

New Source Review (NSR)

Where sources choose to install combustion modification technology to reduce emissions of NO_x at natural gas-fired lean-burn IC engines, EPA believes this action should be considered by permitting authorities for exclusion from major NSR as a pollution control project (PCP). Combustion modification technology for these IC engines is similar to the "low-NO_x burner" technology already listed as a type of project that may be considered for exclusion from major NSR under EPA's PCP exclusion policy.[3] Combustion modification technologies to reduce NO_x emissions at natural gas-fired lean-burn IC engines include, for example, pre-combustion chambers, low emission combustion, high pressure fuel injection, and high energy ignition. It should be noted that, as the air to fuel ratio increases to very lean conditions, carbon monoxide and hydrocarbon emissions may increase slightly as excess air cools combustion temperatures and inhibits complete combustion. Pursuant to EPA's policy, if the source is located in a nonattainment area, the State or the source must provide offsetting emissions reductions for any significant increase in a nonattainment pollutant from the PCP.

Unless information regarding a specific case indicates otherwise, installation of combustion modification technology for the purpose of reducing NO_x emissions at natural gas-fired lean-burn IC engines can be presumed, by its nature, to be environmentally beneficial. This presumption arises from EPA's experience that combustion modification technology is an effective pollution control technology when applied to new and modified natural gas-fired lean-burn IC engines. Therefore, under EPA's PCP exclusion policy, the combustion modification controls may be exempted from NSR provided that the safeguards and procedural steps contained in the exclusion policy memorandum are met.

Early Reductions by IC Engines

For large IC engines, development of the NO_x SIP call budget involved (1) obtaining a 1995 emissions inventory, (2) applying NO_x reasonably available control technology (RACT) controls to major sources in certain areas, including the Ozone Transport Region, (3) projecting emissions to 2007, (4) modifying that subinventory to represent an uncontrolled level of emissions, and (5) calculating a percentage reduction from the uncontrolled 2007 baseline to determine the NO_x tons reduction to include in the States' budget calculations. Because this methodology uses the uncontrolled value, any emission reduction from a large IC engine may be considered for credit toward meeting the NO_x SIP call requirements. Creditable reductions may

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[3]Memorandum from John Seitz to EPA Regional Office Air Directors, "Pollution Control Projects and New Source Review (NSR) Applicability," July 1, 1994.

include emission controls in place during or prior to 1995 as well as after 1995 for the large engines. The applicable control requirements must be adopted as part of the SIP and must yield enforceable and demonstrable reductions.

For smaller IC engines, the first three steps above were completed as part of the NO_x SIP call budget calculation, but the subinventory was not modified to represent an uncontrolled level of emissions, and no percentage reduction was applied to the 2007 baseline in determining the States' budgets. Thus, the 2007 baseline for the smaller IC engines may include controls at IC engines, for example, that were subject to NO_x RACT. Such controls would not be creditable toward meeting the NO_x SIP call reductions because they are part of the 2007 baseline. Where the controls are not part of the 2007 baseline in the NO_x SIP call inventory[4], States may use emission reductions achieved after 1995 at the smaller engines as part of their NO_x SIP call budget demonstration. The applicable control requirements must be adopted as part of the SIP and must yield enforceable and demonstrable reductions.

Federal Implementation Plan (FIP)

On October 21, 1998, EPA proposed FIP requirements for States that failed to meet the NO_x SIP call requirements published on October 27, 1998. In subsequent litigation, the issue of the level of control for IC engines was remanded to EPA. On February 22, 2002 EPA published a proposed rule regarding the NO_x SIP call and level of control for IC engines. The views in the February 22 proposal and in the guidance in this memorandum reflect EPA's current views regarding IC engines and supersede the views underlying the proposed requirements in the FIP with respect to IC engines. For example, although the FIP proposed selective catalytic reduction (SCR) for lean-burn engines, in the February 22 notice we propose there is currently an insufficient basis to identify SCR as a highly cost-effective control technology for lean-burn engines in variable load operations and we propose that low emission combustion technology is a highly cost-effective control technology for the lean-burn engines. As a result, EPA would need to repropose the FIP requirements for IC engines prior to issuing a final FIP concerning the IC engines. A FIP reproposal would need to be consistent with the final rule on the NOx SIP call and control levels for IC engines.

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[4]The 2007 baseline NOx SIP Call emission inventory may be downloaded from the following site: ftp://ftp.epa.gov/EmisInventory/NOxSIPCall_Mar2_2000/

Please feel free to contact me or Doug Grano of my staff at (919) 541-3292 if you have any questions or wish to discuss any issues relating to this memorandum.

cc: Rob Brenner, OAR
Anna Wood, OPAR
Sarah Dunham, OAP
Kevin McLean, OGC
Richard Biondi, OECA
Tom Helms, OPSG

Original: 2302

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December 5, 2002
Clean Air Committee
Nancy F. Parks
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Environmental Quality Board
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Comments on Proposed Rulemaking
Small Sources of NOx, Cement Kilns and Large Internal Combustion Engines
32 PA. B.5178
Environmental Quality Board
25 PA. CODE CHS.121, 129 AND 145

General Comments:

Pennsylvania faces an urgent problem next year when the Philadelphia five county ozone nonattainment area must begin to meet its federally mandated ozone health standard under the Clean Air Act, by registering no ozone season violations of the one hour ozone standard for the first of three years from 2003 through 2005. Philadelphia and its environs wages a constant and sometimes losing battle with ozone emissions, depending on weather conditions and the unfortunate addition of large nitrogen oxides (NOx) sources into the five county area..

The latest efforts by the Pennsylvania Department of Environmental Protection to attempt to ensure that the Philadelphia nonattainment area encompassed a group of five minor control strategies (except perhaps for AIM), called the shortfall

regulations that will supposedly achieve 6 tpd NOx, and 59 tpd VOC (volatile organic chemical) reductions by 2005. These regulations (portable gas canisters, solvent cleaning, AIM coatings, consumer products, mobile equipment refinishing) are also estimated to reduce statewide emissions by 11 tpd NOx, and 135 tpd VOC, according to the data supplied to AQTAC in 2002.

These efforts will not quite achieve enough NOx reductions to see ground-level ozone reductions that will meet the one hour ozone standard by 2005.

The NOx reductions proposed here for small NOx sources, cement kilns and internal combustion engines (ICE) are vital to the remaining strategies that PA DEP can pursue for ozone attainment and the protection of public health. It is therefore imperative that every action that PA DEP, Bureau of Air Quality pursues to achieve the legally mandated ozone reductions by 2005, be emissions reductions that are truly measureable, verifiable, permanent and enforceable. Any attempts to provide unnecessarily extensive flexibility through averaging, the application of allowances trading, or general permits will hurt the state's efforts to achieve cleaner air to breathe for Philadelphia, Montgomery, Bucks, Delaware and Chester counties.

General permits should not be permitted for control of sources so important to the attainment of the ozone standard. Attainment must be able to be guaranteed through enforcement of specific permit details. Some of the sources included in this regulation are ICE that are ostensibly installed for emergency use, but are subsequently used by facilities as peaking units for electricity generation during the ozone season and afterward. These filthy units spew many tons of unregulated pollution, and must be controlled individually. Otherwise, their increasing use will prevent ozone attainment.

There should be no averaging of multiple units emissions. There is a concern for local health effects around these filthy, uncontrolled sources. Each unit should be controlled and enforced individually.
These sources should be considered stationary and not mobile sources, with all applicable triggers for BAT determination (best available technology), NSR (new source review) and PSD (prevention of significant deterioration), technology standards application, and applicable federal permits.

PA DEP data shows reasonable NOx emissions reductions and should be applied statewide and year-round. Statewide, with proper application, we can expect 11

tons per day (tpd) NOx reduced by 2005 during each ozone season, and maintaining that level of reduction through 2007. That's 1683 tons NOx during ozone season. But 4015 tons per year NOx reduced for year-round. Also, 135 tpd VOC reduced by 2005 and 144 tpd reduced by 2007, during ozone season.. But 20655 tons per year VOC reduced for year-round by 2005.

Philadelphia can expect 6 tpd NOx, and 59 tpd VOC, during ozone season or 918 tons NOx per 153 day ozone season and 2190 tpy NOx reduced for year-round.

Pittsburgh – who constantly titters at the edge of ozone violation – can expect 1.41 tpd and 371 tons VOC reduced per year-round strategy from the shortfall regs.

In light of these numbers, it is imperative that these regulations be expanded statewide to provide ozone, NOx and VOC emission reduction benefits to all Pennsylvania citizens.

Public Comments Section I:

Question 1: Should DEP allow averaging of emissions among multiple boilers? NO. Each affected unit should achieve control and enforceable emissions reductions individually in order to help meet the ozone standard, and to provide for the safety of the public health.

Question 3: Should the proposal apply statewide and for the entire year, instead of just for the 153 day ozone season from May 1 through September 30th? YES. There are significant emissions benefits to extending this process. Counties surrounding our worst ozone area in Philadelphia could achieve significant additional reductions, thereby benefiting their own citizens and reducing their NOx, ozone contribution to the Philadelphia five county area. Counties that titter on the edge of ozone violation – like Pittsburgh – will have a viable and reasonable mechanism for achieving further significant reductions in the near future. We expect that as many a one half of Pennsylvania's counties will be declared out of ozone attainment during the next round of enforcement under the new Clean Air Act ozone eight hour standard. This will be a mechanism in their portfolio for reducing emissions in the near future.

- *Statewide, with proper application, we can expect 11 tons per day (tpd) NOx reduced by 2005 during each ozone season, and maintaining that level*

of reduction through 2007. That's 1683 tons NOx during ozone season. But 4015 tons per year NOx reduced for year-round.;

- *Philadelphia can expect 6 tpd NOx, and 59 tpd VOC, during ozone season or 918 tons NOx per 153 day ozone season and 2190 tpy NOx reduced for year-round. .*

**** In light of these numbers, it is imperative that these regulations be expanded statewide and year-round to provide ozone and NOx emission reduction benefits to all Pennsylvania citizens. ****

Regulation Comments:

Chapter 121.1 definitions:

The definition for emergency stationary internal combustion engine precludes that it can be used as a peaking unit and still be classified as an emergency unit and be exempted from this regulation. We support this concept.

Chapter 129:
129.201 (1) (i) and (ii): why are we using a baseline date of 1990 from which to complete a 60% reduction? This will not give us sufficient reductions. We have accurate and EPA certified data from much later: 1998-2000. Under this mechanism using 1990, many sources will avoid applicability. Also, sources having completed some controls will try to make the case that they have achieved a 60% from 1990 already, thereby avoiding applicability. We should use a later baseline such as 1998 - 2000.

129.201 (2)(b): delete this section.

129.202 (a)(1)(i)(A) and (B): use a later baseline.

129.202 (a)(1)(ii)(A) and (B): use a later baseline.

129.202 (c): delete this section. Control each unit individually.

129.203 (b)(1) and (2): use a later baseline.

129.203 (c): delete this section.

145.111 Applicability
145.111(a) the applicability trigger is too high at 153 tons per ozone season or averaging about one ton per day for stationary internal combustion engines. These would be highly use sources, and we must capture those that would only run as little as 50 hours per year.

145.113 Standard Requirements
145.113 (1) and (2): use a later baseline

145.114 Compliance Determination
145.114 (b): delete this section

145.115Reporting, Monitoring and Recordkeeping:
145.115 (a)(1)(ii): any alternative approved by DEP should be "spelled out" in detail in an enforceable permit, available to the public.

Chapter 145, Subchapter C: Cement Kilns

145.143 Standard Requirements
145.143 Of the three alternatives provided by DEP for use in cement kilns, DEEP should require the lowest emitting control process; i.e. the technology that controls the best.

###

Thank you for the opportunity to comment on this proposed regulation.

Sincerely,

Nancy F. Parks

Nancy F. Parks
Chair
Clean Air Committee
Pennsylvania Chapter
Sierra Club

HERCULES CEMENT COMPANY
100 Brodhead Road, Suite 230
Bethlehem, PA 18017-8989
(610) 866-4400
FAX: (610) 866-9430

Original: 2302

December 16, 2002

Environmental Quality Board
P.O. Box 8477
Harrisburg, Pennsylvania 17105-8477

Subject: Title 25, Part I, Subpart C, Article III, Chapter 145, Subchapter C
(Proposed October 18, 2002)

To Whom It May Concern:

Please accept this submittal as comments from Hercules Cement Company (Hercules Cement) regarding the subject proposed regulations. Hercules Cement operates a cement manufacturing facility in Stockertown, Pennsylvania. The purpose of the proposed regulations is to reduce emissions of nitrogen oxide (NOx), a precursor to ozone, so as to reduce levels of ground-level ozone. These measures are part of a specific action plan of the Commonwealth and are stated as being necessary to achieve and maintain the National Ambient Air Quality Standard (NAAQS) for ozone, both within the Commonwealth and regionally.

Hercules Cement welcomes and appreciates the opportunity to provide comment on the proposed requirements. We offer comments on the following issues:

1) Greater flexibility in implementation of alternative control options addressed under proposed §145.143(3) that is consistent with Federal EPA guidance provided in the NOx Federal Implementation Plan (FIP)

2) Implementation of the proposed requirements outside of the ozone season

1. <u>The operating requirements for Cement Manufacturing should also consider emission limits deemed appropriate under the NOx FIP</u>

As currently proposed the operating requirements at §145.143 call for either the installation and operation of a prescribed NOx control technology, or the implementation of an alternate technology that achieves a 30% reduction from the

actual 1990 baseline. These options are too limiting and to some extent are inconsistent with the EPA's 1998 NOx SIP Call.

The EPA NOx SIP call is based on an expectation that cement kilns will reduce NOx emissions, on average, by 30% from a 1990 uncontrolled baseline. The NOx budget allotted to the Commonwealth under the SIP Call is based on that approach. The DEP requirement at §145.143(3) expects alternate controls to achieve a 30% reduction from the actual baseline. We believe this to be inconsistent with the SIP Call, and that the requirement for alternate controls should be assessed from uncontrolled 1990 emission levels.

Furthermore, the requirement for alternate controls is too limiting. EPA has developed a FIP that may be used as guidance by state agencies in preparing responses to the 1998 SIP Call. In addressing alternate controls for cement kilns, the FIP describes implementation of process-specific emission factors that, if achieved, would result in an industry average 30% reduction of NOx emissions. We agree with the Department that it is appropriate to allow a facility the option of demonstrating that the proposed control will meet the EPA's expectation of a 30% decrease in emissions. However, we also believe that the alternate control option should allow for implementation of the FIP emission factors. In incorporating these into the FIP, EPA is stating that achieving these limits with alternate controls would be sufficient for cement kilns in making necessary progress towards attainment of the ozone NAAQS. It would be appropriate for the Department to allow a facility to show that it either achieves at least a 30% decrease of emission, or achieves the expected emission factor.

2. The requirements of proposed §145.143 should not apply outside the "Ozone Season".

The EQB has requested comment on three specific areas, one of which is whether the proposed requirements should apply for the entire year. Hercules Cement believes that it is inappropriate to impose the proposed requirements year-round, for at least two reasons.

First, as stated in the Background and Purpose of the proposed rule, the purpose of the rulemaking is to ultimately reduce ground-level ozone such that attainment of the ozone NAAQS can be achieved within the Commonwealth and in the regional "downwind" areas. The non-attainment issue at hand has been proven to be a concern annually only in the period May 1 through September 30. Implementation of the proposed regulations during that period may provide some contribution to achieving the stated purpose. Continuing to impose the requirements beyond that annual period would neither serve the stated purpose, nor serve to address any other known air quality non-attainment issue. Therefore, year-round imposition of the proposed requirements is unnecessary.

Second, Section 4004.2(b) of the Pennsylvania Air Pollution Control Act restricts the EQB's authority to promulgate rules such that Pennsylvania rules cannot be more stringent than what is required under the federal Clean Air Act. This restriction on the EQB's rulemaking authority does not apply if the EQB determines that the more stringent state rule is reasonably necessary in order for the Commonwealth to: (1) achieve or maintain compliance with a NAAQS; (2) satisfy Clean Air Act requirements as they specifically relate to the Commonwealth; (3) prevent an imposition of sanctions; or (4) comply with a final decree of a Federal court. Hercules Cement does not believe that year-round applicability of the proposed requirements fits within this limited exception. In the absence of any existing and proven air quality concern covered by the Clean Air Act, imposition of the proposed requirements year-round would be contrary to the Air Pollution Control Act.

Again, Hercules Cement appreciates the opportunity to provide comment on the proposed regulations. If there are any questions, Please direct them to me at the above address.

Sincerely,

Daniel B. Nugent
Director, Environmental Affairs

DBN

cc: K. Williams

Original: 2302

(Conshohocken Hearing)

PROPOSED RULEMAKING
25 PA. CODE CHS. 121, 129 AND 145
Small Sources of NOx, Cement Kilns and Large Internal Combustion Engines

NOVEMBER 25, 2002
DEPARTMENT OF ENVIRONMENTAL PROTECTION
CONSHOHOCKEN, PA

STATEMENT OF THE AMERICAN REF-FUEL COMPANY

Good afternoon. My name is Derek Grasso, and I am Manager of Regulatory Affairs for American Ref-Fuel Company. Today I offer an overview of our company's preliminary comments concerning the Department's proposed rulemaking for additional ozone season nitrogen oxide control requirements for boilers at Section 129.201. Ref-Fuel will be submitting more detailed written comments to the Environmental Quality Board by the December 26, 2002 comment deadline.

Ref-Fuel owns and operates the Delaware Valley Resource Recovery Facility in Chester. This facility combusts about 3,000 tons per day of municipal solid waste from surrounding communities and converts it to about 80 MW of electricity. The primary purpose of the facility and others like it is the safe and environmentally sound reduction of solid waste volume by 90%, and the recovery of energy from that waste. In addition to reducing landfill space requirements, the facility also provides other environmental benefits including the offsetting of fossil fuel use with an indigenous fuel, reduction of greenhouse gas emissions, and the recovery of metals from ash for recycling. Ref-Fuel operates under contract with surrounding Pennsylvania communities, some of which would directly bear at least half of any costs associated with new regulatory requirements.

As you are aware, the proposed section would expand recent ozone-season NOx control measures to boilers which combust materials other than fossil fuels. This includes municipal waste-to-energy facilities such as ours. Ref-Fuel believes that waste-to-energy facilities should not be subject to the proposed rule. We base this belief on issues of technical viability, cost, and the relative environmental benefit gained. Waste-to-energy is already required to meet NOx emission limits established by the USEPA under recent Maximum Achievable Control Technology standards that were derived specifically for these types of boilers. It is unclear at this time if add-on NOx control equipment is technically viable on the type of boilers used at Ref-Fuel's Chester facility. Even if it is viable, the estimated cost would be prohibitive, especially in comparison to costs borne by facilities whose sole purpose is power production. Power production is only one purpose and benefit of waste-to-energy, and new standards applicable to them should take into account the entire environmental picture, not just focus on one aspect.

Ref-Fuel would be happy to work with the Department to determine an appropriate NOx emission level for waste-to-energy. Our technical input, and that of

other stakeholders, has often been requested when agencies are developing new regulations of such significance.

Waste-to-energy boilers are not designed, constructed nor operated in the same manner as fossil fuel units, because their fundamental purpose is different. Their primary purpose is the conversion of relatively heterogeneous, wet municipal solid waste to energy. They do not use a uniform and consistent fuel and as a result, there are technical and economic considerations that are unique to these types of units. Due to the nature of the fuel, the units are less thermally efficient than dedicated power production facilities, requiring larger amounts of excess air and less densely-packed heat recovery systems. These boilers also do not have access to NOx reduction options available to other types of units such as low-NOx burners, fuel switching during the ozone season, or load curtailment. It appears, however, that the assumption has been made that one emission standard is appropriate for all boilers, regardless of purpose, fuel or design, and that the only classification that matters is one of size.

It should be noted that new Federal standards specifically for waste-to-energy facilities went into effect in 2000. These "maximum achievable control technology", or MACT standards, are equivalent to the performance of the top 12% of all similar units in the country. NOx is one of the parameters regulated under this standard. These new emission standards were promulgated after years of technical review of the capabilities of these unique types of facilities, and they represent the best level of control that can be reasonably attained.

Ref-Fuel's Chester facility has six combustion units, each less than 250 MMBtu/hr in size. The units are designed such that their NOx emission levels are actually very low compared to many other waste-to-energy facilities, but they are still higher than the proposed limit of 0.20 lb/MMBtu. We are not aware of anyone who has considered additional NOx control on units such as ours because the emission levels have been recognized to already be quite low for municipal solid waste combustion. In order to achieve the proposed limit, Ref-Fuel currently believes that the facility would require the installation of selective catalytic reduction (SCR). No waste-to-energy facility in the U.S. is equipped with SCR, in part because its cost has been shown to be prohibitively expensive for such relatively small facilities. Our units are much smaller than fossil fuel units that typically use SCR. SCR on units such as ours may also require flue gas reheating, presumably with natural gas, which would be ironic and given the renewable nature of our fuel. SCR is typically considered only for large dedicated power production facilities where economies of scale apply. Installing SCR on a small 80 MW plant would be economically out of line with the requirements for large fossil fuel-fired facilities. We have not yet had the opportunity to develop detailed cost estimates. However, based upon general information we believe the cost of an SCR installation to be roughly equivalent to more than $10,000 per ton of NOx removed. Recall that one-half of this cost would be the responsibility of one Pennsylvania county.

Overall, we also question the fairness and environmental benefit of imposing emission limits more stringent than recent maximum achievable control technology

standards for NOx on waste-to-energy. We believe that one size does NOT fit all with regard to emission standards. The Department should encourage energy production from a wide range of fuels, including waste, and should establish stringent yet achievable emission standards appropriate for each. Many large, dedicated natural-gas or oil-fired plants require little or no add-on NOx control to achieve current limits. Those that do require add-on control have appropriate economies of scale. However, this rule would likely require the most expensive control technology available on waste-to-energy plants that produce a fraction of the electricity that these large fossil fuel plants do, penalizing them and the communities that use them for providing an alternative, local energy source. Although we recognize that ozone attainment is the goal of the proposal, it should not be viewed in isolation from the other unique environmental purposes and benefits that waste-to-energy provides. These include reductions in landfill space, fossil fuel use, and greenhouse gas emissions.

Thank you for your time today. As I stated earlier, Ref-Fuel will be submitting written comments by the close of the public comment period on December 26. I would be happy to take any questions.

Original: 2302

BEFORE THE

ENVIRONMENTAL QUALITY BOARD

* * * * * * * * *

IN RE: Proposed Amendment of PA Air Quality Regulations

BEFORE: William Hall, Chairman
(Senior Energy Conservation Analyst)
Sharon F. Trostle, (Regulatory Coordinator)

LOCATION: South Central Regional Office
90 Elmerton Avenue
Harrisburg, PA 17101

HEARING: Monday, November 18, 2002

WITNESSES: Colin Toole, Steve Burkett

* * * * * * * * *

REPORTER: AMY K. OLSON

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I N D E X

E X H I B I T S

Number	Description	Page Offered
	NONE OFFERED	

P R O C E E D I N G S

MR. HALL:

I would like to welcome you to this Environmental Quality Board public hearing on the proposed amendments to Pennsylvania's air quality regulations and the State Implementation Plan.

My name is William Hall and I am Senior Energy and Conservation Analyst with the Public Utility Commission. I represent Glen Thomas who is Chairman of the Public Utility Commission and a member of the Environmental Quality Board.

With me this afternoon from the Department of Environmental Protection are Terry Black, the Chief of Regulation and Policy Development Section, Bureau of Air Quality.

Sharon Trostle, Regulatory Coordinator with the Policy Office.

Lief Erickson, Air Quality Program Manager, South Central Regional Office.

Also other DEP staff present today are Michele Tate and Patricia Grim, Executive Policy Specialists with the Policy Office.

The proposed rule making on which we will hear testimony today is a proposed two-part rule that

would establish additional ozone season control requirements in Chapter 129 and new ozone season requirements in Chapter 145 of Title 25 of the Pennsylvania Code. The proposed rulemaking would reduce emissions of nitrogen oxides from small sources in Bucks, Chester, Delaware, Montgomery and Philadelphia Counties and from large stationary internal combustion engines and cement kilns across Pennsylvania.

The proposed amendments for small NOx sources in Chapter 129 are based on model rules developed by the Ozone Transport Commission to achieve and maintain the health-based one hour ozone standard. The amendments are consistent with recommendations of the Southeast Pennsylvania Ozone Stakeholders Working Group and propose a compliance date of May 1st, 2005.

The proposed amendments for the large stationary internal combustion engines and cement kilns in Chapter 145 are based upon proposals and models developed by the Environmental Protection Agency to reduce ozone transport throughout the eastern United States under the NOx State Implementation Plan Call. The proposed rulemaking represents Pennsylvania's fair share in reducing transported air pollution and also proposes a

compliance date of May 1st, 2005.

The regulations, if approved, will be submitted to the EPA as a revision to the State Implementation Plan. The State Implementation Plan, which is a requirement of the Clean Air Act is a plan that provides for implementation, maintenance and enforcement of the National Ambient Air Quality Standards in Pennsylvania.

Notice of the Environmental Quality Board's proposal was published in the Pennsylvania Bulletin on October 19th, 2002, with a public comment period that is scheduled to close on December 26th, 2002. In addition to this hearing today, two other public hearings will be conducted on this rulemaking on November 20th, 2002 in DEP's Southwest Regional Office in Pittsburgh and on November 25th, 2002 in DEP's Southeast Regional Office in Conshohocken. Notice of this proposed rulemaking was also published in various newspapers across the state.

In order to give everyone an equal opportunity to comment on this proposal, I would like to establish the following ground rules:

I will first call upon the witnesses who have preregistered to testify at today's hearing as included on the schedule of

witnesses. After hearing from these witnesses, I will provide any other interested parties with the opportunity to testify as time allows.

Oral testimony is limited to five minutes for each witness.

Organizations are requested to designate one witness to present testimony on it's behalf.

Each witness is asked to submit three written copies of his or her testimony to aid in transcribing the hearing. Please hand me your copies prior to presenting your testimony.

Please state your name and address for the record prior to presenting your testimony.

We would also appreciate your help in spelling names and terms that may not be generally familiar so the transcript can be as accurate as possible

Interested persons may also submit written comments in addition to or in place of oral testimony presented here. All comments must be received by the EQB by December 26th, 2002. Comments

should be addressed to the Environmental Quality Board, P.O. Box 8477, Harrisburg, Pennsylvania 17105-8477. Comments can also be e-mailed to RegComments@state.pa.us.

All comments received at today's hearing and in writing by December 26th will be considered by the EQB and become part of a comment/response document prepared for the EQB's review prior to taking final action on this regulation.

Anyone interested in a transcript of this hearing may contact the reporter here today to arrange to purchase a copy.

I will now call the first witness. Do we have any witnesses yet? Are there any members of the public who would like to testify? I call a recess.

SHORT BREAK TAKEN

MR. HALL:

Our first witness is Steve Burkett from Dominion Transmission. Go ahead, Mr. Burkett.

MR. BURKETT:

Good afternoon. My name is Steve Burkett. I'm here to testify today on behalf of my company, Dominion Transmission, as well as representatives from other gas companies, including El Paso Corporation, Williams Gas Pipelines, Duke Energy

Corporation, National Fuel Supply Corporation and NiSource. Our companies operate natural gas stationary reciprocating engines that are used to pump natural gas through our pipeline system to residential, commercial, industrial and electrical generation customers throughout the State of Pennsylvania and other states in the Northeast. We appreciate the opportunity to speak to the Environmental Quality Board today about the proposed amendments to the Pennsylvania Code Chapters 129 and 145 that would mandate a second round of retrofit NOx controls for gas pipeline engines that we operate in Pennsylvania.

We have three main areas of concern about the proposed amendments:

The first is that there are significant mistakes and other problems with the DEP regulatory analysis that prevent it from being acceptable as justification for proposed regulations;

The second based on our experience with NOx control for IC engines, we believe that the proposed NOx limits are technically infeasible;

And third, a number of the provisions in

the proposed regulations will place an unnecessary compliance burden on the operators of stationary IC engines.

In my testimony I'll address the first two points and Mr. Colin Toole from Duke Energy will address the third area.

There are three mistakes in the regulatory analysis form prepared by the Department of Environmental Protection. First, it does not take into account that the engines that will be impacted by the changes have already been retrofitted with NOx controls. This means that there is little additional NOx reduction to be gained from the proposed rules, and that the cost-per-ton estimates are incorrect. Second, the regulatory analysis for Chapter 145 proposal is premature in that it is based on an EPA proposal, not a final EPA regulation. And finally, the regulatory analysis mistakes EPA's estimate of average control effectiveness with a compliance emission limit.

Each of the 17 gas transmission engines in the five-county Philadelphia nonattainment area, and Pennsylvania's ten large engines that are listed in EPA in the NOx SIP Call Inventory have installed NOx controls since 1995. This was done under the

Pennsylvania's NOx RACT rules. As I will discuss later in these comments, it's not technically feasible for all the engines to meet the NOx emissions levels proposed in the amendments. But even if it were possible to achieve the additional control, most of the NOx reduction from these sources has already happened.

For example, an engine that has an emission rate of 27 grams per brake horsepower-hour in 1990 is now controlled to around 3 grams per brake horsepower-hour. There's little incremental reduction available now in forcing the engines to 1.5 grams per brake horsepower-hour. Such an incremental reduction would be about six percent of the total reduction that's already been achieved. For the Chapter 129 proposal this means that there is little potential contributions from the engine population in helping Pennsylvania meet the small NOx shortfall in the Philadelphia nonattainment area SIP.

For the Chapter 145 proposal, the presence of NOx controls on engines which EPA counted as uncontrolled means that it is likely that no additional state-wide engine NOx controls are necessary to meet the EPA requirements. Finally, we question whether it is reasonable or equitable to

require two successive rounds of NOx controls for IC engines.

Our next major point is that we believe it is both unwise and against Pennsylvania regulatory policy to justify the proposed amendments to 145 with a regulatory analysis based only an EPA proposal rather than on EPA's final regulations. DEP's regulatory analysis depends on the proposal issued by EPA in February of 2002 and does not address two significant actions that EPA has taken since the proposal.

To respond to the comments on its proposal, EPA requested that states provide additional information on the effectiveness of retrofit NOx controls installed on lean-burn engines. This information has now been placed in EPA's rulemaking docket. This information is relevant to the number that EPA adopts for average control effectiveness used in calculating the engine portion of the state NOx budget. In the proposal, EPA indicated that it would select a number in the range of 1.5 to three grams per brake horsepower-hour. The docket material appears to support a number at the higher end of this range.

A second development is that in August 2002, EPA issued a guidance memorandum on the content

of the state rules for engines submitted to EPA as part of the NOx SIP Call. One of the handouts that I gave you was that EPA guidance document. In the memorandum, EPA states:

> "Where States choose to regulate large IC engines, EPA encourages the States to allow owners and operators of large IC engines the flexibility to achieve NOx tons preseason reductions by selecting from among a variety of technologies or a combination of technologies applied to various sizes and types of IC engines."

Except for the provision for limited averaging, the proposed amendments are inflexible and they require all affected engines to meet at a single emission limit. The Pennsylvania proposal even removes the flexibility that's in the OTC model rules, which allowed emission trading.

Our final point of concern with the DEP regulatory analysis is that it mistakes EPA's estimate of average effectiveness for NOx control for NOx emission limit. EPA is calculating a NOx budget, not writing an engine control regulation. The difference is that for an average, roughly half the engines will be above or below the estimate. An emission limit is

far more stringent in that all engines will have to be below that number. In this regard, the EPA number is significantly less stringent than the Chapter 145 proposal.

To sum up our comments about the regulatory justification for Chapter 129 and 145 proposals:

At this point, DEP does not know the final NOx SIP Call budget for Pennsylvania.

DEP does not know the average percent NOx reductions from engines that will be used by EPA in calculating the engine budgets.

DEP has confused EPA's average NOx reduction figure with a compliance limit; and,

DEP has proposed a program that is inconsistent with the flexible approach that was advocated by EPA's recent guidance.

I would now like to turn our concern that the proposed NOx limits are not technically feasible for all engines.

Our first point about technical feasibility of the proposed amendments is that the DEP has neither presented data showing that NOx limits envisioned by the Chapter 129 and 145 amendments are

technically feasible, nor countered previous statements of industry concern about such technical feasibility. Industry presented concerns about technical feasibility of these limits in May 2002. The Air Quality Technical Advisory Committee has also asked DEP to address this area. The proposed amendments, however, are not accompanied by any technical data or analysis of technical feasibility, nor is the presumed control technology for compliance identified.

Our second point regarding technical feasibility of the NOx control levels is that these levels are significantly more stringent than any level that could be derived from EPA's assessment of engine NOx controls. As discussed above, we believe that because of the additional docket data, it is likely that EPA will select a 3 g/bhp-hr or another number at the high end of the range for NOx control effectiveness. This is significantly less stringent than the 1.5 g/bhp-hr number proposed by DEP. Secondly, as discussed previously, an average is not as stringent as an emission limit. The DEP NOx limits are therefore significantly more stringent than what we think will be required by the U.S. EPA.

Our third point regarding technical

feasibility is that it is unreasonable to expect additional NOx control when the control technology to be used is the same as that already installed on the affected engines. EPA has taken the position, with which we agree, that lean-burn engine retrofit control technology to be used in the NOx SIP Call is low emission combustion. This is the same technology that was used by most of the RACT-controlled engines in Pennsylvania. EPA has found that SCR technology, contemplated in the original NOx SIP Call regulation in 1998 may work on diesels or constant-load modern engines used in electric generation, but that SCR has not been demonstrated on load-following pipeline engines. At this point, there is no technical basis identified by DEP that existing pipeline engines can achieve 1.5 g/bhp-hr.

The central technical feature of IC engines NOx control is the significant variability in the NOx emissions between various engine subcategories between various makes and models of engines and even between similar engine models. This variability extends to both uncontrolled emission rate and the effectiveness of various NOx control retrofits. Because of this variability, there is little technical basis for adopting a single stringent NOx emission

limit with the expectation that it can be achieved by all affected engines. This is the rationale for the flexible approach recommended by EPA.

We note that in Chapter 129 amendments, a single control level for spark-ignition engines, without differentiating between rich-burn and lean-burn engines. These sub categories require distinctly different control technology.

In summary, we urge Pennsylvania not to adopt the proposed NOx limits without further investigation as to their technical feasibility. We recommend that any additional engine control measures if truly needed, adopt the flexible approach recommended by EPA, that they focus on reduction of NOx tons rather than apply a single emission rate to all engines and take pre-existing NOx RACT controls on the IC engines. If DEP does decide to propose IC engine NOx limits, these should be based on an assessment of the control technologies to be used aligned with the principal engine subcategories to be controlled.

We believe that final action now on these proposals, in the absence of the EPA regulation, would represent a violation of Pennsylvania's requirement that control measures be no more stringent than those

required by the Clean Air Act.

Thank you for your time this afternoon. I'd be glad to answer any questions that anyone may have.

MR. HALL:

Thank you. Any questions from the Department?

MS. TROSTLE:

No.

MR. HALL:

None. Okay. Thank you. Our next witness is Colin Toole from Duke Energy Gas Transmission. Mr. Toole?

MR. TOOLE:

Good afternoon. My name is Colin Toole and I am testifying today on behalf of my company, Duke Energy Gas Transmission. In these comments, I also represent five other natural gas pipeline companies, Dominion Transmission, El Paso Corporation, Williams Gas Pipelines, National Fuel Gas Supply Corporation and NiSource. Our companies operate stationary gas reciprocating IC engines to pump natural gas through our pipeline systems to residential, commercial and industrial customers in Pennsylvania and the northeast. One of the important

roles of our gas transmission system is to provide clean fuel to electric generating plants in the northeast states. We appreciate the opportunity to speak to the Environmental Quality Board about the proposed amendments to Pennsylvania Code Chapters 129 and 145 that would mandate a second round of retrofit NOx controls on the gas pipeline engines we operate in Pennsylvania.

In my testimony, I will address our concern that there are a number of provisions in the proposed regulations that place an unnecessary compliance burden on the operators of stationary IC engines.

Our experience with natural gas transmission engines is that there's significant variability in the NOx emissions between various engine subcategories, between various makes and models of engines and even between similar engine models. The variability extends to both uncontrolled emissions rates and the effectiveness of various NOx control retrofits.

Because of this variability, there is a little technical basis for adopting a single stringent NOx emission limit with the exception that it can be achieved by all affected engines. The technical

feasibility of the proposed NOx emissions limits has been discussed already by Steve Burkett. Our point here is that attempting a single NOx limit for these rules is the principal source of unnecessary compliance burden in the proposed amendments.

The amendments proposed by Pennsylvania are inconsistent with the recent EPA guidance related to state measures to reduce NOx from stationary reciprocating IC engines. In August 2002, EPA issued implementation guidance related to phase II of the NOx SIP Call. This guidance recognizes difficulty in setting a single compliance target for the existing heterogeneous population of spark ignited engines and recommended that states focus on obtaining a NOx tonnage reduction rather than trying to make affected engines achieve a single NOx limit.

EPA's memorandum stated that:

"... individual engines or engine models may respond differently to control equipment."

Because of the inherent variability of engine NOx emissions, EPA encourages states to,

"Allow owners or operators of large IC engines the flexibility to achieve the NOx ton per season reduction by selecting from

among a variety of technologies or a combination of technologies applied to various sizes and types of IC engines."

The Air Quality Technical Advisory Committee also request that the DEP address the issue of flexibility. Our industry also urges Pennsylvania to incorporate this flexible approach in any additional measures for NOx control from IC engines. The DEP proposals as they now stand, however, would set a single NOx compliance level for all affected spark-ignited engines whether or not the compliance level is actually achievable for that engine.

Another area of unnecessary compliance burden in the proposed amendments is the requirement in Section 145.114, that compliance using averaging must be demonstrated with the continuous emissions monitoring system known as a "CEMS". This is in conflict with EPA's August guidance letter which states that periodic monitoring or predictive emissions monitoring can be sufficient to demonstrate compliance. Also, CEM systems are very expensive and frequently unreliable. In rough numbers, the capital cost of a single CEMS is more than $150,000 with operating costs greater than $50,000 per year. We are not aware of any IC engines in Pennsylvania that are

required to have a CEMS or any other source category of comparable size to the IC engine category that has such a burdensome requirement.

There are three other key areas of unnecessary compliance burden that need to be changed in the proposed amendments:

First the uncertainty associated with the applicability criteria;

Second, permitting issues; and

Third, the schedule for compliance.

The language in Section 145.111 that an engine is included if it exceeded the NOx tonnage threshold during the ozone season in 1995 or during any year thereafter is a problem because it introduces uncertainty into technical decision. To have the applicability base constantly changing would severely hamper a company's ability to strategically plan retrofit control activities. Also, the proposed rules do not specify the compliance deadlines for newly controlled engines. And these deadlines may trigger this applicability criteria in some future year.

Retrofit NOx control installations are not only expensive, but they also represent an administrative burden. Permitting requirements add months to the time needed to install controls. We

urge Pennsylvania to streamline state permitting requirements for facilities that are required to install retrofit NOx controls. As pollution control projects, these permit actions should also be exempt from EPA's major New Source Review. New Source Review is expensive and can increase the time required to comply with emission reductions by more than a year. In its August 2002 guidance letter, EPA said that installation of combustion modification technology on natural gas fired engines can be presumed to be environmentally beneficial and, therefore, such a modification may exempt the engine from undergoing new source review.

My final area of comment concerns the proposed compliance schedule. The compliance deadline of May 2005 would represent about a two-year period from the date these amendments will become effective. There are a number of reasons why this schedule is not realistic.

First, these retrofits are not "off the shelf" technology. In each case, the installation of retrofit controls requires site-specific engineering design followed by solicitation of bids.

Second, there is the inevitable time

required to apply for and receive construction permits. Our experience with the regional office is that the Department is not meeting it's money back guarantee program deadlines of six months for minor construction periods and two years for major modifications.

Third, there is the time needed to actually install and test the NOx control system and other needed modifications to the facility.

For natural gas pipelines, there are also other industry specific problems. First, during some periods of the year, demand for gas supply does not allow us to schedule the units to be off line. In addition, FERC and the PUC require pipelines to provide reliable service of clean-burning natural gas for the gas-fired electric generating plants. Second, there are a limited number of experience vendors capable of installing NOx control systems on older two-stroke and four-stroke integral engines. Our previous experience with RACT showed that a three to four schedule is required for installing retrofit NOx controls.

Again, we appreciate this opportunity to

speak to the Environmental Quality Board about the proposed amendments to Pennsylvania Code Chapters 129 and 145 regarding NOx emissions from natural gas stationary internal combustion engines. We look forward to amplifying these remarks in our later submission of written comments and to answering any questions you may have. Thanks again for your time. Does anybody have any questions?

MR. HALL:

Thank you. Department?

MS. TROSTLE:

No.

MR. HALL:

Do we have any other witnesses? I hereby adjourn this meeting at 1:50 p.m.

* * * * * * * *

HEARING CONCLUDED AT 1:50 P.M.

* * * * * * * *

C E R T I F I C A T E

I HEREBY CERTIFY THAT THE FOREGOING PROCEEDINGS WERE REPORTED BY ME AND THEREAFTER REDUCED TO TYPEWRITING AND THAT THIS TRANSCRIPT IS A TRUE AND ACCURATE RECORD THEREOF.

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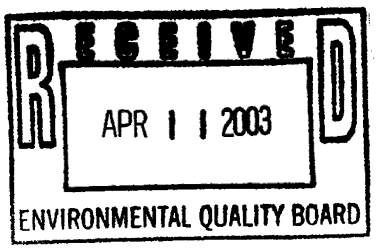

April 8, 2003

Ms. Michele Tate
Environmental Quality Board
P.O. Box 8477
Harrisburg, PA 17105-8477

Dear Ms. Tate:

On December 26, 2002 we submitted comments on behalf of Dominion Transmission Inc., Duke Energy Corporation, Tennessee Gas Pipeline Company, National Fuel Gas Supply Corporation, NiSource, and Williams Gas Pipelines on proposed regulations that would revise 25 Pennsylvania Code Chapters 129 and 145 (Small Sources of NO_x, Cement Kilns and Large Internal Combustion Engines). We have found a typographical error in the comments and request that the attached page 11 be inserted in the comments in place the current page 11 that contains the error. Please distribute the correction as appropriate.

Because of the typographical error, the comments appear to say that the natural gas pipeline industry, after substantially reducing NOx emissions in the Philadelphia ozone non-attainment area after the installation of low emission controls through the RACT program, now have NOx emissions of 11.13 tons per ozone season day (tpd). Actually the pipelines have reduced emissions by 12 tons per ozone season day and now have emissions of only approximately 1.83 tpd. The seventeen engines in the Philadelphia area have already been equipped with low emission controls, and it is generally not technically feasible to reduce emissions further on the lean burn engines used in gas transmission. Even if further reductions were feasible, the NOx savings for Pennsylvania of requiring a 1.5 g/bhp-hr NOx level for these engines would be only approximately 0.96 tpd. Attached, for your information, is a speadsheet showing the emissions numbers.

On behalf of the six companies listed above, thank you very much for your help in this matter.

Sincerely,

Margaret Walther

Margaret Walther
Coerr Environmental Corporation

cc: Ms. Joyce Epps
Mr. Jim Stoner
Mr. Richard Fox
Mr. Mark E. Brown
Mr. Wayne Crawford
Mr. Pat Henderson

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On October 26, 2001, EPA granted final approval of Philadelphia's attainment demonstration plan, (66 FR 54143) even though the state had not yet adopted additional control measures for further VOC and NOx reductions. EPA said that it was appropriate to grant final approval for two reasons. First, the agency noted that Pennsylvania had submitted enforceable commitments to adopt additional measures for VOC and NOx reductions. Importantly, EPA pointed out that the enforceable commitments in this case are used to achieve a level of reductions, not to adopt a specific control strategy. Second, EPA argued that the further reductions represent only a small portion of the attainment plan. The NOx reductions needed represent only a very small fraction of the total needed for attainment, and there are "sufficient untapped sources of emission reductions that could achieve the minimal levels of additional reductions." (66 FR 54155)

The industry operates 17 reciprocating IC engines in the Philadelphia area which would be subject to the Chapter 129 provisions because they are over 1,000 hp and they are not included in the Chapter 145 regulations. Each of these engines is already controlled under NOx RACT rules. This includes engines that were installed new with LEC and retrofit installation of LEC on existing engines. On average, the NOx RACT LEC control has moved these 17 engines from an uncontrolled NOx emission rate of roughly 18 g/bhp-hr to about 3 g/bhp-hr, resulting in a 82% reduction in emissions of about 12 tons per day. We do not believe that it is technically feasible to achieve lower emissions levels than those already being achieved by the application of LEC technology to these engines. Because these engines have already been controlled there is no incremental NOx reduction that can reasonably be expected from the engine provisions of the DEP proposed revisions to Chapter 129.

The "benefit" of this rule in helping the Philadelphia area reach ozone attainment is also overstated because the Department has not evaluated the disbenefit of the regulatory approach contained in this proposal. The Department has only analyzed possible reduction in NOx when applied to engines. However, the LEC technology reduces NOx but increases VOC and CO emissions. VOC and CO are also ground level ozone precursors.

We understand and are advised by EPA Region III, that the Philadelphia non-attainment is "VOC limited," meaning that modeling has shown that reducing VOC emissions is more important than reducing NOx emissions for controlling ground level ozone. For example, EPA recently approved DEP's request to allow use of VOC Emission Reduction Credits (ERCs) in place of NOx ERCs in the Philadelphia non-attainment area. A copy of J. Katz's letter to the DEP dated

Natural Gas Transmission Engines in the Philadelphia Ozone Non-Attainment Area

County	Manufacturer	Model	Power	Air Fuel	Cycle Type	Control	NOx Pre-Control (tpd)	NOx Post-Control (tpd)	Reduction	% Reduction	NOx: Assume Reduction to 1.5 g/bhp-hr (tpd)	Actual Engine Utilization	Actual tpd	Actual NOx Savings if 1.5 g/bhp-hr is required (tpd)
CHESTER C(	Ingersoll-F	410 KVGB	1250	Lean Burn	4 Stroke	PSC	0.95	0.10	0.85	90%	0.05	0%	0.00	0.00
CHESTER C(	Ingersoll-F	410 KVGB	1250	Lean Burn	4 Stroke	PSC	0.95	0.10	0.85	90%	0.05	0%	0.00	0.00
CHESTER C(	Ingersoll-F	36 KVSRA	1300	Lean Burn	4 Stroke	LEC	0.59	0.10	0.49	83%	0.05	48%	0.05	0.02
CHESTER C(	Ingersoll-F	36 KVSRA	1300	Lean Burn	4 Stroke	LEC	0.59	0.10	0.49	83%	0.05	51%	0.05	0.03
CHESTER C(	Ingersoll-F	36 KVSRA	1300	Lean Burn	4 Stroke	LEC	0.59	0.10	0.49	83%	0.05	49%	0.05	0.03
CHESTER C(	Clark	TLAD-10	4000	Lean Burn	2 Stroke	LEC	1.28	0.26	1.01	79%	0.11	2%	0.00	0.00
CHESTER C(	Clark	TCV-10	3400	Lean Burn	2 Stroke	LEC	0.81	0.26	0.55	68%	0.13	91%	0.24	0.11
CHESTER C(	Clark	BA-8T	2050	Lean Burn	2 Stroke	LEC	1.08	0.18	0.90	83%	0.10	74%	0.14	0.08
CHESTER C(	Clark	BA-8T	2050	Lean Burn	2 Stroke	LEC	1.08	0.16	0.93	85%	0.08	82%	0.13	0.06
CHESTER C(	Clark	BA-8T	2050	Lean Burn	2 Stroke	LEC	1.08	0.14	0.94	87%	0.06	75%	0.11	0.05
CHESTER C(	Clark	BA-8T	2050	Lean Burn	2 Stroke	LEC	1.08	0.09	0.99	92%	0.01	75%	0.07	0.01
CHESTER C(	Clark	BA-8T	2050	Lean Burn	2 Stroke	LEC	1.08	0.19	0.89	82%	0.11	83%	0.16	0.09
CHESTER C(	Clark	BA-8T	2050	Lean Burn	2 Stroke	LEC	1.08	0.16	0.92	85%	0.08	77%	0.12	0.06
CHESTER C(	Clark	TLA-6	2100	Lean Burn	2 Stroke	LEC	0.81	0.22	0.58	72%	0.14	86%	0.19	0.12
CHESTER C(	Clark	TLA-6	2100	Lean Burn	2 Stroke	LEC	0.81	0.21	0.60	74%	0.13	79%	0.16	0.10
CHESTER C(	Clark	TLA-6	2100	Lean Burn	2 Stroke	LEC	0.81	0.21	0.59	74%	0.13	85%	0.18	0.11
CHESTER C(	Clark	TLA-6	2100	Lean Burn	2 Stroke	LEC	0.81	0.19	0.61	76%	0.11	87%	0.17	0.09
					TOTAL		**15.50**	**2.80**	**12.70**		**1.43**		**1.83**	**0.96**