

Shepherd, Natalie

From: Nancy F. Parks [nfparks2@verizon.net]
Sent: Tuesday, April 11, 2006 9:21 PM
To: EP, RegComments
Subject: Comments on PA Clean Vehicles Program proposal

Please accept these comments in response to EQB PA Bulletin request for comment on the PADEP proposed Clean Vehicles Program. We request that the EQB approve the Clean Vehicles Program as proposed by PADEP. Thank you.

Nancy F. Parks
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"Nothing that I can do will change the structure of the universe. But maybe, by raising my voice I can help the greatest of all causes - goodwill among men and peace on earth" - Albert Einstein

"Citizenship is what makes a republic; monarchies can get along without it. What keeps a republic on its legs is good citizenship." (Mark Twain)

Testimony/Comments of Nancy F. Parks
Pa. Bulletin Doc No 06-221, Pennsylvania Clean Vehicles Program

In Pennsylvania we need all the help that we can get to reduce air pollution, either from our vehicles or from our businesses.

Within our ozone smog and acid deposition pollution reduction programs here in Pennsylvania, we now control the "low hanging fruit" of nitrogen oxides pollution [NOx] and volatile organic chemical pollution [VOC], i.e. the NOx and VOC that is easiest and cheapest to control from the largest existing sources like power plants and our own motor vehicles. That low hanging fruit controls only about 25% of the all the NOx emitted & measured here in Pennsylvania. Therefore, there still remains a large inventory of ozone smog and fine particle soot forming pollution that is, frankly, readily available to make the lives and the health of all Pennsylvanians, miserable.

The Clean Air Act protects all Americans by requiring that dangerous pollutants be controlled with – in statutory language - "... an ample margin of safety". PADEP did the right thing when they chose to evaluate and consider the best possible programs for reducing dangerous air pollutants from cars, pickup trucks and minivans. They chose to examine and to propose for adoption, the best possible pollution reduction program that can help Pennsylvania provide that ample margin of safety for our citizens with chronic respiratory disease and other vulnerable populations.

HEALTH DATA:

The *State of the Air 2005: Pennsylvania* report¹ by the American Lung Association detailed the risks for health sensitive and vulnerable persons from mobile source based air pollution for both urban and rural counties in Pennsylvania.

Allegheny County/Pittsburgh:	22,977 persons with pediatric asthma 270,004 population under 18
Beaver County/Pittsburgh:	3,284 pediatric asthma 38,589 population under 18
Centre County:	2,024 pediatric asthma 23,785 population under 18
Lancaster County:	10,610 pediatric asthma

¹ *State of the Air 2005: Pennsylvania*. http://lungaction.org/reports/SOTA05_groupsatrisk.html?geo_area_id=42

Philadelphia County:

124,674 population under 18
 31,627 pediatric asthma
 371,643 population under 18

The *State of the Air 2005: Pennsylvania* report finds severe impacts from Pennsylvania's air pollution sources:

County	Total Pop	Under 18	65 & Over	Pediatric Asthma	Adult Asthma	Chronic Bronchitis	Emphy-sema	Cardiovascular Disease	Diabetes
ADAMS	96,456	22,411	13,291	1,907	6,174	3,016	1,151	25,358	5,078
ALLEGHENY	1,261,303	270,004	217,804	22,977	82,896	41,689	17,481	368,535	74,455
ARMSTRONG	71,659	15,312	12,842	1,303	4,718	2,394	1,025	21,444	4,340
BEAVER	178,697	38,589	32,785	3,284	11,739	5,975	2,589	53,812	10,910
BERKS	385,307	91,777	55,732	7,810	24,483	12,038	4,707	102,518	20,562
BLAIR	127,175	27,514	21,987	2,341	8,343	4,200	1,767	37,198	7,522
BUCKS	613,110	147,975	78,537	12,593	38,812	19,090	7,252	161,332	32,273
CAMBRIA	149,453	29,948	28,803	2,549	10,017	5,100	2,231	46,019	9,354
CENTRE	141,636	23,785	14,722	2,024	9,765	4,415	1,344	32,484	6,387
CHESTER	457,393	113,346	54,488	9,646	28,680	13,963	5,143	115,901	23,141
CLEARFIELD	82,874	17,549	14,166	1,493	5,460	2,740	1,142	24,183	4,874
CUMBERLAND	219,892	45,732	32,924	3,892	14,544	7,160	2,805	60,875	12,260
DAUPHIN	253,388	60,605	35,964	5,157	16,091	7,971	3,135	68,513	13,728
DELAWARE	554,432	133,673	82,585	11,376	35,116	17,334	6,877	148,408	29,871
ERIE	279,966	66,832	39,838	5,687	17,794	8,725	3,389	73,849	14,847
FRANKLIN	133,155	30,705	22,040	2,613	8,561	4,287	1,777	37,707	7,596
GREENE	40,398	8,381	6,048	713	2,673	1,319	518	11,281	2,263
LACKAWANNA	210,458	44,241	39,558	3,765	13,916	7,047	3,050	63,179	12,814
LANCASTER	482,775	124,674	68,520	10,610	29,877	14,702	5,768	125,415	25,165
LAWRENCE	93,408	20,715	17,590	1,763	6,094	3,106	1,362	28,070	5,705
LEHIGH	320,517	74,634	49,538	6,351	20,525	10,194	4,105	88,281	17,747
LUZERNE	313,528	63,119	59,591	5,371	20,963	10,638	4,614	95,665	19,383
LYCOMING	118,438	26,125	19,166	2,223	7,721	3,847	1,572	33,517	6,760
MERCER	119,895	26,920	21,310	2,291	7,787	3,931	1,678	34,964	7,094
MONTGOMERY	770,747	180,761	114,157	15,383	49,222	24,407	9,696	210,392	42,205
NORTHAMPTON	278,169	61,564	42,058	5,239	18,090	8,939	3,543	76,603	15,417
PERRY	44,188	10,698	5,433	910	2,796	1,373	516	11,530	2,309
PHILADELPHIA	1,479,339	371,643	199,941	31,627	92,158	44,636	16,821	372,307	74,207
TIOGA	41,557	9,127	6,801	777	2,714	1,353	555	11,764	2,382
WASHINGTON	204,286	43,348	35,349	3,689	13,477	6,812	2,877	60,537	12,253
WESTMORELAND	368,224	76,388	66,993	6,501	24,460	12,470	5,387	112,292	22,773
YORK	394,919	92,804	53,761	7,898	25,204	12,403	4,775	105,327	21,078
TOTAL	10,286,742	2,370,899	1,564,322	201,763	660,870	327,274	130,652	2,819,280	566,752

SCIENCE, AIR POLLUTION & HUMAN HEALTH

Additionally, science peer-reviewed and recently published information of the role of air pollution in human disease has greatly increased our understanding of the danger of that role.

A May 2004 paper published in *Environmental Health*² concluded that particulate air pollution [PM] - in exposing all elements of our population, including infant exposure to coarse PM pollution in 23 U.S. metropolitan areas including Philadelphia - prompted the recognition of the need for air pollution related infant mortality to be treated as a major public health risk by EPA, particularly in its assessments of the benefit's of reducing PM air pollution under the Clean Air Act [CAA]. In this study, as much as 6% of infant mortality can be attributed with 95% confidence to PM air pollution. PM pollution is a significant factor in mobile source pollution, particularly from diesel fueled vehicles.

The September 2005 paper entitled: "*Fine Particulate Matter National Ambient Air Quality Standards: Public Health Impact on populations in the Northeastern U.S.*"³ in *Environmental Health Perspectives* [EHP] determined that more protective PM pollution limitations such as are used in California and Canada will protect the health of 84%-100% of the population of the northeastern U.S. with the ample margin of safety that is required under the CAA. The current EPA program protects only 16% of citizens in the northeastern United States.

Analyses of ground-level ozone smog levels has shown that ozone smog is associated with increased risk of premature mortality. A new critical scientific study has investigated whether there is any existing threshold level below which ozone does not adversely affect human mortality. A published study of 98 U.S. communities in April 2006⁴ showed that there is no safe level that can be identified for ground-level ozone smog. If all areas of the U.S. met current EPA ozone control standards, there still remains a 0.30% increase in human mortality for every 10 ppb [part per billion] increase in daily ozone level. The study concluded, "*Interventions to further reduce ozone pollution would benefit public health, even in regions that meet current regulatory standards and guidelines.*" Clearly Pennsylvania's current ozone non-attainment areas do not meet federal regulatory attainment standards, and without new efforts such as the PADEP proposed Clean Vehicles Program, Pennsylvania will neither meet those limits, nor ever expect to protect human health.

The Penn Environment report of April 2006 entitled, "*Air Pollution and Public Health in Pennsylvania*"⁵ should be required reading for EQB members. Table 1,2, 7 & 8 summarize the extent of damage that we currently see in Pennsylvania to human health. A level that, as you will see, will only get worse over time.

² *Air pollution attributable postneonatal infant mortality in U.S. metropolitan areas: a risk assessment study.* 2004. R. Kaiser, I. Romieu, SD. Medina, J. SDwartz, M. Krzyzanowski, and Nino Kunzli. *Environmental Health: A Global Access Science Source* 2004:3.

³ *Fine Particulate Matter National Ambient Air Quality Standards: Public Health Impact on populations in the Northeastern U.S.* 2005. Philip. R.S. Johnson and J.J. Graham. *EHP* 113(9): 1140-1147. September 2005.

⁴ *The Exposure-Response curve for ozone and risk of mortality and the Adequacy of current ozone regulations.* 2006. M.L. Bell, R.D. Peng and F. Dominici. *EHP* 114(4): 532-536. April 2006.

⁵ *Air Pollution and Public Health in Pennsylvania*. 2006. T. Madsen and N. Wilcox. *Penn Environment*. April 2006.

Table 1: Public Health Damage from Soot in Pennsylvania (PM₁₀)

Health Effect	Estimated Cases	Range
Premature Death (Adults)	5,000	3,000 – 6,600
Respiratory Hospital Admissions	5,000	3,900 – 5,900
Cardiovascular Hospital Admissions	4,000	2,300 – 6,200
New Cases of Chronic Bronchitis	4,000	460 – 7,500
Asthma Attacks	500,000	210,000 – 790,000
Missed Work Days	800,000	740,000 – 870,000
Restricted Activity Days	8 million	6.9 million – 9.2 million
Increased Symptom Days	20 million	12 million – 40 million

Table 2: Public Health Damage from Smog in Pennsylvania (Ground-level Ozone)

Health Effect	Estimated Cases	Range
Respiratory Hospital Admissions	7,000	5,100 – 9,000
Asthma Attacks	300,000	150,000 – 420,000
Restricted Activity Days	1 million	1.0 million – 1.8 million
Increased Symptom Days	4 million	1.8 million – 5.5 million

Table 8: Air Pollution Damage to Children's Health in Pennsylvania

Health Effect	Estimated Cases	Range
Infant Deaths (Post-neonatal) (Soot)	20	12 – 22
Asthma ER Visits (Smog)	3,000	400 – 7,300
Acute Bronchitis (Soot)	40,000	21,000 – 51,000
Asthma Attacks (Soot)	150,000	120,000 – 180,000
Missed School Days (Soot)	900,000	700,000 – 1 million

The estimates in Table 8 deal mostly with soot. However, smog also contributes to asthma attacks, missed school days and other respiratory problems, and may be a cause of asthma. Although we did not quantify these impacts for technical reasons, they are an important indicator of how smog damages children's health.

Table 7: Annual Missed Work Days and Increased Respiratory Symptom Days Caused by Air Pollution in Pennsylvania

Health Effect	Estimated Cases	Range
Restricted Activity Days (Smog)	1 million	1.0 million – 1.8 million
Increased Symptom Days (Smog)	4 million	1.8 million – 5.5 million
Missed Work Days (Soot)	800,000	740,000 – 870,000
Restricted Activity Days (Soot)	8 million	6.9 million – 9.2 million
Increased Symptom Days (Soot)	20 million	12 million – 40 million

As you can see from the four tables above from the Penn Environment report, we continue to zero in upon the express effects of leaving this problem of emitted air pollution unresolved.

I present additional data below that describes how the problem of mobile source pollution is increasing.

EXTENT OF THE PROBLEM:

I would like to describe the extent of the problem from motor vehicle pollution for a number of both urban and rural areas of the state.

The most recent emissions inventory with certified data is from the year 2002. The emitted pollution in Pennsylvania from motor vehicles is shown below by table for each of the major pollutants for highway and off-highway pollution – i.e. construction, agriculture, mining and recreation - and their percent of total for the particular area of the state. This is actual measured and verified pollution, and not an estimated and modeled SIP – i.e. state implementation plan – inventory.

Nitrogen oxides [NOx] in tpy or tons per year:

STATE	PHILADELPHIA	LANCASTER	PITTSBURGH	STATECOLLEGE
Highway = 346,471 tpy	H = 62,734 tpy	H = 12,620 tpy	H = 58,609 tpy	H = 6281 tpy
Off Highway 123,519 tpy	OH = 38,069 tpy	OH = 3605 tpy	OH = 37,803 tpy	OH = 750 tpy
H = 39.5% OH = 14.1% of total all statewide NOx	H = 44% OH = 26% of total Philly NOx	H = 56% OH = 16% of total Lancaster NOx emitted	H = 27% OH = 17% of total Pittsburgh- Beaver NOx	H = 63% OH = 8% of total rural State College NOx

Volatile Organic Chemicals [VOC] in tpy or tons per year:

STATE	PHILADELPHIA	LANCASTER	PITTSBURGH	STATECOLLEGE
Highway = 176,090 tpy	H = 33,900 tpy	H = 7361 tpy	H = 29,384 tpy	H = 2666 tpy
Off Highway 84,776 tpy	OH = 20,381 tpy	OH = 4321 tpy	OH = 14,824 tpy	OH = 454 tpy
H = 31.5% OH = 15.2% of total all statewide VOC	H = 26% OH = 15.7% of total Philly VOC	H = 22% OH = 12.9% of total Lancaster VOC emitted	H = 21.7% OH = 11% of total Pittsburgh- Beaver VOC	H = 13.7% OH = 3.4% of total rural State College VOC

Fifteen years ago, I had EPA & PADER data which told me that mobile sources accounted for about 30% – 35% of statewide deposition of ozone precursor emissions. Now, the information

that I believe is important from these tables above is that NOx and VOC pollution emitted in Pennsylvania has increased, is very large in quantity and that it is now ubiquitous in our environment and in our air. It is, in fact, a significant detriment to human health in both rural and urban areas.

TRENDS IN INCREASED DRIVING

PennDOT's website provides scant information on the driving habits of Pennsylvanians and no information on the current number of registered vehicles. But, we can glean the following trends in driving habits and subsequent increases in air pollution. Throughout the state of Pennsylvania, there are 5,556,311 workers over 16 years. 76.5% of all commuters are driving alone, and 10.4% are carpooling. 5.2% use public transportation. This 76.5% is greater than the average for entire U.S. Mean travel time to work in PA is 25.2 minutes. Therefore, each work day there are $[0.765 \times 5,556,311]$ people – or 4,250,578 people – who drive alone twice a day spewing air pollution from vehicles for greater than 50 minutes. Unfortunately, the trend toward driving more miles in single occupant vehicles is still increasing. PennDOT data show "VMT" – vehicle miles traveled – has increased 72% from 1980 – 2000.⁶

The federal CAA provides a measure of flexibility for states to tailor their air pollution control measures to their specific needs. And rightly so. States like California have been in the forefront of understanding their air pollution, admitting to the problem and taking progressive measures to protect the health of their citizens. One additional study focuses on the risk to school children from proximity to busy highways.⁷ While European reports have shown an association between respiratory symptoms and the proximity of homes to traffic, this study strove to identify any links between local air quality nearby to schools, traffic & pollutants, and health symptoms. Looking at PM fine soot and NOx nitrogen oxides at ten school sites, the scientists found an association between children's respiratory symptoms, traffic and traffic generated air pollution. In an area of relatively good air quality, the researchers found that the closer the schools were to traffic, the worse were the children's respiratory symptoms.

These statistics show the immediate importance of reducing air pollution from vehicles ASAP - as soon as possible.

We need pollution controls on our vehicles to help with controlling ground-level ozone smog, acid rain, & tiny soot particles. We need these pollution controls that PADEP has proposed to meet our federal obligations under the 1990 Clean Air Act Amendments; a law that is truly complex, but also just as truly successful in reducing air pollution over the long term. I have devoted the last 24 years of my professional life to cleaning up air pollution in Pennsylvania especially, and across the nation. I fought for inspections to clean up and maintain our personal cars. I fought for the federal Tier II standards. But now we have the opportunity to join with 10 other states – many in the northeast, like New York and New Jersey to support a regulation that is better than Tier II; this regulation will get us to the point where we need to be; where we must be; the point where we are protecting the health of our most vulnerable citizens → with an "ample margin of safety" as is required under the fore-thinking Clean Air Act.

⁶ www.dot.state.pa.us/ITS/ne/document/Northeastern%20Architecture%20Final%20Report.pdf

⁷ *Traffic Related Air Pollution Near Busy Roads: The East Bay Children's Respiratory Health Study*. J.J.Kim, S. Smorodinsky, M. Lipsett, B.C. Singer, A.T.Hodgson, and B.Ostro. Am. J. Respir. Crit. Care Med.2004.

INVESTIGATION OF NATURAL RESOURCE PROBLEMS ASSOCIATED WITH AIR POLLUTION IN RURAL PENNSYLVANIA:

Above I showed the relative increase in mobile source air pollution identified in rural Pennsylvania. Beyond the endangerment of human health by ozone smog and its precursor pollutants, NOx and VOC's, we have peer-reviewed and published scientific data describing the changes that have been wrought in our forested ecosystems, one of top three economic resources for the state of Pennsylvania. Mortality rates as high as 90% among sugar maple trees in the northern tier counties have been documented by the work of Dr. Bill Sharpe, and also by Horsley et al. 2000⁸. Field experiments adding dolomitic limestone to damaged forested sites has shown that trees experienced a positive response to the addition of calcium and magnesium through increased tree crown vigor, growth, flower and seed production, and a decrease in mortality, as long as the dolomitic limestone (Ca and Mg) was applied. Now, the basis for these high death rates has been described in a recent paper published in the journal of the Soil Science Society of America⁹. At all four sites on the Allegheny Plateau, there were significant decreases in calcium and magnesium concentrations – think of these nutrient elements as 'food' for trees - and a measured increase in more soil acidity at all depths of the soil profile over the last 30 years from 1967 until 1997. At the same time, aluminum increased at all depths and in all soil horizons below the surface, and this was identified as a long term trend. These drastic impacts to soil fertility are not just a harbinger of tree and forest death for the future, but are responsible for current levels of almost total tree mortality among the sugar maple (*Acer saccharum*) species in areas of northern Pennsylvania. Mobile source emissions continue to be a significant contribution to this problem.

Finally, the control of air pollutants from motor vehicles here in Pennsylvania is both necessary and vital to the health of our human populations, and in addition will help to begin the relief and recovery from soil acidification for important forest tree species and the soils that nourishes them.

In summary then: these are the important elements of this problem:

- there still remains a large inventory of ozone smog and fine particle soot forming pollution that is readily available & will make the lives and the health of all Pennsylvanians miserable;
- Clean Air Act protects all Americans by requiring that dangerous pollutants be controlled with "... an ample margin of safety";
- State of the Air 2005: Pennsylvania report finds severe impacts from Pennsylvania's air pollution sources;
- infant exposure to coarse PM pollution in 23 U.S. metropolitan areas including Philadelphia prompted the recognition of the need for air pollution-related infant mortality to be treated as a major public health risk by EPA;
- 6% of infant mortality can be attributed with 95% confidence to PM air pollution;
- protective PM pollution limitations such as are used in California and Canada will protect the health of 84%-100% of the population of the northeastern U.S.;

⁸Factors Associated with decline disease of sugar maple on the Allegheny Plateau. Horsley, S.B., R.P. Long, S.W. Bailey, R.A. Hallett, and T. Hall. 2000. Can. J. For. Res. 30: 1365-1378.

⁹Thirty Years of Change in Forest Soils of the Allegheny Plateau, Pennsylvania. S.W. Bailey, S.B. Horsley, and R.P. Long. Soil Sci. Soc. Am. J. 69: 681-690 (2005).

- A published study of 98 U.S. communities showed that there is no safe level that can be identified for ground-level ozone smog;
- There is a 0.30% increase in human mortality for every 10 ppb [part per billion] increase in daily ozone level. The study concluded, "*Interventions to further reduce ozone pollution would benefit public health, even in regions that meet current regulatory standards and guidelines.*" ;
- without new efforts such as the PADEP proposed **Clean Vehicles Program**, Pennsylvania will neither meet pollution limits, nor ever expect to protect human health;
- NOx and VOC pollution emitted in Pennsylvania has increased, is very large in quantity and is now ubiquitous in our air. It is a significant detriment to human health in both rural and urban areas;
- each work day there are 4,250,578 people who drive alone twice a day spewing air pollution from vehicles for greater than 50 minutes. Unfortunately, the trend toward driving more miles in single occupant vehicles is still increasing. PennDOT data show "VMT" – vehicle miles traveled – has increased 72% from 1980 – 2000;
- In an area of relatively good air quality, researchers found that the closer the schools were to traffic, the worse were the children's respiratory symptoms; and
- Research on Pennsylvania forests show drastic impacts to soil fertility that are responsible for current levels of almost total tree mortality among the sugar maple (*Acer saccharum*) species in areas of northern Pennsylvania.

The Sierra Club asks you to approve the best possible regulation to control air pollution from motor vehicles; i.e. the **PADEP Clean Vehicles Program regulation as presented to the EQB.**

Thank you for the opportunity to comment.

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APPENDIX 1:

Now, I will briefly address some myth and misinformation that I have seen and heard spread throughout Pennsylvania.

Tier II is now a weaker air pollution program:

The newly proposed PA Clean Vehicles Program will provide an extra 10% reduction in annual emissions of smog-forming pollutants from cars and trucks by 2025—above and beyond what EPA's weaker federal program would accomplish. Smog is the air pollution that triggers asthma attacks and a host of other respiratory problems. PADEP also found that the Clean Vehicles Program will result in a 15% reduction in annual emissions of the carcinogen benzene from cars and trucks by 2025—above and beyond what EPA's federal program would accomplish. With smog triggering 370,000 asthma attacks each year in Pennsylvania, and more than 2/3 of our counties violating federal clean air standards, we need stronger—not weaker—pollution standards to protect the public's health.

Clean cars cost more.

There is currently no price difference between cars sold today in Pennsylvania and cleaner cars (meeting the more stringent standards) already being sold in other states such as New York. This was affirmed by PADEP in its testimony before the state Senate on December 13th, 2005.

Pennsylvania would need to import specialized fuel to meet the Clean Vehicles Program standards.

Nothing in the Pennsylvania Clean Vehicles Program would require the importation of specialized fuel from California, and vehicles meeting the more stringent standards will not somehow break down if Pennsylvania fuel is used in the cleaner vehicles instead of fuel from California. We know this because cleaner vehicles meeting the more stringent standards are already on the road in New York, and are using the same gasoline we use in Pennsylvania.



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